

Spread User's Manual

SPReAD Version 0.90

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Preface

SPReAD stands for Statistics, Policy and Research Archive and Database.

As the Philippine Health Insurance Corporation (PHIC) recognizes the demand for data and information by various stakeholders of the National Health Insurance Program, a system for easy retrieval of accurate and reliable information is urgently needed. Among the most critical is the demand for information on policy development, policy research and policy advocacy. While some data and information are available, these are not in user-friendly formats and not easily retrievable.¹

This system was proposed by Corporate Planning of PHIC to address this demand for information. **SPReAD** is, in fact, envisioned to support the information needs, not only of PHIC but also of external stakeholders as an archive of internal and external data.

The development team of **SPReAD** is composed of the following people:

1. Herman Tolentino, MD (project consultant) – Lead application developer, database designer, system documentation
2. Alvin Marcelo, MD (project consultant) - Project Manager, systems analyst, SQL query designer
3. Inocencio Maramba, MD, MSc (project consultant) – Network specialist and systems analyst
4. Ariel Betan – Application developer, data warehouse designer
5. Eric Patdu – Application developer, JPGRAPH specialist

SPReAD was developed using the following open-source² tools:

1. Debian Linux (version) <http://www.apache.org>
2. Apache Web Server <http://www.apache.org>
3. PHP Scripting Language <http://www.php.net>
4. MySQL database <http://www.mysql.com>
5. JPGRAPH <http://www.aditus.nu/jpgraph>

Limitations

SPReAD is a functional prototype software that has not been thoroughly tested in the real environment considering the time allotted for development (20 days). Bugs in the meantime, can be reported to Dr. Herman Tolentino (hermant@i-manila.com.ph).

¹ Management Sciences for Health, Context and Background, Specifications for Short Term Technical Activity Project - SPREAD

² Open-source: <http://www.opensource.org/>

This application is proof-of-concept that data from different sources can be integrated into a single platform for storage and analysis. It is not a full-blown decision-support application as it is intended. However, it uses software conventions that easily enable scaling up to extreme operating conditions with software and hardware upgrade.

Getting Started

Some Important Conventions in this Manual

Menu items are displayed in this font: **MENU ITEM**.

Tips are displayed in this font: *TIPS*.

Buttons are displayed like this: **button**.

Figures are displayed in this font: **Figure**. All figures are in Appendix A.

Prerequisites For Use of Software

It is assumed that the end-user knows basic Windows PC operation, web browser use, and Excel spreadsheet basics.

What do I need to access SPReAD?

SPReAD can be accessed using a browser (Internet Explorer 4+, Netscape Navigator 4+) on a personal computer running Windows or Linux that is connected to the PHIC intranet or the Internet. It is assumed that you will have a user account in the **SPReAD** web site given to you by Corporate Planning staff.

What are cookies?

SPReAD uses cookies to store personalized information. Make sure your browser has cookies enabled.

What's next?

Once you have the software and hardware mentioned above, just type: <http://spread.mudfish.info/index.php> (or the URL where it resides in the intranet) in the URL box as shown below. Then be ready to type in your login name and password in the Login box as shown in **Figure 1**. You should see the web site as shown. When you have successfully logged in you should see **SPReAD** as in **Figure 2a** for Administrators and **Figure 2b** for ordinary users, Appendix A.

Troubleshooting

If there are problems getting to the site, check the following:

1. Your computer's network connection (Are you connected the intranet or the Internet?)

2. Your login name and password (Have you been given one by Corporate Planning?)
3. URL Spelling (Did you mistype it?)
4. Site could be down (Administrators doing maintenance, power failure, etc.) – check with MIS

Account Configuration

To change your account information, go to **MY ACCOUNT** (See Figure 2b).

Security

Security for **SPReAD** is implemented at the application level and server level. At the application level, you are required to type your login/password combination to access the site. Users are allowed to alter only their own account information.

Important Steps

Internet/PHIC Intranet Connection

Make sure your computer is already connected to the Internet or PHIC intranet. Check with your network administrator before carrying out subsequent steps in using the application.

Login

When logging in, make sure your Caps Lock key is not enabled. **SPReAD** uses case-sensitive login names and passwords. After typing in your login name and password in the appropriate boxes, click on the **Login** button.

Logout

SPReAD contains sensitive information, which is not for public consumption. Do not forget to click the **Logout** button when you are through with your session. Otherwise, there might be unauthorized viewing of sensitive information by other personnel in your workstation while you are away.

Menu Reference

HOME

Clicking on this menu link brings you to the front page, where the news items are. This menu link is available whether you are logged in or not.

M.O.R.

Clicking on this menu link brings you to the form for uploading MORs³. This menu link becomes available only after logging in. After selecting the **region**, **month** and **year**, click on the **Browse** button to pick out the file from your computer. Clicking on the **Submit** button will send the file to the **SPReAD** web site and into the **SPReAD** database (Figure 3).

MESSAGES

Clicking on this menu link shows you system messages. These messages are of two types:

1. Sent by you (you as sender)
2. Sent to you (you as recipient)

Each row corresponds to one message and details include Sender/Receiver, Date/Time message was sent and Subject (Figure 4). To read messages, click on the Message Subject under the SUBJECT column. After clicking on a message subject, you will then have the option to reply to it or not. Click on the **Reply** button to reply to a message.

FILES

This section contains files that fall under 6 categories:

1. Circulars
2. Forms
3. Memoranda
4. Office Orders
5. Policy Instruments
6. Special Orders

Each row (Figure 5) corresponds to one file and contains the following details:

1. Region
2. Date of publication
3. Filename (Clicking on FILENAME allows you to download the file.)
4. Title
5. Who uploaded the file
6. For whom is the file
7. From whom is the file

Files can be searched using the **SEARCH** Tool (see below).

SEARCH

This is the **SPReAD** Document Search (Figure 6). Using this tool, you can look for any document in the file repository⁴.

STATS

This is the **SPReAD** section where all the graphs displaying standard information are found (Figure 7). Basically these graphs are generated in real-time from the backend database and should change with MOR submissions, and database feeds from the system databases.

³ Monthly Operational Reports in CSV format coming from regions

⁴ File collection

ADMIN

This is the administration section of **SPReAD**. For more details read Spread Administration below.

HELP

This is the help section of **SPReAD**. It is in the format of frequently asked questions, with the question links most often clicked found at the top of the list⁵.

ABOUT SPREAD

This is information about how to get started with **SPReAD**.

Spread Administration

NOTE: This section is for use by owners of administrator⁶ accounts only (**Figure 8**).

User Account Management

SPReAD uses simple account management based on two levels: administrator and ordinary user. User features that can be controlled with account management web site language⁷ and administrator function.

Data Dictionary Management

Links in the Admin Menu covered by this topic are:

1. **Region** – These are Region codes used throughout the site.
2. **File Cat** – These are file categories used by **Files**.

Content Management

Links in the Admin Menu covered by this topic are:

1. **News** – Updates news posted on the front page. There are two news categories: Private and Public.
2. **Files** – This section lists files available for download and viewing.
3. **Help** – This section updates the question list for online **Help** on the main menu.

Content management on the **SPReAD** web site covers 4 main areas:

1. MOR File Upload. When a MOR file is uploaded it changes the Region Stats box on the front page as well as graph content in the **STATS** section.

⁵ This is a software-driven feature and changes the order of question display if other question links are clicked more than the others.

⁶ A user who has explicitly been given authority to manage the spread web site.

⁷ Prototype stage (proof-of-concept)

2. News content. News content is displayed on the front page the moment the publish flag is checked in the Admin **News** section.
3. Messages – Though not part of the Admin Menu, messages are part of the dynamic content of the **SPReAD** web site.
4. Documents. These are the files uploaded in the **Files** section of the Admin Menu. The files are searchable using the **SEARCH** tool.

Frequently Asked Questions

How do I get an account?

To get an account, you have to get in touch with Ms. Gilda Salvacion Diaz, Corporate Planning, PHIC or send her email at gdiaz.corplan@philhealth.gov.ph.

What do I do if I forgot my password?

Go to the web site and in the Login box, there is a link for lost passwords. When you click on it you will be prompted for your email address (which hopefully you remember) and your region. You will receive a new password by email. When you read your email and see your new password, log in at the site immediately and change this to one you will easily remember.

Why don't the graphs display properly?

If there is no data or if the graphing library⁸ has not been included in server setup, graphs will not display properly. You should check with the system administrator to find out what the cause is.

What do I do if I find a bug⁹?

If there is a bug, copy the error message on the screen and send email to hermant@i-manila.com.ph.

Appendices

- A. Screenshots
- B. Quick Guide To Server Installation
- C. Software Modules
- D. Database Logical Design
- E. Data Warehouse Logical Design
- F. MySQL InnoDB Setup for **SPReAD** Database
- G. MySQL InnoDB Backup and Recovery
- H. Server OS Upgrade and Maintenance
- I. Data Warehouse Metadata Description
- J. Connecting to SPSS

⁸ Linux GD Library: C graphics library for Linux

⁹ Software glitch or error (typically an error message is seen on the browser)

Appendix A: Figures and Screenshots

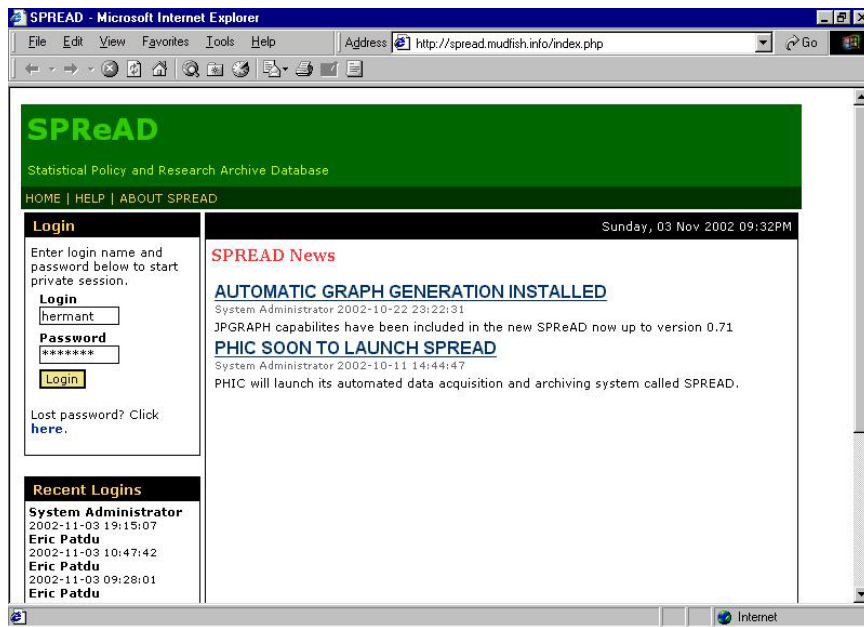


Figure 1. Login Box

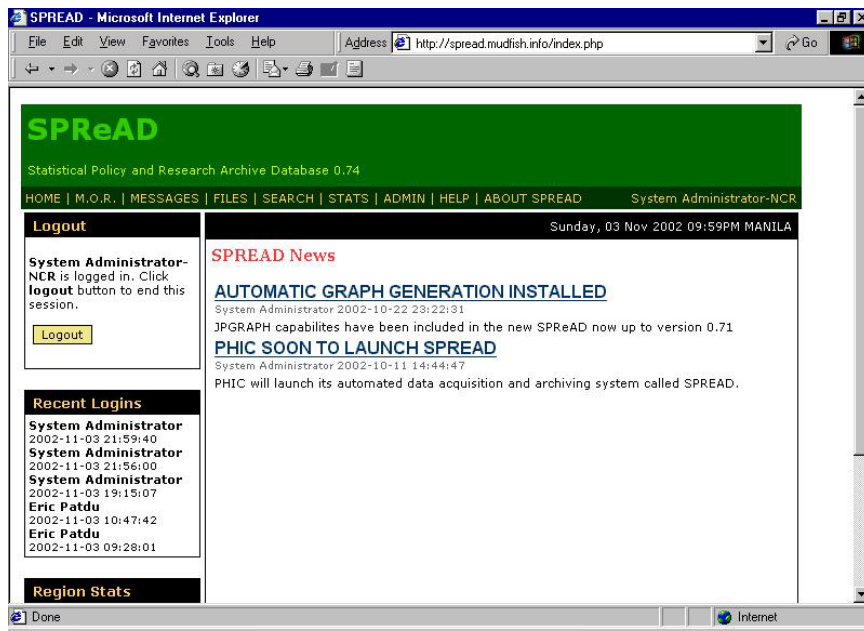


Figure 2a. Administrator logged in.

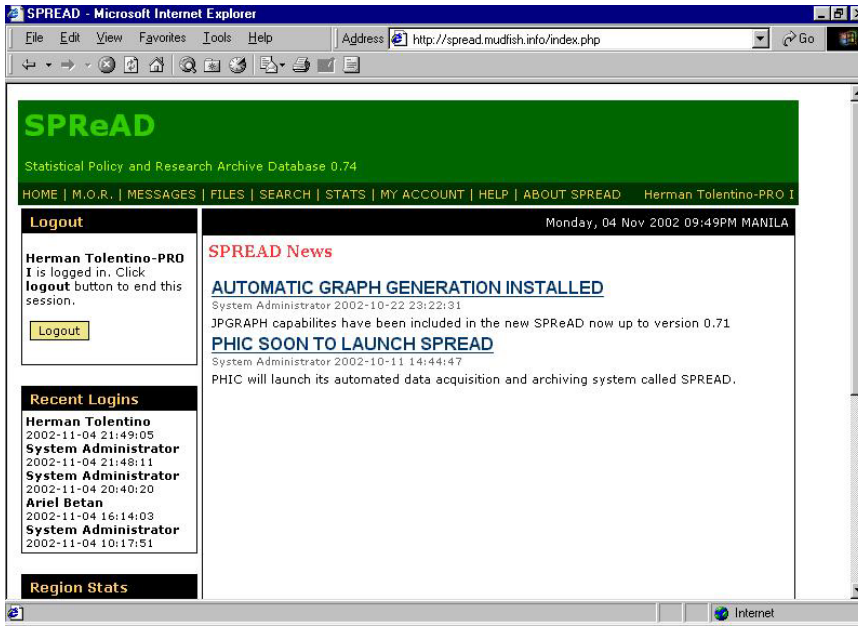


Figure 2b. Ordinary user logged in.

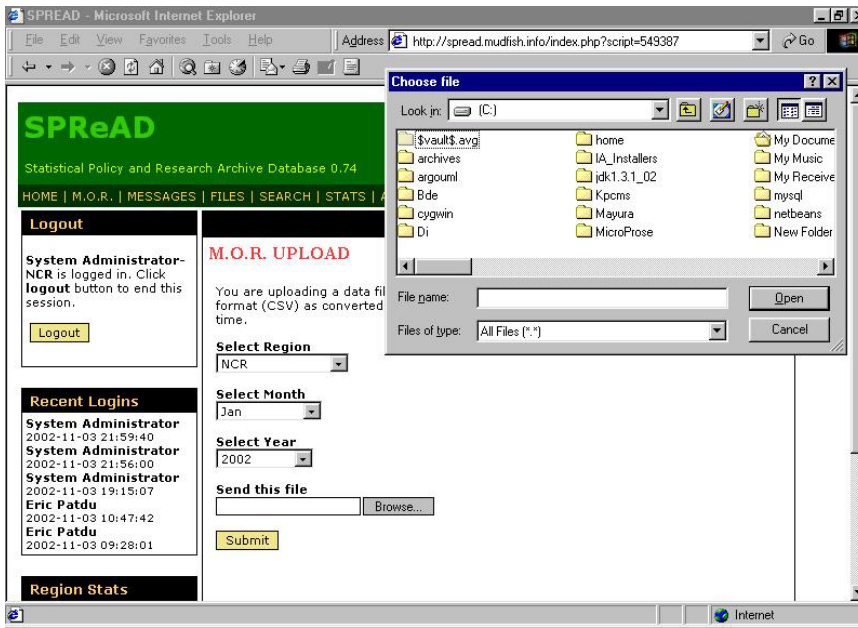


Figure 3. MOR Upload Form

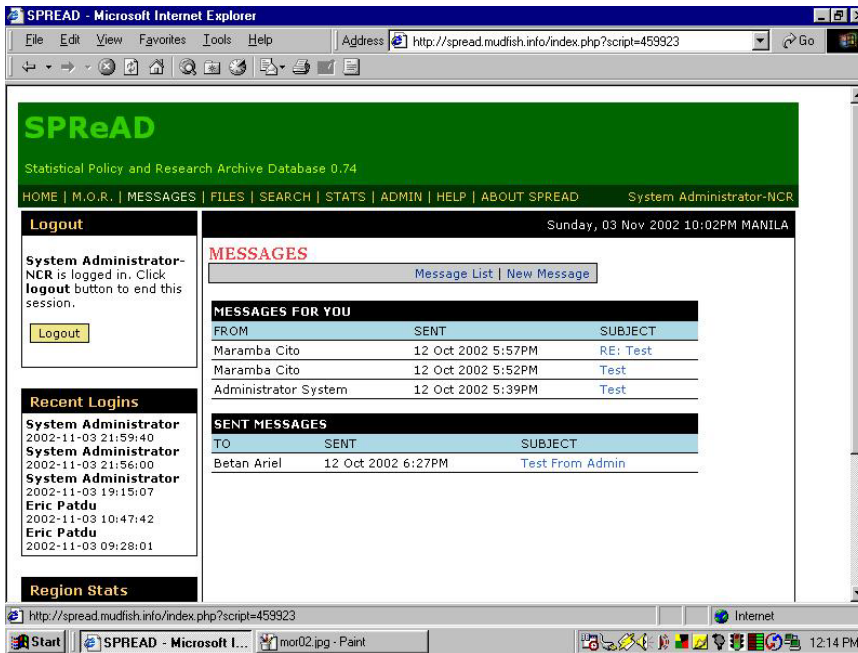


Figure 4. Messages

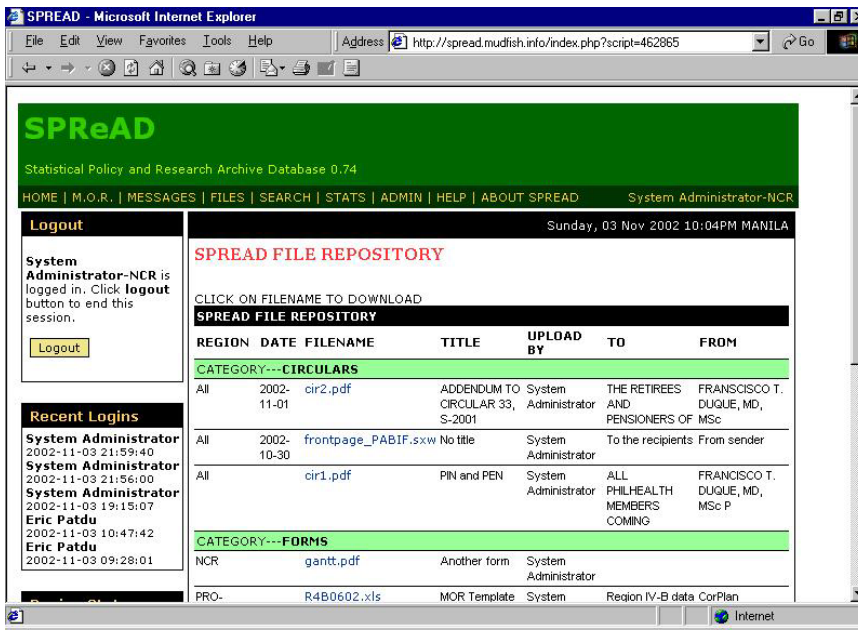


Figure 5. Files Section

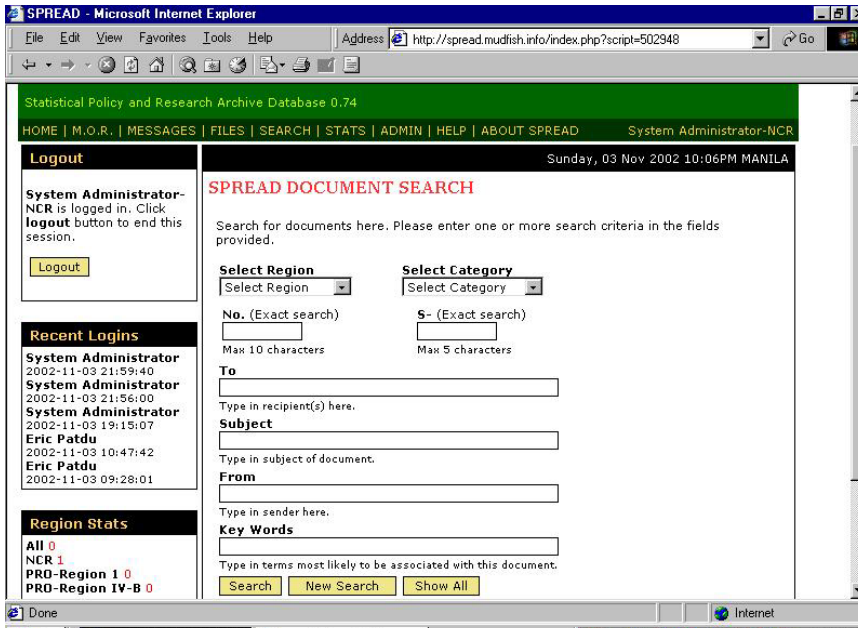


Figure 6. Search Tool

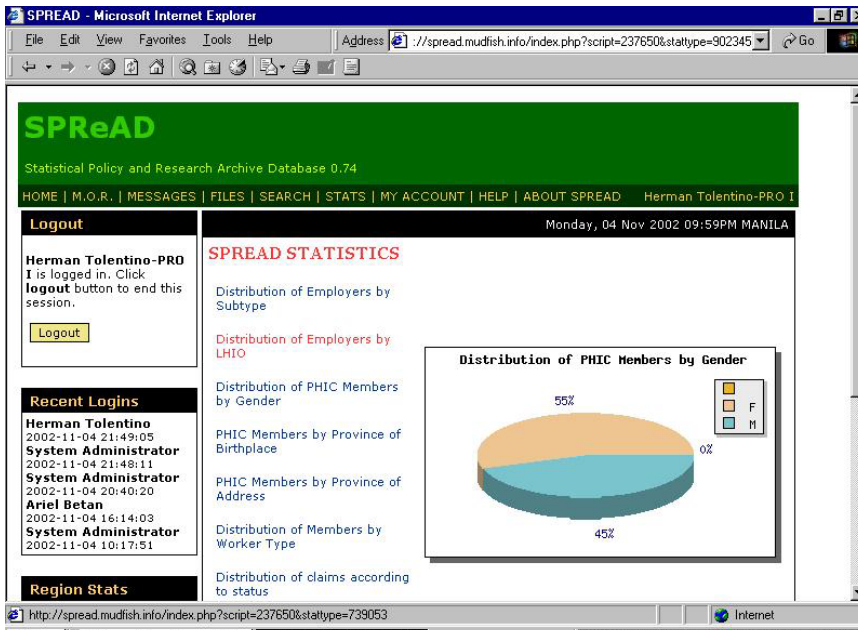


Figure 7. SPReAD graphs

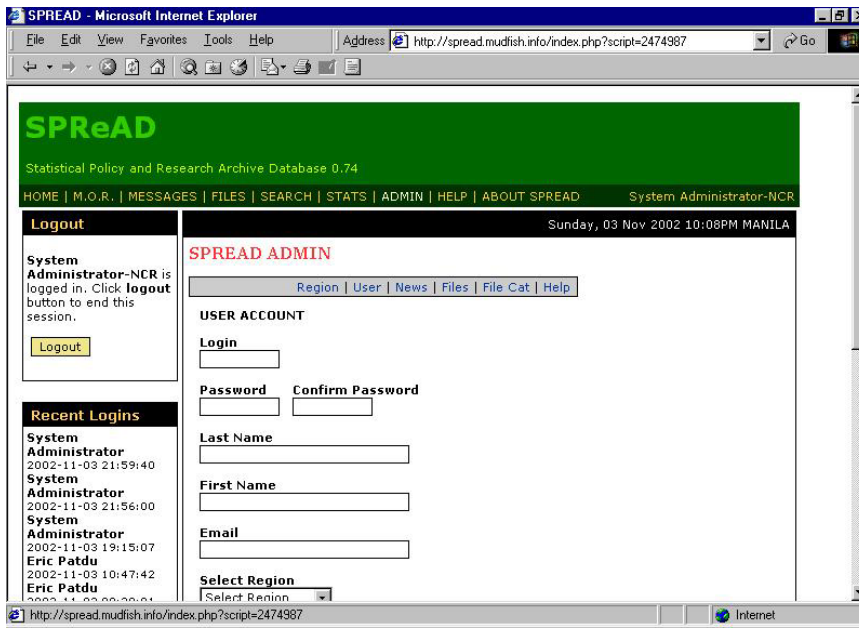


Figure 8. Admin Section

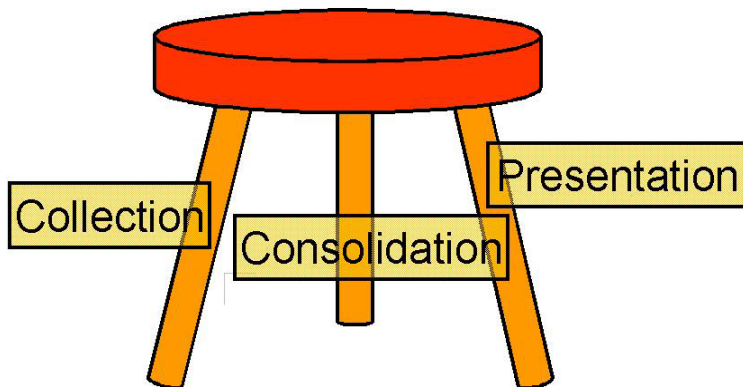


Figure 9. Three-legged stool model: COLLECTION - system for collecting raw data; CONSOLIDATION – system for integrating and analyzing data from different sources; PRESENTATION – system for displaying processed information

Appendix B: Server Installation Quick Guide

1. **Booting the CD.** The Install CD is bootable. Make sure the computer BIOS is set to boot from the CD-DRIVE.
2. At the boot prompt, type "bf24" to select the 2.4 series kernel installation.
3. At the select language screen, select US-English
4. The next screen is keyboard selection. Select the 104 key QWERTY keyboard.
5. **Disk Partitioning.** The disk will be divided into the / (root) , /var, /usr, and home partitions. Also, create a swap partition roughly equal to the available RAM. The / (root) partition can be as small as 500 MB, with approximately 1 GB each for /var, /usr and /home. Use the **ext3**-filesystem as the default filesystem. This filesystem does journalled block device checks which allows for faster rebooting in cases of unplanned reboots (such as in power failures).
6. Select **initialize disk partitions** and mount them at the appropriate mount points.
7. Install kernel and device driver modules. Just follow the default selections.
8. **Configure PCMCIA Support.** Select "NO".
9. **Configure Device Driver Modules.** You will need the driver for your network card and optionally, your sound card and other peripheral devices (SCSI card, etc). The network card modules will be found in kernel/driver/network. The 3c59x module will work with most 3Com Vortex Cards. Support for Automated Power Management is now provided by kernel module. Look for it in the i386 section.
10. **Configure the network.** If the network address will be provided by a DHCP server, select DHCP for the network address. Otherwise enter the IP Address, Netmask, and Gateway as provided by your Network Administrator.
11. Install the base system. Follow the default choices as provided, making sure that the first CD is inserted in the CDROM drive.
12. **Make the system bootable.** Select "LILO" as the boot system. Install the boot block in /dev/hda1. The default selections are usable. Just follow the steps as indicated in the menu.
13. Reboot your system.
14. **Configure the Time Zone.** You will be presented with a selection of world cities. Select "Manila" (it's in Asia). Most computers previously installed with Windows are set to local time rather than GMT. Be sure to say no in the prompt "Is this computer set to GMT?"
15. MD5 Passwords. Select "YES"
16. Shadow Passwords. Select "YES" in "Enable Shadow Passwords?".
17. **Select the root password.** Pick a password between 6-8 characters that is not a word in the dictionary.
18. Create an ordinary user. Create another user, other than root, which should be used for almost all your logins to the computer.
19. Setup PPP. Select "NO".
20. Remove PCMCIA. Select YES, to remove PCMCIA.
21. **Apt setup.** The first CD will automatically be scanned to enter its contents into the debian package manager called APT. You will then be prompted if you wish to insert the next CD. Insert CD 2, and press YES, Repeat for all the rest of the 7 CDs.
22. Configure Network Package Sources. Select "NO".

23. Package Installation: Simple or Advanced. Select Simple Installation. The tasksel program will then be run. For the SPREAD server, choose **X Window system, UNIX Server, Databases, Web Server**.
24. Insert CDS as needed when prompted on the screen.
25. After installation finishes, you may login. Login as an ordinary user., then run the command "**su**" to gain root privileges.
26. **Installation of additional software.** You will need to install the **php4, mysql-client** and **mysql-server** programs, as well as the **dbf2mysql** and **dbf2pg** program
27. To do this, run the command "**apt-get install -u -y php4 mysql-client mysql-server dbf2mysql dbf2pg**". If additional programs are needed they will be automatically installed as well due to Debian's advanced handling of package dependencies. You will be prompted for the appropriate CD when needed. Just insert the correct CD in the drive and press the Enter key.

Appendix C: Software Modules

SPReAD Design Paradigm

SPReAD uses the three-legged stool paradigm for health care information systems (UPCM Medical Informatics Unit, 2002) as in Figure 9.

Modules

Data Collection Modules – upload and data entry forms (below)

Processing Modules – parser function, processing scripts (below)

Display Modules – JPGRAPH, data view modules (below)

External Modules

These are externally developed modules incorporated into **SPReAD**:

- A. JPGRAPH – graphing tool written in PHP for producing online real-time graphs

Directories

- A. jpgraph – where jpgraph is located
- B. raw – contains MOR files uploaded into **SPReAD**.
- C. files – contains files uploaded as documents

PHP Scripts

Main scripts

about.php – something about spread
displayhelp.php – display help
displaystats.php – display graphs
files.php – display documents
header.php – spread header (title)
help.php – display help
index.php – root script
initsession.php
lang.php – language file
lang_en.php – language file english
lang_tag.php – language file tagalog
license.php – application license
login.php – login script
loginhx.php – user login history
logout.php
main.php – main code switch script
menu.php – main menu
messages.php – display messages
news.php – display news
recentlogins.php – recent user logins
spread_admin.php – spread admin module
spread.css – style sheet

stats.php - display region stats

DB Connection

conn.php - connects to mysql

User-defined Functions

functions.php - all user defined functions, including parser function.

Graphs

graph01.php
graph_pie.php
graph_horizbar.php

Forms, form-processing and display scripts

form_filecat.php
form_help.php
form_login.php
form_logout.php
form_lostpassword.php
form_message.php
form_msgaction.php
form_news.php
form_region.php
form_upload.php
form_users.php

processfilecat.php
processfiles.php
processhelp.php
processlogin.php
processmessage.php
processregion.php
processreqpasswd.php
processupload.php
processuser.php
processnews.php

validateuser.php
viewfiles.php
viewfilecat.php
viewhelp.php
viewusers.php
viewmessages.php
viewnews.php
viewregion.php
viewuploads.php

Appendix D: Database Logical Design

TABLE: FILECODE

DESCRIPTION: data dictionary for file

filecode { *filecode*, filecat }

TABLE: HELP

DESCRIPTION: help items

help { *helpid*, question, freq, answer, *userid*, ispublic }

TABLE: LOGIN

DESCRIPTION: user accounts

login { *userid*, login, password, firstname, lastname, email, isadmin, *lang*, *regioncode* }

TABLE: LOGINHX

DESCRIPTION: login history of users

loginhx { *userid*, *logindate*, ipaddress, useragent }

TABLE: MESSAGE

DESCRIPTION: messages user to user

message { *id*, *msgto*, *msgfrom*, body, isread, postdate, subject, *replytoid* }

TABLE: NEWS

DESCRIPTION: news items

news { *id*, newstitle, newslead, newsbody, *newsauthor*, newsdate, publish, public }

TABLE: PHICFILES

DESCRIPTION: document files

phicfiles { *fileid*, referenceno, series, recipient, subject, sender, filename, keywords, description, doctitle, *filecat*, *userid*, *regioncode*, upload_date, mimetype, filesize, docdate }

TABLE: REGIONCODE

DESCRIPTION: data dictionary for regions

regioncode { *code*, rname }

TABLE: UPLOADS

DESCRIPTION: M.O.R. uploads

uploads { *id*, *upload_userid*, upload_date, filename, *regioncode* }

Appendix E: Data Warehouse Design

Logical Design

FACT TABLES

TABLE: dbbuildup

DESCRIPTION: Membership Database Build-Up

dbbuildup { *date_key, geo_key, sector_key*, recvdfrmco, assignlastmo, assignthismo, pncissueddis, pncissuedbal }**TABLE: memapp**

DESCRIPTION: Membership Forms Application

memapp { *date_key, geo_key, sector_key*, appballastmo, apprec, appref, rts, appsent, appinproc }**TABLE: overcntrcoll**

DESCRIPTION: Premium Contribution Actual Over-the-Counter Collection

overcntrcoll { *date_key, geo_key, sector_key*, lastmomem, lastmocol, thismomem, thismocol }**TABLE: remitrep**

DESCRIPTION: Premium Contribution Remittance Reports

remitrep { *date_key, geo_key, sector_key, report_key*, goodrep, majdefrep, mindefrep, complnotif, numofmem, remitamt }**TABLE: claimsproc**

DESCRIPTION: Claims Processing

claimsproc { *date_key, geo_key, sector_key*, claimsballastmo, claimsrec, refclaims, claimsdenied, claimspaid, benefitsamt, aveval, adjustments, claimsbalproc }**TABLE: benefits**

DESCRIPTION: Philhealth Benefits (per item of hospitalization)

benefits { *date_key, geo_key, sector_key*, roomboard, drugmed, xraylab, orfee, proffee }**TABLE: deniedreduct**

DESCRIPTION: Most Common Reasons of RTS/RTH, Denied, Reduction/Slashing

deniedreduct { *date_key, geo_key*, reasons_key, numclaims }**TABLE: indigbenefit**

DESCRIPTION: Breakdown of Indigent Benefits Claims

indigbenefit { *date_key, geo_key, indigent_key*, indigclaimsrec, indigclaimspaid, actualhosptotal, benefitpaid }**TABLE: healthcareprofaccr**

DESCRIPTION: Accreditation of Health Care Professional

healthcareprofaccr { *date_key, geo_key, prof_key*, profapprec, profappsent }**TABLE: healthcareinstaccr**

DESCRIPTION: Accreditation of Health Care Institutions

healthcareinstaccr { *date_key, geo_key, insti_key*, instiapprec, instiappsent, preaccrinspect }**TABLE: healthcareinstinsp**

DESCRIPTION: Accreditation of Health Care Institutions

healthcareinstinsp { *date_key, geo_key, insti_key*, inspecttarget, numhospinspect }

DIMENSION TABLES

TABLE: Ddate

DESCRIPTION: Date Dimension

Ddate { *date_key*, calmonum, calmoname, calqtr, calyr, }

TABLE: Drhio

DESCRIPTION: RHIO Dimension

Drhio { *geo_key*, rhio }

TABLE: Dsector

DESCRIPTION: Sector Dimension

Drhio { *sector_key*, sectorname }

TABLE: Dreport

DESCRIPTION: Report Type Dimension

Dreport { *report_key*, reportname }

TABLE: Dreasons

DESCRIPTION: Reasons Dimension

Dreasons { *reasons_key*, reasonstype, reasonsname }

TABLE: Dindigenttype

DESCRIPTION: Indigent Type Dimension

Dindigenttype { *indigent_key*, indigtypename }

TABLE: Dhealthcareprof

DESCRIPTION: Health Care Professionals Dimension

Dhealthcareprof { *prof_key*, proftype }

TABLE: Dhealthcareinsti

DESCRIPTION: Health Care Professionals Dimension

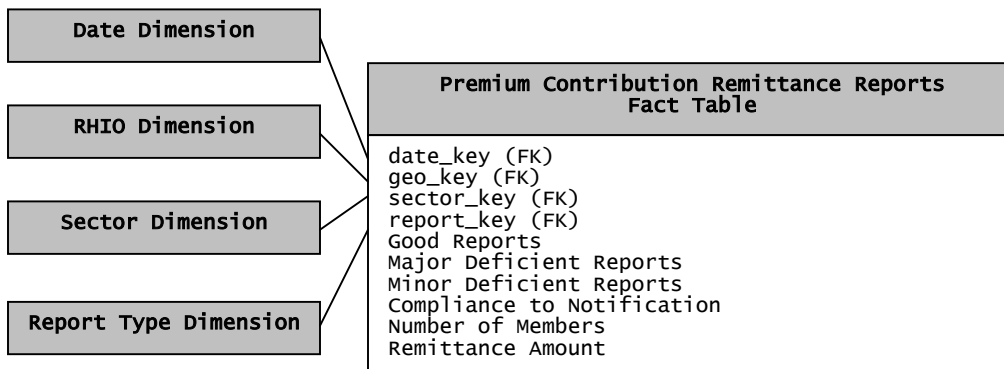
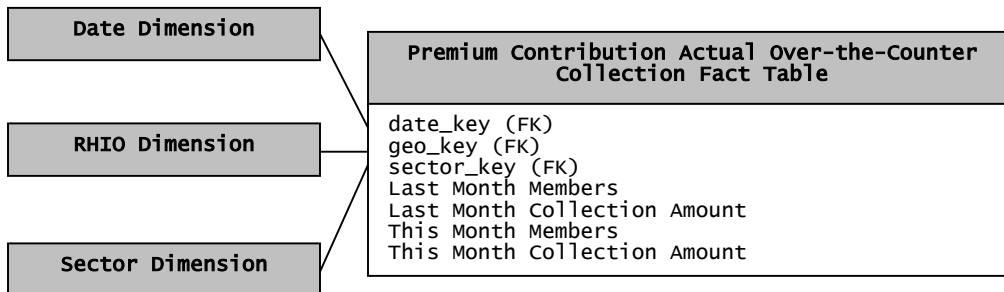
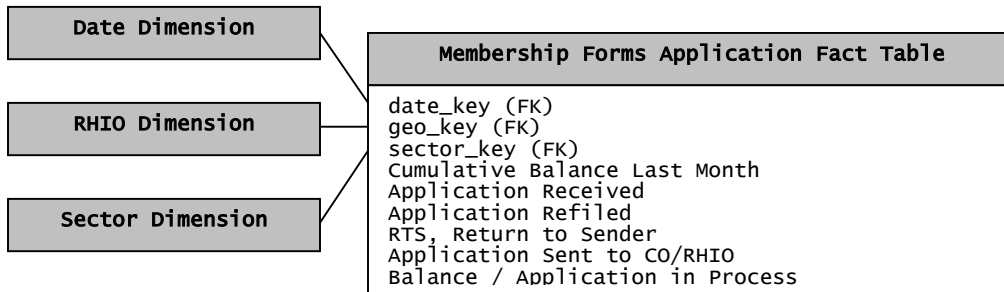
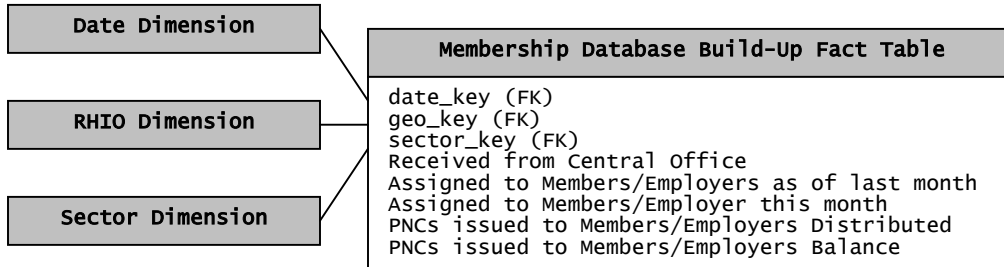
Dhealthcareinsti { *insti_key*, institype }

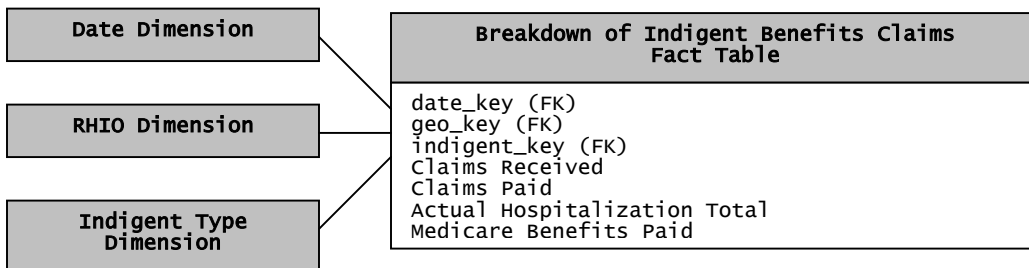
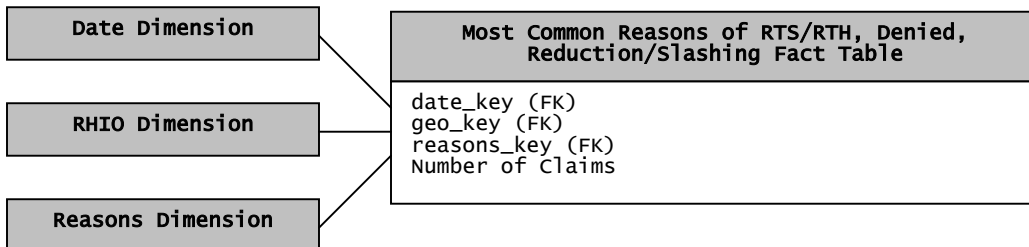
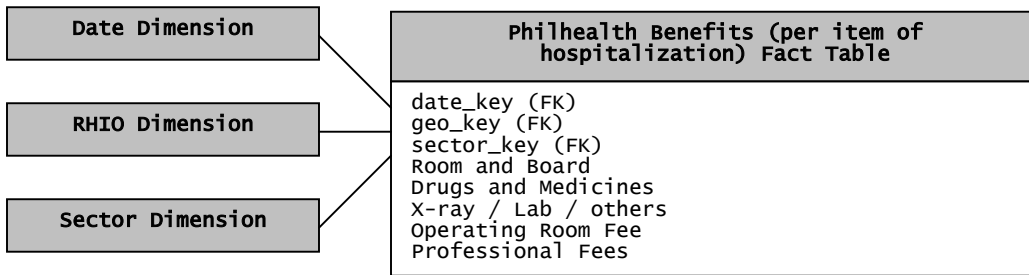
TABLE: Dlocation

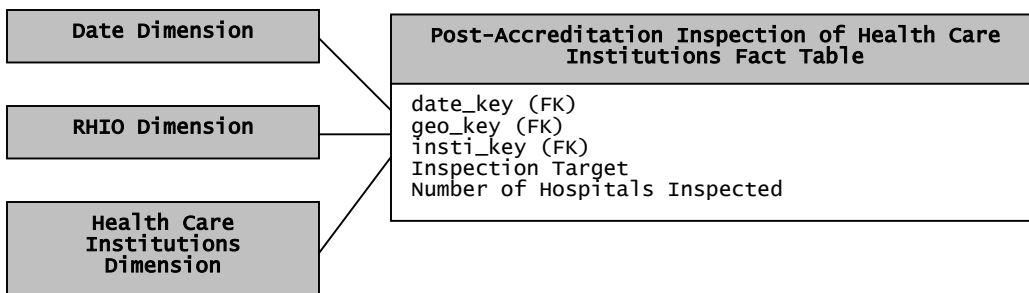
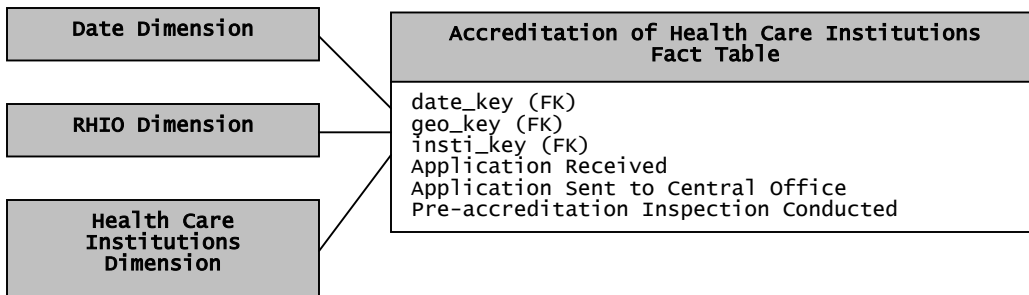
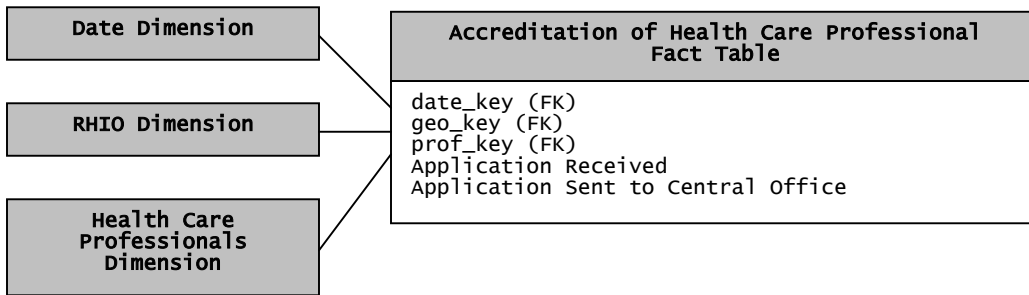
DESCRIPTION: Location Dimension

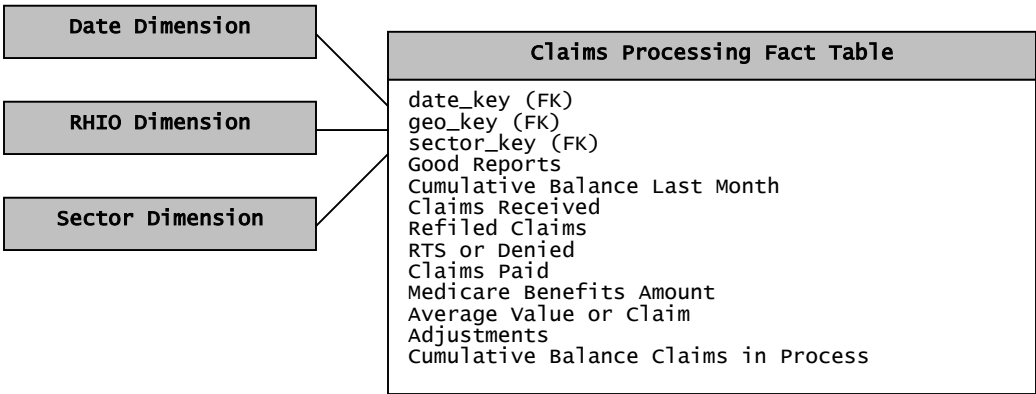
Dlocation { *geo_key*, *prov_key*, *mun_key*, lgu }

Conceptual Design









Appendix F: MySQL InnoDB Setup

About InnoDB

InnoDB provides MySQL with a transaction-safe (ACID compliant) table handler with commit, rollback, and crash recovery capabilities. InnoDB does locking on row level and also provides an Oracle-style consistent non-locking read in SELECTs. These features increase multiuser concurrency and performance. There is no need for lock escalation in InnoDB, because row level locks in InnoDB fit in very small space. InnoDB tables support FOREIGN KEY constraints as the first table type in MySQL.

InnoDB has been designed for maximum performance when processing large data volumes. Its CPU efficiency is probably not matched by any other disk-based relational database engine.

Technically, InnoDB is a complete database backend placed under MySQL. InnoDB has its own buffer pool for caching data and indexes in main memory. InnoDB stores its tables and indexes in a tablespace, which may consist of several files. This is different from, for example, MyISAM tables where each table is stored as a separate file. InnoDB tables can be of any size also on those operating systems where file-size is limited to 2 GB¹⁰. For the latest information about InnoDB, go to <http://www.innodb.com/>.

InnoDB Section of `/etc/my.cnf`

```
# INNODB CONFIGURATION
# BY HERMAN TOLENTINO MD
# WARNING: READ DOCUMENTATION BEFORE YOU CHANGE!
#         ... or you will be sorry and you have
#         to call me +639189214108 asap
# for this installation:
# memory is 128MB, big partition is /spreadw
#
# defaults to datadir of mysql if innodb_data_home_dir is blank
# but is appended to innodb_data_file_path if present
# important:
# 1. make sure you create the directories below
# 2. make sure mysql owns these directories!
# 3. other commented out options do not work, do not uncomment
#
innodb_data_home_dir = /spreadw
innodb_data_file_path =
/ibdata/ibdata1:1000M;/ibdata/ibdata2:1000M
#
# take a deep breath...
#
```

¹⁰ MySQL Documentation: http://www.mysql.com/doc/en/InnoDB_overview.html

```
set-variable = innodb_buffer_pool_size=60M
set-variable = innodb_additional_mem_pool_size=10M
set-variable = innodb_log_file_size=20M
set-variable = innodb_log_buffer_size=8M
innodb_flush_log_at_trx_commit=1
# innodb_mirrored_log_groups=1
innodb_log_group_home_dir = /spreadw/iblogs
#innodb_log_files_in_group=3
#innodb_log_file_size=10M
#innodb_log_buffer_size=5M
innodb_log_arch_dir = /spreadw/iblogs
```

Starting MySQL with InnoDB Enabled

You should get the following display from your screen:

```
corplan4:/var/lib/mysql# tail -f /var/log/mysql/mysql.err
021106 23:16:24 mysqld started
InnoDB: The first specified data file /spreadw//ibdata/ibdata1
did not exist:
InnoDB: a new database to be created!
021106 23:16:24 InnoDB: Setting file /spreadw//ibdata/ibdata1
size to 1000 MB
InnoDB: Database physically writes the file full: wait...
021106 23:20:59 InnoDB: Data file /spreadw//ibdata/ibdata2 did
not exist: new to be created
021106 23:20:59 InnoDB: Setting file /spreadw//ibdata/ibdata2
size to 1000 MB
InnoDB: Database physically writes the file full: wait...
021106 23:25:25 InnoDB: Log file /spreadw/iblogs/ib_logfile0
did not exist: new to be created
InnoDB: Setting log file /spreadw/iblogs/ib_logfile0 size to 20
MB
InnoDB: Database physically writes the file full: wait...
021106 23:25:30 InnoDB: Log file /spreadw/iblogs/ib_logfile1
did not exist: new to be created
InnoDB: Setting log file /spreadw/iblogs/ib_logfile1 size to 20
MB
InnoDB: Database physically writes the file full: wait...
InnoDB: Doublewrite buffer not found: creating new
InnoDB: Doublewrite buffer created
InnoDB: Creating foreign key constraint system tables
InnoDB: Foreign key constraint system tables created
021106 23:25:37 InnoDB: Started
/usr/sbin/mysqld: ready for connections
```

Appendix G: Backup and Recovery of the SPReAD Database

There are two ways to back up the SPReAD Database:

1. Binary
2. Dump

Binary Backup

The InnoDB database is in the `/spread` partition, a 31GB partition. The MyISAM tables are in the `/var/lib/mysql` directory. To do binary backup, do the following¹¹:

1. Shut down your MySQL database and make sure it shuts down without errors.
2. Copy all your datafiles (in `/var/lib/mysql`) into a safe place.
3. Copy all your InnoDB log files (in `/spread/iblogs`) to a safe place.
4. Copy your `my.cnf` configuration file (in `/etc/mysql`) to a safe place.
5. Copy all the `.frm` files (in `/var/lib/mysql`) for your InnoDB tables into a safe place.

Using `mysqldump`

Sometimes, it is better to have two backups, one binary and the other from `mysqldump`. If the binary backup is corrupted, you still have human-readable data in a dump. To backup using `mysqldump`, as **root** do:

```
mysqldump -u root -p [database] > [database].sql
```

You can look up the complete syntax of `mysqldump` in the MySQL manual. Save the dump file in a safe place.

Recovery

To recover, simply restart the database in logging mode (independent of InnoDB). InnoDB will read the archive logs automatically.

¹¹ MySQL Documentation: http://www.mysql.com/doc/en/Backing_up.html

Appendix H. Server OS Upgrade and Maintenance

Installing Additional Debian Packages

Additional Debian software packages must be done while logged in as root or superuser. Packages may be installed in three ways: a) `dpkg`; b) `dselect`; or c) `apt`. Of the three methods, `apt` is the easiest.

You can install a package if you have the `.deb` file using the `dpkg` command. For example, if you have downloaded a package from some site (either the Debian Archive or from some other source, then you would have a file ending in a `.deb` suffix, such as `pspp_0.3.0-7_i386.deb`, which is the Debian package for the PSPP program (a statistical analysis program). You then run the `dpkg` command with the `-i` option as shown below:

```
corplan4:/home/idcm# dpkg -i pspp_0.3.0-7_i386.deb
Selecting previously deselected package pspp.
(Reading database ... 54112 files and directories currently installed.)
Unpacking pspp (from pspp_0.3.0-7_i386.deb) ...
Setting up pspp (0.3.0-7) ...

corplan4:/home/idcm# █
```

Figure 1. Using `dpkg` to install new software

`dselect` is a menu-based text front end for software package management. With it, one can configure the package sources, update the package lists, select the software for installation, install new software, configure packages, and remove software. The program is invoked from the shell (as root) by the command `dselect`. The opening screen is shown below:

```
Debian `dselect' package handling frontend.
* 0. [A]ccess      Choose the access method to use.
  1. [U]pdate      Update list of available packages, if possible.
  2. [S]elect      Request which packages you want on your system.
  3. [I]nstall     Install and upgrade wanted packages.
  4. [C]onfig     Configure any packages that are unconfigured.
  5. [R]emove     Remove unwanted software.
  6. [Q]uit       Quit dselect.

Move around with ^P and ^N, cursor keys, initial letters, or digits;
Press <enter> to confirm selection.  ^L redraws screen.

Version 1.9.21 (i386).
Copyright (C) 1994-1996 Ian Jackson.
Copyright (C) 2000 Wichert Akkerman.
This is free software; see the GNU General Public Licence version 2
or later for copying conditions. There is NO warranty. See
dselect --licence for details.
```

Fig 2. Opening Menu for dselect

The third way is to use the apt-get command. apt-get is a simple command line interface for downloading and installing packages. The most frequently used commands are update and install.

Commands: update - Retrieve new lists of packages
 upgrade - Perform an upgrade
 install - Install new packages (pkg is libc6 not libc6.deb)
 remove - Remove packages
 source - Download source archives
 build-dep - Configure build-dependencies for source packages
 dist-upgrade - Distribution upgrade
 dselect-upgrade - Follow dselect selections
 clean - Erase downloaded archive files
 autoclean - Erase old downloaded archive files
 check - Verify that there are no broken dependencies

The following shows how to use apt-get to install the pspp package:

```
corplan4:/home/idcm# apt-get install pspp
Reading Package Lists... Done
Building Dependency Tree... Done
The following NEW packages will be installed:
  pspp
0 packages upgraded, 1 newly installed, 0 to remove and 57 not upgraded.
Need to get 868kB of archives. After unpacking 2277kB will be used.
Get:1 http://bulkan.upm.edu.ph woody/main pspp 0.3.0-7 [868kB]
Fetched 868kB in 0s (6745kB/s)
Selecting previously deselected package pspp.
(Reading database ... 54112 files and directories currently installed.)
Unpacking pspp (from ../archives/pspp_0.3.0-7_i386.deb) ...
Setting up pspp (0.3.0-7) ...

corplan4:/home/idcm# █
```

Figure 3. Using apt-get to install package

Note that to successfully use apt-get, your `/etc/apt/sources.list` file must be properly configured. This can be done through the “Access” option of the `dselect` command or by manually editing the file.

Like `dselect`, `apt-get` also manages the dependencies between packages, by installing other packages that may be necessary for the desired package to operate properly, as well as removing conflicting packages.

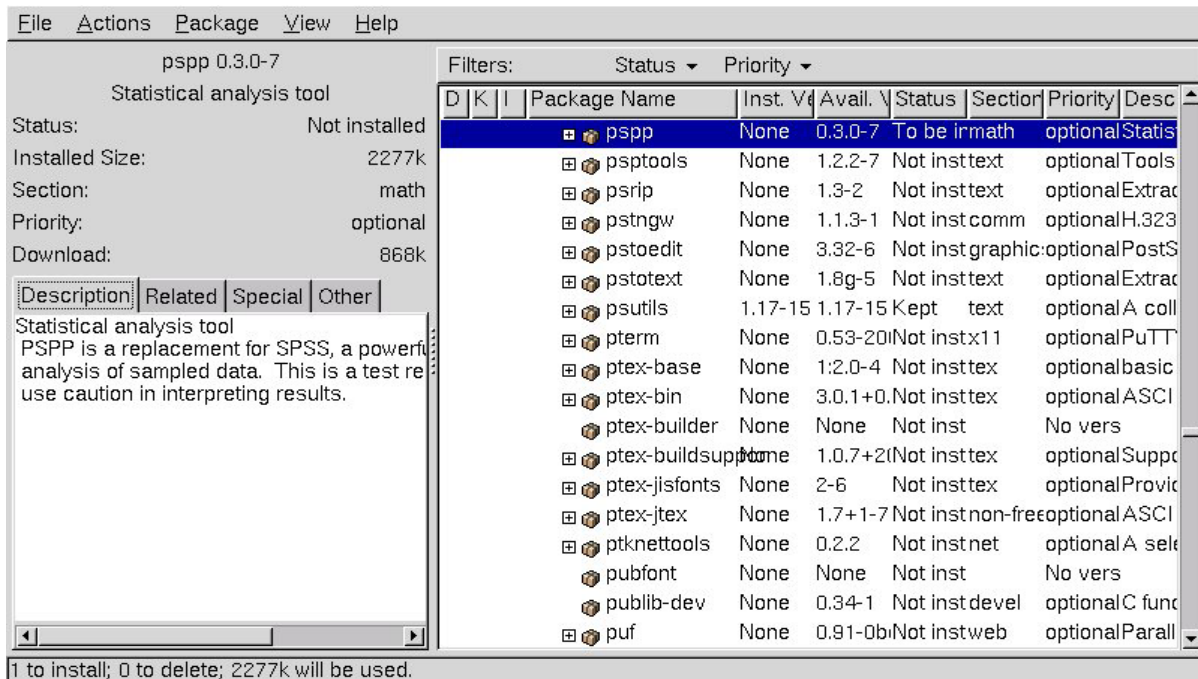


Figure 4. The gnome-apt front end for Debian package management

Graphical frontends for the `apt-get` command also exist. For example, you can also use the `gnome-apt` program, which gives you a GUI to manage your Debian software packages.

Configuring `sources.list` for Security Updates

To remain secure, the software packages in Debian GNU / Linux should be constantly updated to the latest versions. These updates are made available on <http://security.debian.org>. You can access these updates by using the `apt-get` command, as long as your `/etc/apt/sources.list` file is properly configured. The `sources.list` file should have an entry pointing to the <http://security.debian.org/> archive as in the example below:


```
deb http://bulkan.upm.edu.ph/debian woody main non-free contrib
deb http://bulkan.upm.edu.ph/debian-non-US woody/non-US main contrib non-free

#deb http://http.us.debian.org/debian/ woody main non-free contrib
#deb http://non-us.debian.org/debian-non-US woody/non-US main contrib non-free
deb http://security.debian.org/ woody/httpd updates main contrib non-free
/etc/apt/sources.list (END)
```

Figure 5. sources.list file configured for security updates.

To update the package lists, run the command:

```
apt-get update
```

You should get output similar to the one shown below:

```
corplan4:~# apt-get update
Hit http://security.debian.org woody/updates/main Packages
Hit http://security.debian.org woody/updates/main Release
Hit http://security.debian.org woody/updates/contrib Packages
Hit http://security.debian.org woody/updates/contrib Release
Hit http://security.debian.org woody/updates/non-free Packages
Hit http://security.debian.org woody/updates/non-free Release
Hit http://bulkan.upm.edu.ph woody/main Packages
Hit http://bulkan.upm.edu.ph woody/main Release
Hit http://bulkan.upm.edu.ph woody/non-free Packages
Hit http://bulkan.upm.edu.ph woody/non-free Release
Hit http://bulkan.upm.edu.ph woody/contrib Packages
Hit http://bulkan.upm.edu.ph woody/contrib Release
Hit http://bulkan.upm.edu.ph woody/non-US/main Packages
Hit http://bulkan.upm.edu.ph woody/non-US/main Release
Hit http://bulkan.upm.edu.ph woody/non-US/contrib Packages
Hit http://bulkan.upm.edu.ph woody/non-US/contrib Release
Hit http://bulkan.upm.edu.ph woody/non-US/non-free Packages
Hit http://bulkan.upm.edu.ph woody/non-US/non-free Release
Reading Package Lists... Done
Building Dependency Tree... Done
corplan4:~# █
```

Figure 6. Updating package lists for security updates

Installing Security Updates

Once you have run `apt-get update`, you can install the packages that need to be upgraded by giving the command:

```
apt-get upgrade
```

The figure below shows the result of running the `apt-get upgrade` command.

```
corplan4:~# apt-get upgrade -u
Reading Package Lists... Done
Building Dependency Tree... Done
The following packages will be upgraded
  apache apache-common glibc-doc idle idle-python2.1 kcoloredit kdelibs3
kdelibs3-bin kdict kfract kghostview kiconedit kit kmail knewsticker knode
korn kpaint kruler ksirc ksnapshot kvview libarts libecpg3 libfam0
libkdenetwork1 libkmid libmimelib1 libmm11 libpgperl libpgsql2 libpgtcl
libpng2 libscrollkeeper0 libssl0.9.6 mpack odbc-postgresql php4-gd
php4-mysql postgresql-doc python python-dev python-doc python-examples
python-gdbm python-mpz python-pygresql python-tk python2.1 python2.1-dev
python2.1-doc python2.1-examples python2.1-gdbm python2.1-mpz python2.1-tk
python2.1-xmlbase scrollkeeper
57 packages upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
Need to get 24.7MB of archives. After unpacking 1527kB will be used.
Do you want to continue? [Y/n] █
```

Figure7. Result of `apt-get upgrade`

By answering `Y`, the required packages will be downloaded from the security.debian.org site and automatically installed. To facilitate downloading, you may designate a proxy server to be used to download your packages. Ask your Network Administrator for the host name and port of the proxy server on your network. Then run the command

```
export http_proxy=http://<fully.qualified.hostname>:<port number>/
```

Replace `<fully.qualified.hostname>` and `<port number>` with the proper ones from your Network Administrator.

Distribution Upgrades

For most uses, `apt-get install` and `apt-get upgrade` will be sufficient to maintain the software on the server to be up-to-date. However, you may want to upgrade to the `testing` or even `unstable` distribution at some point as this contains some more software (albeit in a

more developmental state) than the standard `stable` distribution. When you decide to do so, you should edit your `/etc/apt/sources.list` file to look similar to the one below:

```
# the main Debian packages. Uncomment the deb-src line if you
# want 'apt-get source' to work with most packages.
#deb http://www.zentek-international.com/mirrors/debian/debian/ testing main con
trib non-free
# deb-src http://www.zentek-international.com/mirrors/debian/debian/ testing mai
n contrib non-free

# the non-US Debian packages. Uncomment the deb-src line if you
# want 'apt-get source' to work with non-US packages.
#deb http://xcyber.org/debian-non-US/ testing/non-US main contrib non-free
# deb-src http://xcyber.org/debian-non-US/ testing/non-US main contrib non-free
#deb http://www.zentek-international.com/mirrors/debian/debian-non-US/ testing/n
on-US main contrib non-free
deb http://security.debian.org/ testing/updates main contrib non-free
#deb http://www.phy.olemiss.edu/openoffice/ unstable main contrib
deb http://bulkan.upm.edu.ph/debian/ testing main contrib non-free
deb http://bulkan.upm.edu.ph/debian-non-US/ testing/non-US main contrib non-free
/etc/apt/sources.list (END)
```

Figure 8.sources.list file configured for testing distribution

When your `sources.list` file is properly set up, you can now run

```
apt-get update
```

and when that is finished, run

```
apt-get dist-upgrade
```

This will download all the files necessary to upgrade your distribution from `stable` to `testing` (or `unstable`, if that is what you want). This will take a long time as almost all the packages in your system will be replaced. Make sure that you have enough disk space to download all the packages. You may want to set your `http_proxy` environment variable (as discussed above) to optimize your downloads.

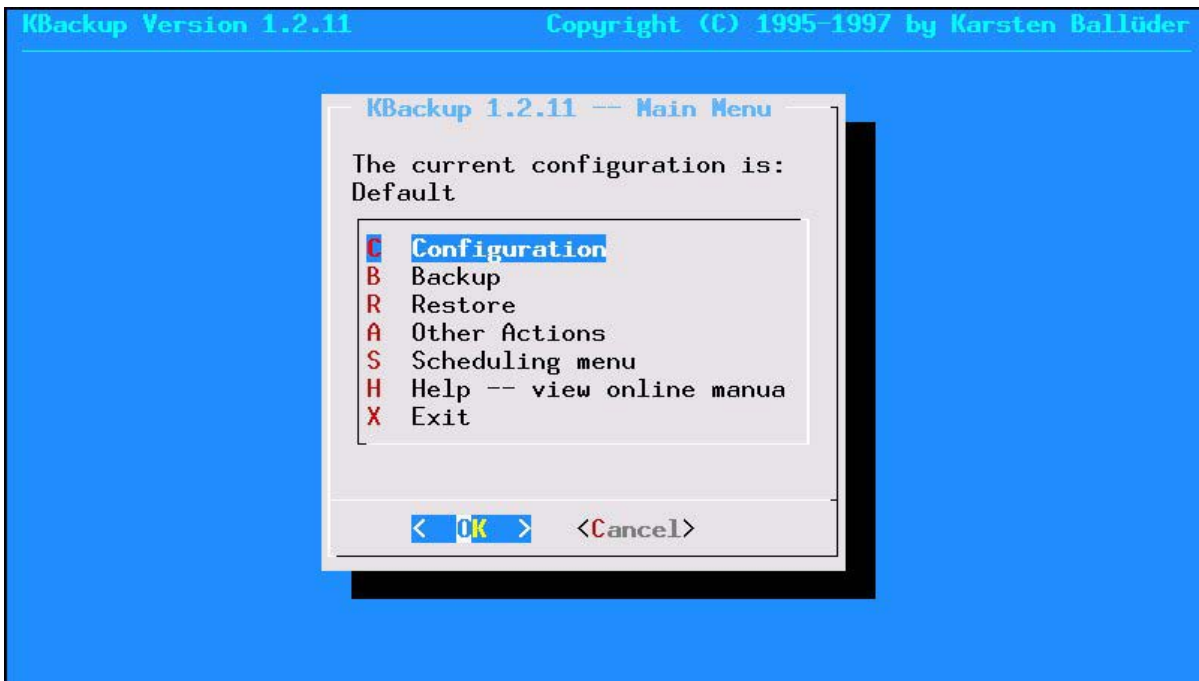


Figure10. Main menu of kbackup

There are many other applications for data backup that come free with the Debian GNU / Linux system. There are also commercial ones that you can install on the system. You can even create your own using shell scripting, tar, cpio and other commands. The choices are limitless.

Appendix I: Data Warehouse Metadata Description

DATABASE: SPREADDW

DATA SOURCE: PRO Monthly Operations Report (MOR)

FACT TABLES

TABLE: dbbuildup

DESCRIPTION: Membership Database Build-Up Fact Table

SOURCE: Membership Database Build-Up (Assignment of PIN/PEN/Issuance of Ids) Table in MORS

Field Name	Description	Data Source / Field in MOR
<i>Date_key</i>	Foreign Key from date_key of Ddate Dimension Table	MOR reporting period
<i>geo_key</i>	Foreign Key from geo_key of Drhio Dimension Table	Philhealth Regional Office indicated in MOR
<i>sector_key</i>	Foreign Key from sector_key of Dsector Dimension Table	Sector types: i.e. government, private, Individual Paying, Indigent rows in MOR
recvdfrmco	Received from Central Office	Received from Central Office column in MOR table
assignlastmo	Assigned to Members/Employers as of last month	Assigned to Members/Employers as of last month column in MOR table
assignthismo	Assigned to Members/Employer this month	Assigned to Members/Employer this month column in MOR table
pnissueddis	PNCs issued to Members/Employers Distributed	PNCs issued to Members/Employers Distributed column in MOR table
pnissuedbal	PNCs issued to Members/Employers Balance	PNCs issued to Members/Employers Balance column in MOR table

TABLE: memapp

DESCRIPTION: Membership Forms Application Fact Table

SOURCE: Membership Forms Application Table in MORS

Field Name	Description	Data Source / Field in MOR
<i>Date_key</i>	Foreign Key from date_key of Ddate Dimension Table	MOR reporting period
<i>geo_key</i>	Foreign Key from geo_key of Drhio Dimension Table	Philhealth Regional Office indicated in MOR
<i>sector_key</i>	Foreign Key from sector_key of Dsector Dimension Table	Sector types: i.e. government, private, Individual Paying, Indigent columns in MOR table
appballastmo	Cumulative Balance Last Month	Cum. Balance Last Month row in MOR table
Apprec	Application Received	Application Received row in MOR table
appref	Application Refiled	Application Refiled row in MOR table
rts	RTS, Return to Sender	RTS row in MOR table
Appsent	Application Sent to CO/RHIO	Application Sent to CO/RHIO row in MOR table
appinproc	Balance / Application in Process	Balance / Application in Process row in MOR table

TABLE: overcntrcoll

DESCRIPTION: Premium Contribution Actual Over-the-Counter Collection Fact Table

SOURCE: Premium Contribution Actual Over-the-Counter Collection Table in MORS

Field Name	Description	Data Source / Field in MOR
<i>date_key</i>	Foreign Key from date_key of Ddate Dimension Table	MOR reporting period
<i>geo_key</i>	Foreign Key from geo_key of Drhio Dimension Table	Philhealth Regional Office indicated in MOR
<i>sector_key</i>	Foreign Key from sector_key of Dsector Dimension Table	Sector types: i.e. government, private, Individual Paying, Indigent rows in MOR table
lastmomem	Last Month Members	Last Month Members column in MOR table
lastmocol	Last Month Collection Amount	Last Month Collection Amount column in MOR table
thismomem	This Month Members	This Month Members column in MOR table
thismocol	This Month Collection Amount	This Month Collection Amount column in MOR table

TABLE: remitrep

DESCRIPTION: Premium Contribution Remittance Reports Fact Table

SOURCE: Premium Contribution Remittance Reports Tables in MORS

Field Name	Description	Data Source / Field in MOR
<i>date_key</i>	Foreign Key from date_key of Ddate Dimension Table	MOR reporting period
<i>geo_key</i>	Foreign Key from geo_key of Drhio Dimension Table	Philhealth Regional Office indicated in MOR
<i>sector_key</i>	Foreign Key from sector_key of Dsector Dimension Table	Sector types: i.e. government, private, Individual Paying, Indigent rows in MOR table
<i>report_key</i>	Foreign Key from report_key of Dreport Dimension Table	Report types: i.e. walk-in, mailed/drop box, diskette submitted to Central Office tables indicated in MOR
goodrep	Good Reports	Good Reports column in MOR table
majdefrep	Major Deficient Reports	Major Deficient Reports column in MOR table
mindefrep	Minor Deficient Reports	Minor Deficient Reports column in MOR table
complnotif	Compliance to Notification	Compliance to Notification column in MOR table
numofmem	Number of Members	No. of Members column in MOR table
remitamt	Remittance Amount	Remittance Amount column in MOR table

TABLE: claimsproc

DESCRIPTION: Claims Processing Fact Table

SOURCE: Claims Processing Table in MORS

Field Name	Description	Data Source / Field in MOR
<i>date_key</i>	Foreign Key from date_key of Ddate Dimension Table	MOR reporting period
<i>geo_key</i>	Foreign Key from geo_key of Drhio Dimension Table	Philhealth Regional Office indicated in MOR
<i>sector_key</i>	Foreign Key from sector_key of Dsector Dimension Table	Sector types: i.e. government, private, Individual Paying, Indigent columns in MOR table
claimsbalastmo	Cumulative Balance Last Month	Cum Balance Last Month row in MOR table
claimsrec	Claims Received	Claims Received row in MOR table
refclaims	Refiled Claims	Refiled Claims row in MOR table
claimsdenied	RTS or Denied	RTS or Denied row in MOR table
claimspaied	Claims Paid	Claims Paid row in MOR table
benefitsamt	Medicare Benefits Amount	Medicare Benefits Amount row in MOR table
aveval	Average Value or Claim	Average Value or Claim row in MOR table
adjustments	Adjustments	Adjustments row in MOR table
claimsbalproc	Cumulative Balance Claims in Process	Cum Balance Claims in Process row in MOR table

TABLE: benefits

DESCRIPTION: Philhealth Benefits (per item of hospitalization) Fact Table

SOURCE: Philhealth Benefits (per item of hospitalization) Table in MORS

Field Name	Description	Data Source / Field in MOR
<i>date_key</i>	Foreign Key from date_key of Ddate Dimension Table	MOR reporting period
<i>geo_key</i>	Foreign Key from geo_key of Drhio Dimension Table	Philhealth Regional Office indicated in MOR
<i>sector_key</i>	Foreign Key from sector_key of Dsector Dimension Table	Sector types: i.e. government, private, Individual Paying, Indigent columns in MOR table
roomboard	Room and Board	Room and Board row in MOR table
drugmed	Drugs and Medicines	Drugs and Medicines row in MOR table
xraylab	X-ray / Lab / others	X-ray / Lab / others row in MOR table
orfee	Operating Room Fee	Operating Room Fee row in MOR table
proffee	Professional Fees	Professional Fees row in MOR table

TABLE: deniedreduct

DESCRIPTION: Most Common Reasons of RTS/RTH, Denied, Reduction/Slashing Fact Table

SOURCE: Most Common Reasons of RTS/RTH, Denied, Reduction/Slashing Tables in MORs

Field Name	Description	Data Source / Field in MOR
<i>date_key</i>	Foreign Key from date_key of Ddate Dimension Table	MOR reporting period
<i>geo_key</i>	Foreign Key from geo_key of Drhio Dimension Table	Philhealth Regional Office indicated in MOR
<i>reasons_key</i>	Foreign Key from reasons_key of Dreasons Dimension Table	Reasons type for RTS/RTH, Denied, Reduction/Slashing as indicated in MOR tables
numclaims	Number of Claims	No. of Claims columns in MOR tables

TABLE: indigbenefit

DESCRIPTION: Breakdown of Indigent Benefits Claims Fact Table

SOURCE: Breakdown of Indigent Benefits Claims Received and Claims Paid Tables in MORs

Field Name	Description	Data Source / Field in MOR
<i>date_key</i>	Foreign Key from date_key of Ddate Dimension Table	MOR reporting period
<i>geo_key</i>	Foreign Key from geo_key of Drhio Dimension Table	Philhealth Regional Office indicated in MOR
<i>indigent_key</i>	Foreign Key from indigent_key of Dindigenttype Dimension Table	Indigent Program types: i.e. Regular Indigent Program, Lingap Para sa Mahirap tables in MOR
indigclaimsrec	Claims Received	Claims Received columns in MOR tables
indigclaimspaid	Claims Paid	Claims Paid columns in MOR tables
actualhosptotal	Actual Hospitalization Total	Actual Hospitalization Total columns in MOR tables
benefitspaid	Medicare Benefits Paid	Medicare Benefits Paid columns in MOR tables

TABLE: healthcareprofaccr

DESCRIPTION: Accreditation of Health Care Professionals Fact Table

SOURCE: Accreditation of Health Care Professional Table in MORs

Field Name	Description	Data Source / Field in MOR
<i>date_key</i>	Foreign Key from date_key of Ddate Dimension Table	MOR reporting period
<i>geo_key</i>	Foreign Key from geo_key of Drhio Dimension Table	Philhealth Regional Office indicated in MOR
<i>prof_key</i>	Foreign Key from prof_key of Dhealthcareprof Dimension Table	Health Care Professional Types rows in MOR table
profapprec	Application Received	Application Received column in MOR table
profappsent	Application Sent to Central Office	Application Sent to CO column in MOR table

TABLE: healthcareinstaccr

DESCRIPTION: Accreditation of Health Care Institutions Fact Table

SOURCE: Accreditation of Health Care Institutions Table in MORs

Field Name	Description	Data Source / Field in MOR
<i>date_key</i>	Foreign Key from date_key of Ddate Dimension Table	MOR reporting period
<i>geo_key</i>	Foreign Key from geo_key of Drhio Dimension Table	Philhealth Regional Office indicated in MOR
<i>insti_key</i>	Foreign Key from insti_key of Dhealthcareinsti Dimension Table	Health Care Institution Types rows in MOR table
instiapprec	Application Received	Application Received columns in MOR table
instiappsent	Application Sent to Central Office	Application Sent to CO columns in MOR table
preaccrinspect	Pre-accreditation Inspection Conducted	Pre-accreditation Inspection Conducted columns in MOR table

TABLE: healthcareinstinsp

DESCRIPTION: Post-Accreditation Inspection of Health Care Institutions Fact Table

SOURCE: Accreditation of Health Care Institutions Table in MORs

Field Name	Description	Data Source / Field in MOR
<i>date_key</i>	Foreign Key from date_key of Ddate Dimension Table	MOR reporting period
<i>geo_key</i>	Foreign Key from geo_key of Drhio Dimension Table	Philhealth Regional Office indicated in MOR
<i>insti_key</i>	Foreign Key from insti_key of Dhealthcareinsti Dimension Table	Health Care Institution Types rows in MOR table
inspecttarget	Inspection Target	Inspection Target column in MOR table
numhospinspect	Number of Hospitals Inspected	No. of Hospitals Inspected column in MOR table

DIMENSION TABLES

TABLE: Ddate

DESCRIPTION: Date Dimension Table
SOURCE: Across Tables in MOR

Field Name	Description	Data Source / Field in MOR
<i>date_key</i>	Primary Key	MOR reporting period
calmonum	Calendar Month in Number	MOR reporting period
calmoname	Calendar Month Name	MOR reporting period
calqtr	Calendar Quarter	MOR reporting period
calyr	Calendar Year	MOR reporting period

TABLE: Drhio

DESCRIPTION: RHIO Dimension Table
SOURCE: Across Tables in MOR

Field Name	Description	Data Source / Field in MOR
<i>geo_key</i>	Primary Key	Philhealth Regional Office indicated in MOR
Rhio	Regional Health Insurance Office	Philhealth Regional Office indicated in MOR

TABLE: Dsector

DESCRIPTION: Sector Dimension Table
SOURCE: Across Tables in MOR

Field Name	Description	Data Source / Field in MOR
<i>sector_key,</i> sectorname	Primary Key	Sector types as indicated in MOR
	Sector types: i.e. government, private, Individual Paying, Indigent	Sector types as indicated in MOR

TABLE: Dreport

DESCRIPTION: Report Type Dimension Table
SOURCE: Across Tables in MOR

Field Name	Description	Data Source / Field in MOR
<i>report_key</i>	Primary Key	Report type tables as indicated in MOR
reportname	Report types: i.e. walk-in, mailed/drop box, diskette submitted	Report type tables as indicated in MOR

TABLE: Dreasons

DESCRIPTION: Reasons Dimension Table
SOURCE: Across Tables in MOR

Field Name	Description	Data Source / Field in MOR
<i>reasons_key</i>	Primary Key	Reasons type tables as indicated in MOR tables
reasonstype	Reasons type: i.e. RTS/RTH, Denied, Reduction/Slashing	Reasons type tables as indicated in MOR tables
reasonsname	Reasons name for each Reasons Type	Reasons type tables as indicated in MOR tables

TABLE: Dindigenttype

DESCRIPTION: Indigent Type Dimension Table
 SOURCE: Across Tables in MOR

Field Name	Description	Data Source / Field in MOR
<i>indigent_key</i>	Primary Key	Indigent Program type tables indicated in MOR
indigtypename	Indigent Program types: i.e. Regular Indigent Program, Lingap Para sa Mahirap	Indigent Program type tables indicated in MOR

TABLE: Dhealthcareprof

DESCRIPTION: Health Care Professionals Dimension Table
 SOURCE: Across Tables in MOR

Field Name	Description	Data Source / Field in MOR
<i>prof_key</i>	Primary Key	Health Care Professional Type Rows in MOR tables
proftype	Health Care Professional Types: i.e. Physicians, Dentists, Nurses, Midwives, others	Health Care Professional Type Rows in MOR tables

TABLE: Dhealthcareinsti

DESCRIPTION: Health Care Institutions Dimension Table
 SOURCE: Across Tables in MOR

Field Name	Description	Data Source / Field in MOR
<i>insti_key</i>	Primary Key	Health Care Institution Types rows in MOR table
institype	Health Care Institution Types: i.e. Primary, Secondary, Tertiary, RHU Type/Health Center, Ambulatory Surgical Clinics, Private Out-Patient Clinics	Health Care Institution Types rows in MOR table

TABLE: Dlocation

DESCRIPTION: Location Dimension Table
 SOURCE: Across Tables in MOR

Field Name	Description	Data Source / Field in MOR
<i>geo_key</i>	Primary Key	Philhealth Regional Office indicated in MOR
<i>prov_key</i>	Primary Key	Province indicated in MOR
<i>mun_key</i>	Primary Key	Municipality indicated in MOR
lgu	Local Government Unit: i.e. Regions, Province Municipality	Local Government Office indicated in MOR

DATABASE: CLAIMSMEM

DATA SOURCE: Unified Claims Processing System (UCPS)

FACT TABLES

TABLE: BATS

DESCRIPTION: Contains data from all claims received

SOURCE: BATS.DBF from UCPS. Each region submits its own BATS.DBF in various format

Field Name	Description	Data Source / Field in MOR
MECNO	Membership number	UCPS
PATIENT	Patient code	UCPS
PATLNAME	Patient surname	From claim form
PATFNAME	Patient firstname	From claim form
PATMNAME	Patient middle name	From claim form
WORLNAME	Member's surname	From claim form
WORFNAME	Member's firstname	From claim form
WORMNAME	Member's middle name	From claim form
ADDRESS	Member's mailing address	From claim form
CODE	Hospital code	From UCPS library
SERIES	Claim series number	Automatically generated by UCPS
DATE_ADM	Date when patient was admitted to hospital	From claim form
DATE_DIS	Date when patient was discharged from hospital	From claim form
AMT_ACTUAL	Total actual claim charges	From claim form
AMT_MEDIC	Total actual medicare charges	From claim form
AREACD	Regional code	From UCPS library
RPDCODE	Deficiency code	From UCPS library
REMARK	Remark	
REMARK2	DV prepared identifier	Date voucher prepared
REFILE	Claim refile condition	T/F if claim was refilled
TIME	Time when claim was received	From reception
DATE_REC	Date when claim was received	From reception
DATE_REF	Date when claim was refilled	From reception
WORKER_TYP	Membership type	From UCPS library

TABLE: BUDGET

DESCRIPTION: Contains financial data from claims that have passed CONTROL

SOURCE: BUDGET.DBF from UCPS. Each region submits its own BUDGET.DBF in various format

Field Name	Description	Data Source / Field in MOR
SERIES	Claim series number	Automatically generated by UCPS
PAYCODE	Payee code	
CLAIMANT	Claimant name	
HOS_CODE	Hospital code	From UCPS library
AREACD	RHIO code	From UCPS library
PAY_TO	Payee classification	
TOT_AMNT	Gross amount of claim	
W_TAX	withholding tax on professional services	
DV_NO	APV (account's payment voucher) number	
DV_DT	APV date	
CHECK_NO	Check number	
CHECK_DT	Check date	
RM_BD	Actual charges on room and board	
DRUGS	Actual charges on drugs and medicines	
X_RAY	Actual charges on x-ray and laboratories	
OP_RM	Actual charges on operating room	
DOCV1		
DOCV2		
SURFE	Actual charge of surgeon	
ANEFEE	Actual charge of anesthesiologist	
REMARK		
CLASS	Membership classification	

ADJ	Adjustment identifier	
AC	Auto-credit identifier	

TABLE: CHECK

DESCRIPTION: Data on checks

SOURCE: UCPS

Field Name	Description	Data Source / Field in MOR
CPAYCODE	Payee code	
CCLAIMANT	Claimant name	
CHOS_CODE	Hospital code	From UCPS library
CAREACD	Regional code	
CPAY_TO	Payee classification	
CTOT_AMNT	Total amount of check	
CW_TAX	withholding tax amount on professional services	
CDV_NO	Check's reference APV number	
CDV_DT	Check's reference APV date	
CHECK_NO	Check number	
CHECK_DT	Check date	
REMARK		
CCLMNO	Claim batch series number	
CTIME	Time when check was printed	
CBANK	Bank code	
AC	Auto-credit identifier	
REF_NO	Auto-credit reference number	

TABLE: CONTROL

DESCRIPTION: Contains data from good, pending, and denied claims

SOURCE: BATS

Field Name	Description	Data Source / Field in MOR
SERIES	Claim series number	
MECNO	Member's membership number	
HOSP_CODE	Hospital code	From UCPS library
ILL_CODE	Illness code	From UCPS library
PAY_TYPE	Payee code	
TRAN_CODE	Claim stage identifier	
DAY_ACT	Number of days confined	
MEC_V_DATE	Membership validity date	
DEF_CODE	Deficiency code	
REM	Claim status code	
NOTICE	Notice number	
STATUS	Status of claim	
TAGS		
WORKER_TYP	Membership type	

TABLE: DOCTOR

DESCRIPTION: Doctor's claim charges

SOURCE: Claim form

Field Name	Description	Data Source / Field in MOR
SERIES	Claim series number	
DOC_CODE	Doctor's accreditation number	From UCPS library
TIN_CODE	Tax identification number	
AMT_ACTUAL	Doctor's actual charges	
AMT_MEDIC	Doctor's allowed medicare charges	
AMT_COMP	System computed charges	
RUV	Relative unit value for service	
PRO_CODE	Doctor's procedure code	From UCPS library
DEF_CODE	Deficiency code	From UCPS library
RUV_DATE	Date of operation	
TYPE	Service rendered type	
PAY_TO	Claim paid to code	From UCPS library
VOUCHER		
NOTICE	Notice identifier	
STATUS		
TAGS	Status of claim	
RVS	Relative value scale	

TABLE: HOSPMEMB

DESCRIPTION: Hospital claim charges

SOURCE: Claim form

Field Name	Description	Data Source / Field in MOR
SERIES	Claim series number	
BEN_TYPE	Benefit type	
AMT_ACTUAL	Total actual amount	
AMT_MEDIC	Total medicare amount	
AMT_COMP	System computed amount	
RUV_DATE	Relative unit value date, if ben_type is B4	
PAY_TO	Claim payee code	
VOUCHER		
DEF_CODE	Deficiency code	
REMARK		
TAGS		
STATUS	Claim status code	

TABLE: ROUTE

DESCRIPTION: claim in process tracking

SOURCE: UCPS

Field Name	Description	Data Source / Field in MOR
SERIES	Claim series number	
USER	User security code	From UCPS library
PR_CODE	Process_code	From UCPS library
DATE_REC	Date when claim was received	
TIME_REC	Time when claim was received	
DATE_REL	Date when claim was released	
TIME_REL	Time when claim was released	
REMARK	Deficiency code	
DATE_REC2		

Appendix J: Installing MyODBC in Windows

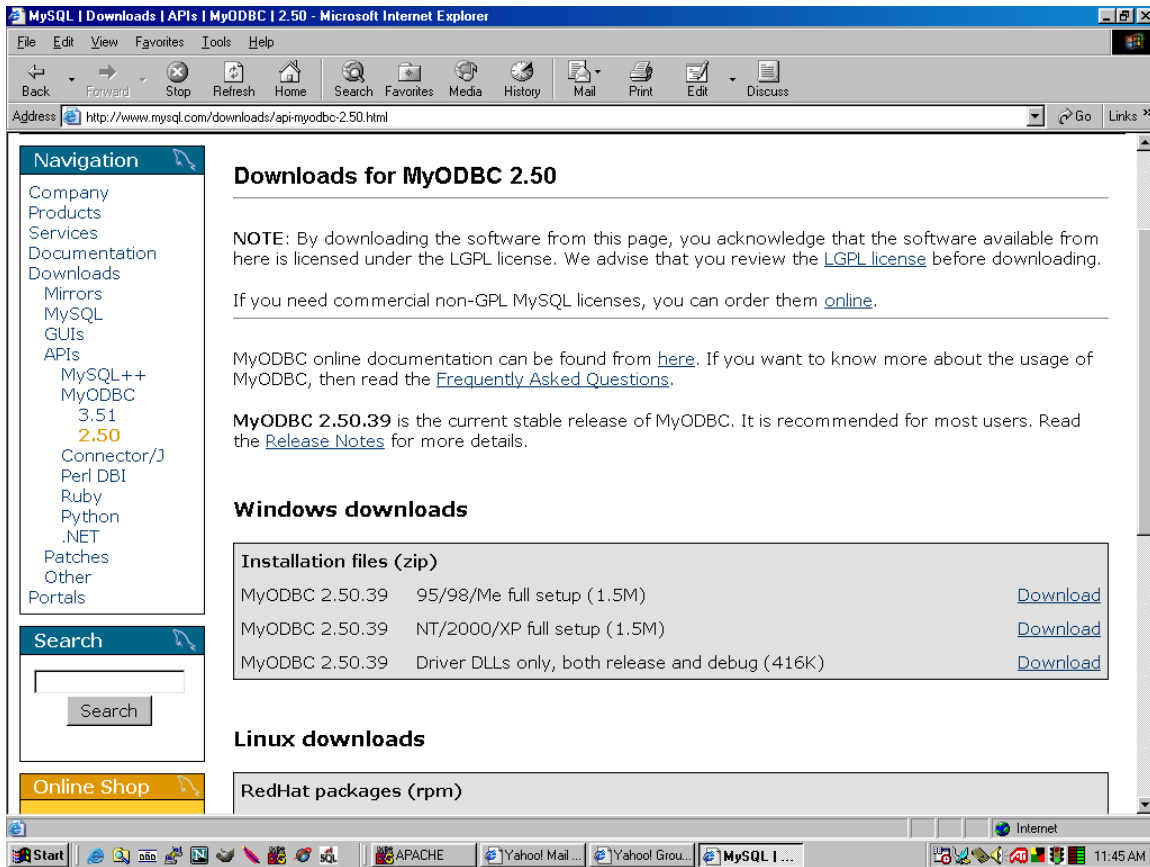
MyODBC is software that allows a computer program to access an Open Database Connectivity (ODBC) compliant database like MySQL. For example, for SPReAD, it is envisioned that users will use the SPSS statistical software package to access the MySQL SPReAD database on the server. For a separate Windows machine to access the SPReAD MySQL database, the MyODBC package has to be installed in that Windows machine.

This section demonstrates how to install MyODBC in a Windows machine.

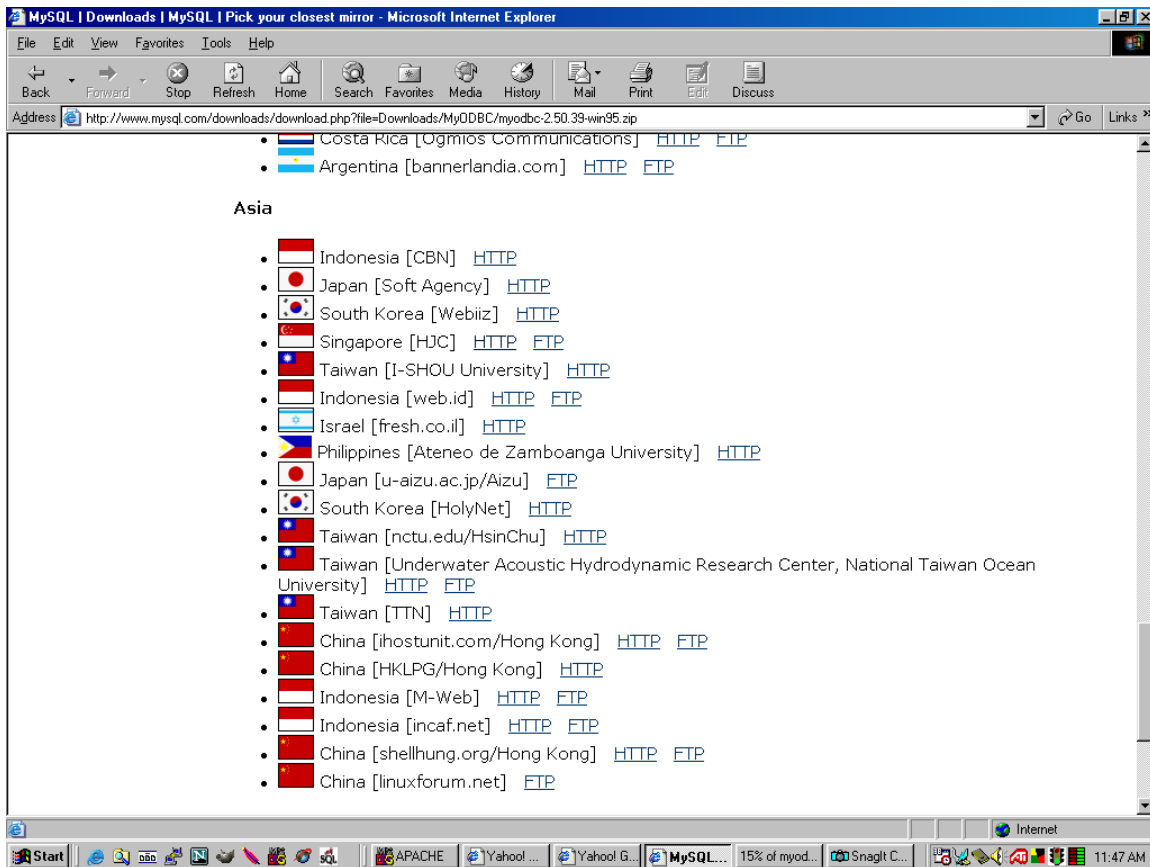
1. Go to the MySQL website by typing <http://www.mysql.com> on your browser. This requires an Internet connection.



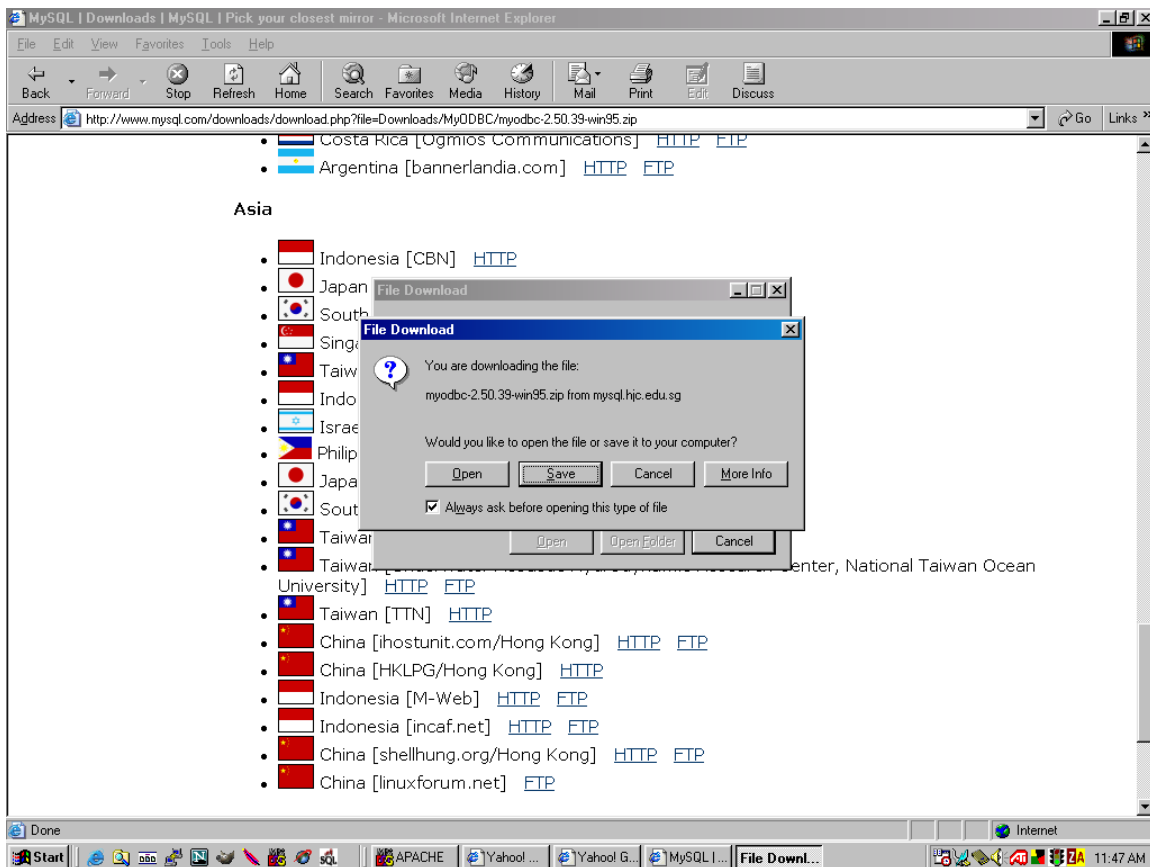
2. On the right side column, under Versions, click on MyODBC 2.50 (version may vary; usually the latest version is posted in this area). The following window appears:



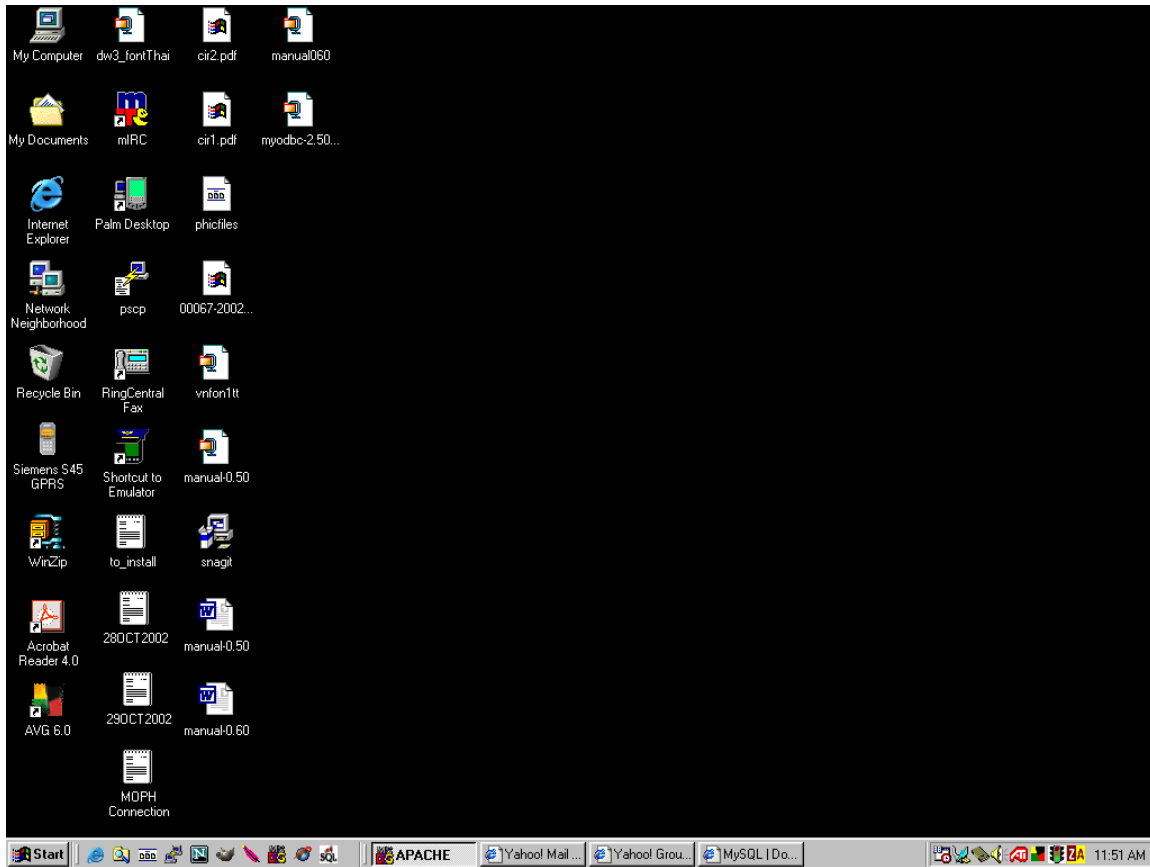
3. Click on the version appropriate for your computer. This will bring you to a set of available servers where you can download MyODBC. Choose one nearest to your country.



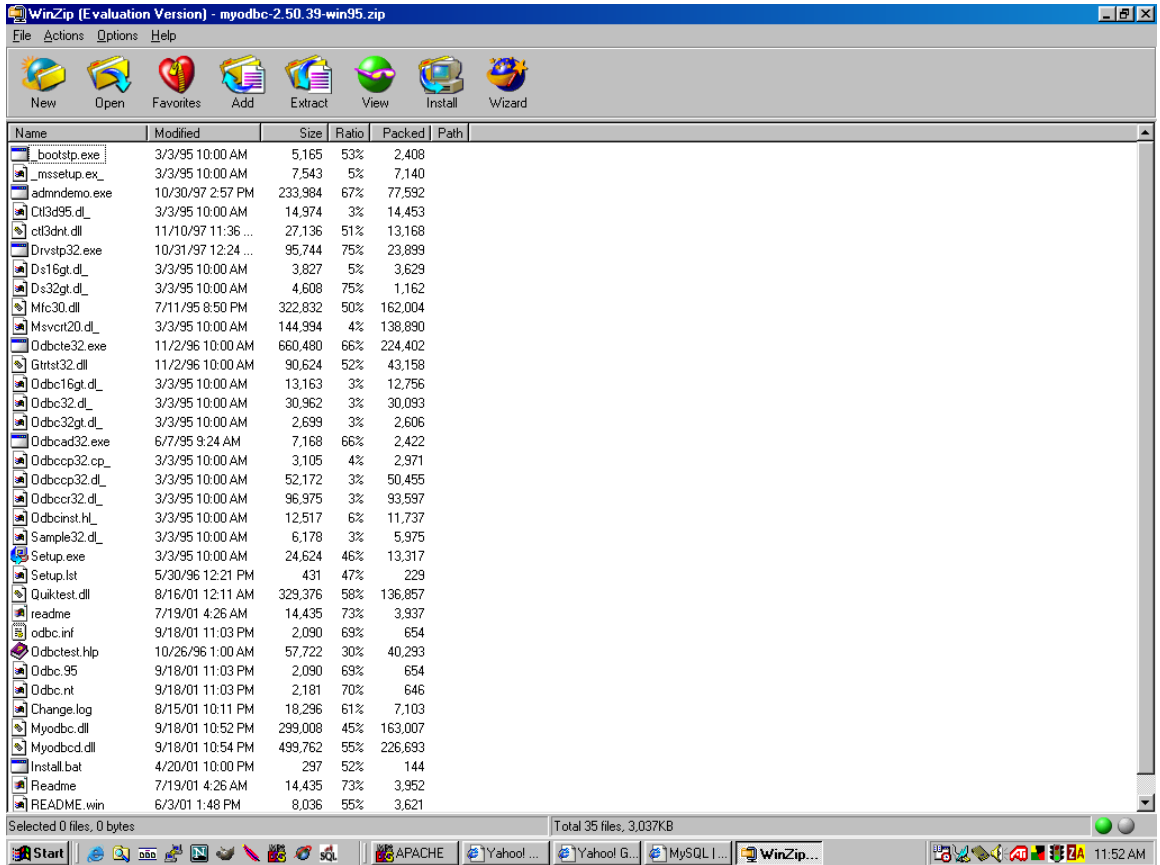
4. A window will pop-up asking if you wish to download the file to your computer. Click on 'Save'. You may save this file into any directory on your local hard disk. For the purpose of this tutorial, the file will be saved in the 'Desktop' directory.



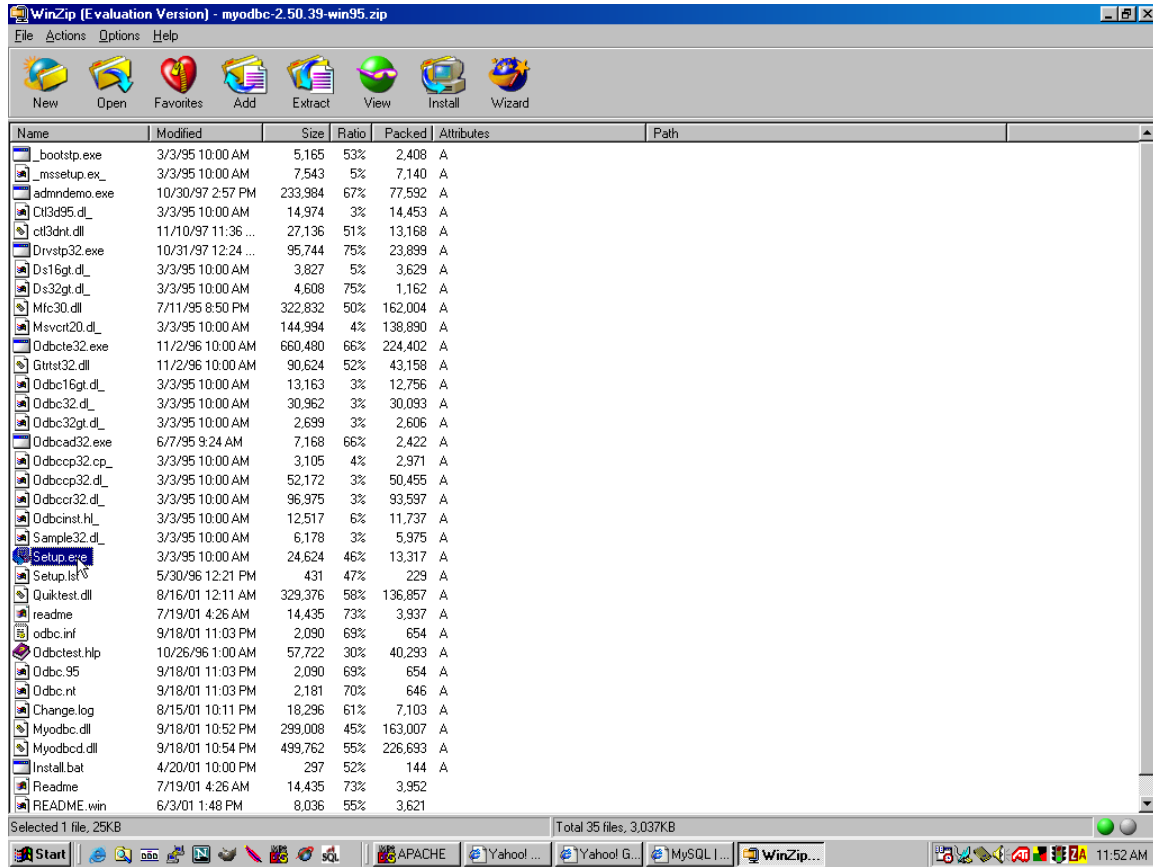
5. You may now exit the browser and look at your 'Desktop' where you saved the file.



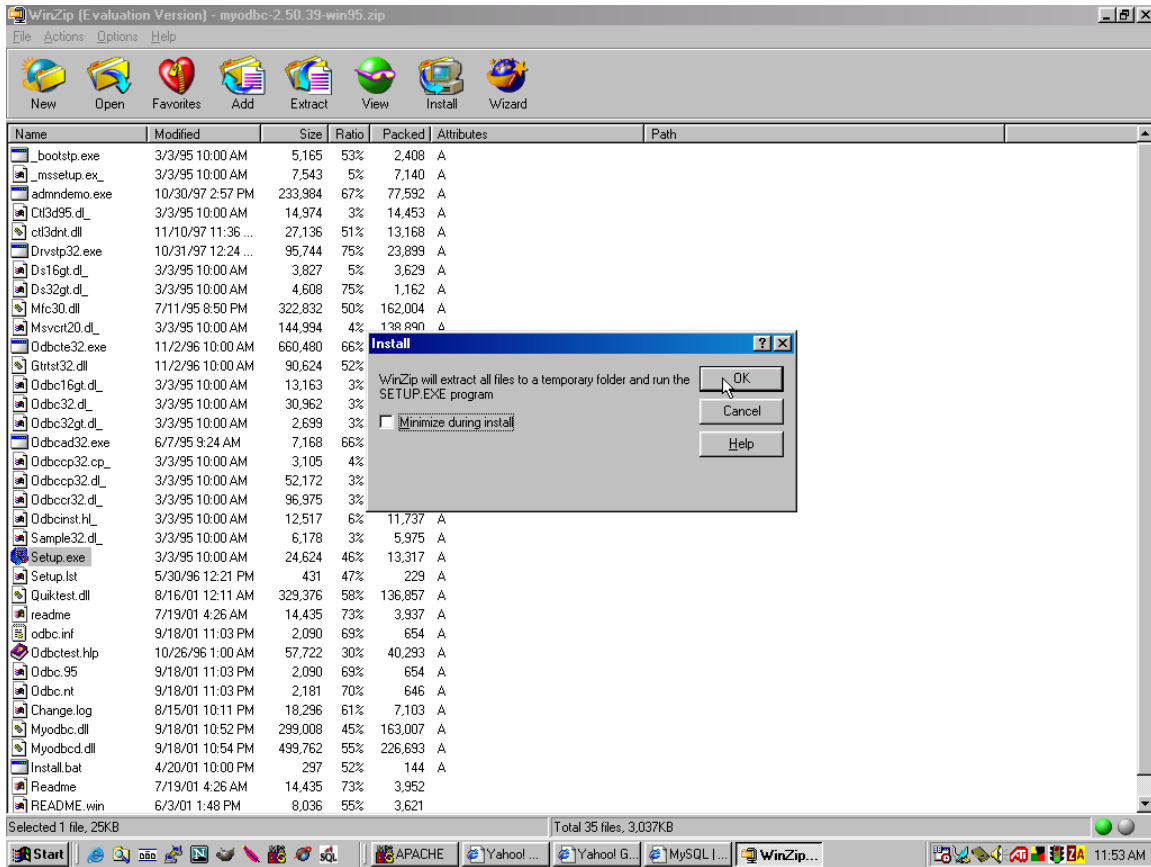
6. Double-click on the myodbc file. This will open the Winzip application (or whatever archiving software installed in the computer). A list of the files in the myodbc file will be shown.



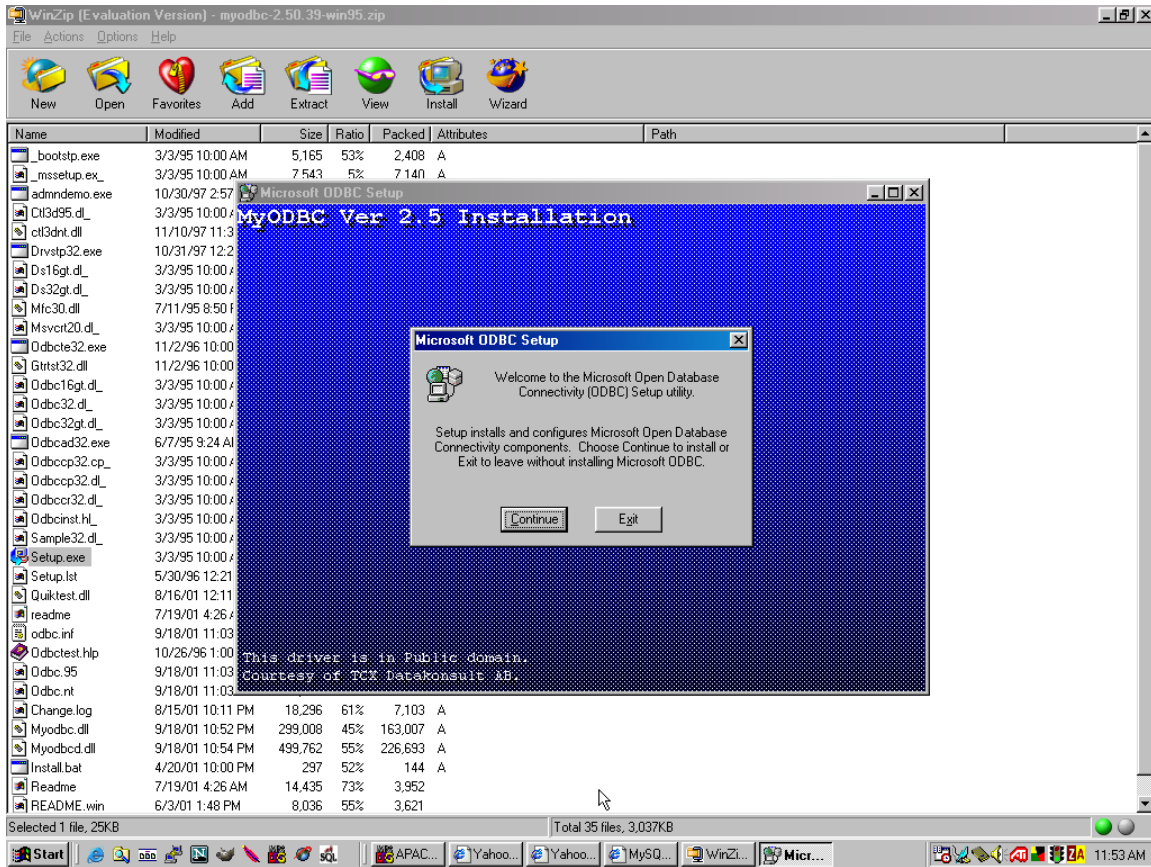
7. Double-click on the Setup.exe file.



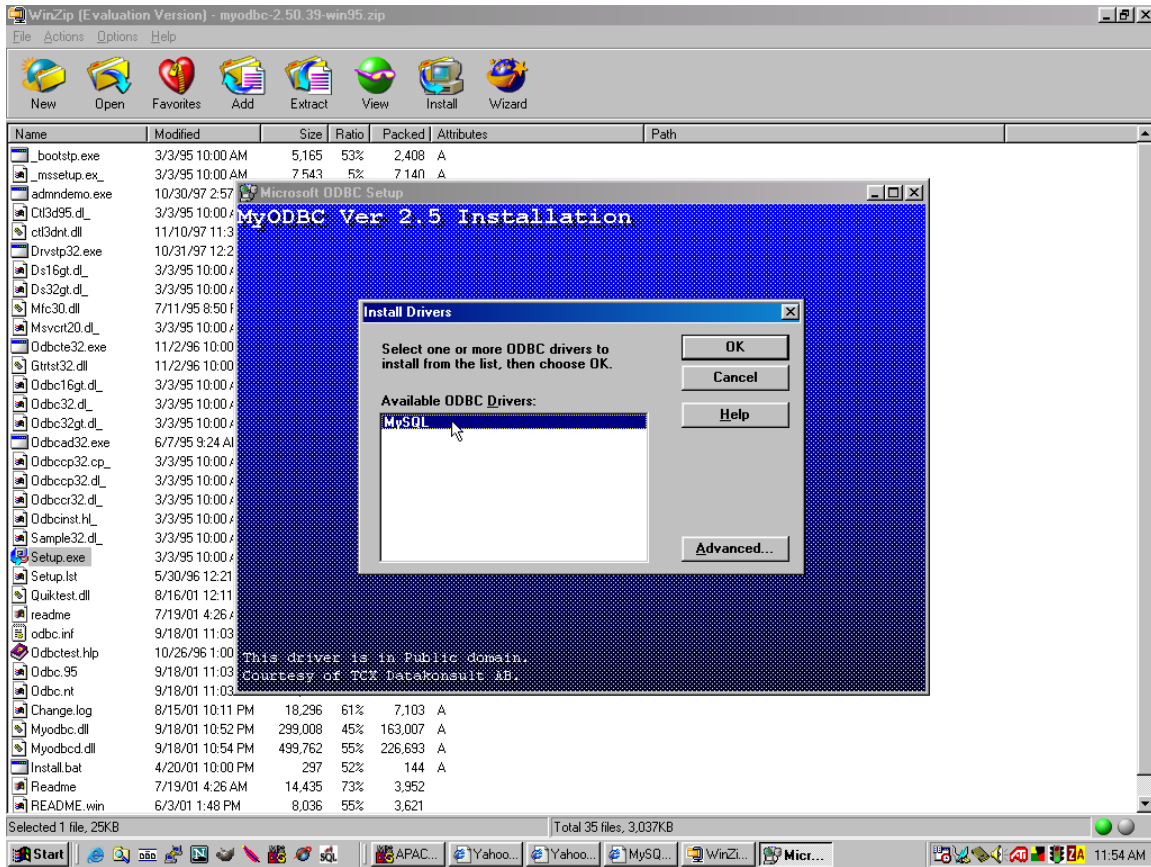
8. This will start the MyODBC installation. Click 'Ok'.



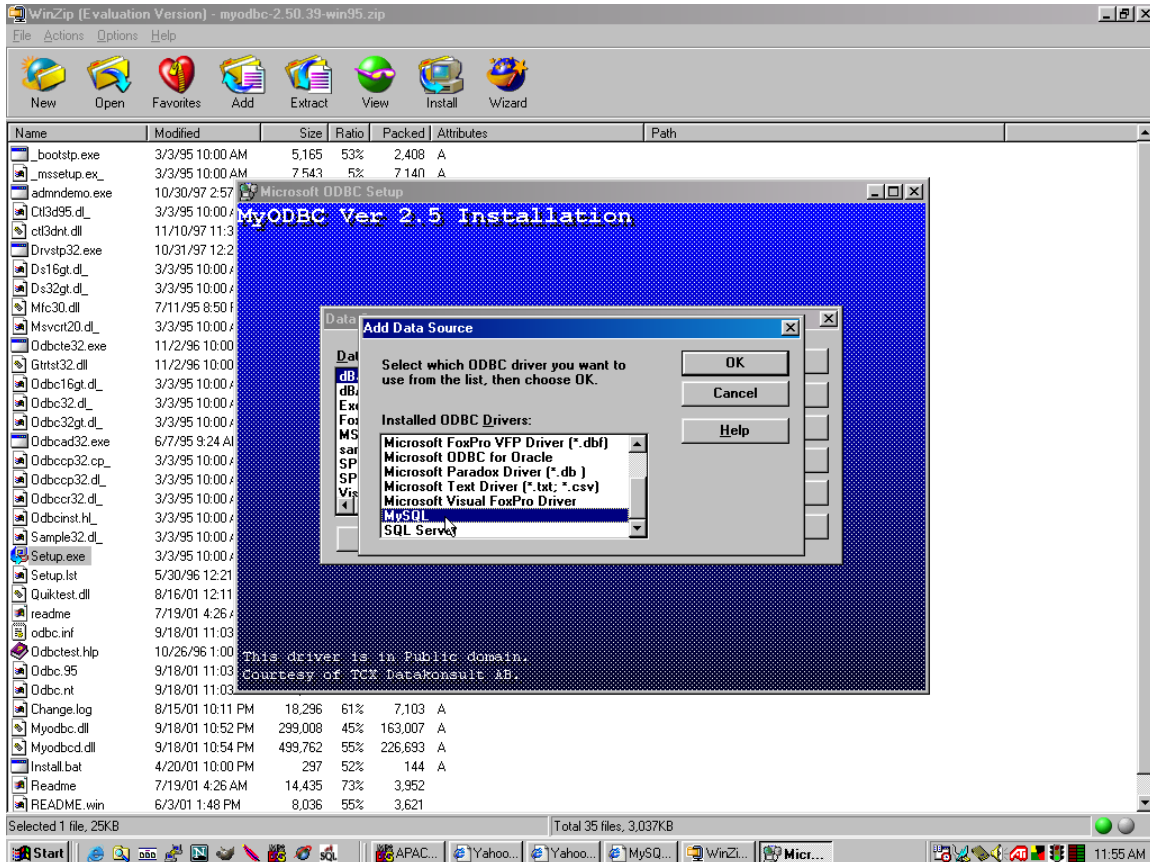
9. Click on 'Continue'.



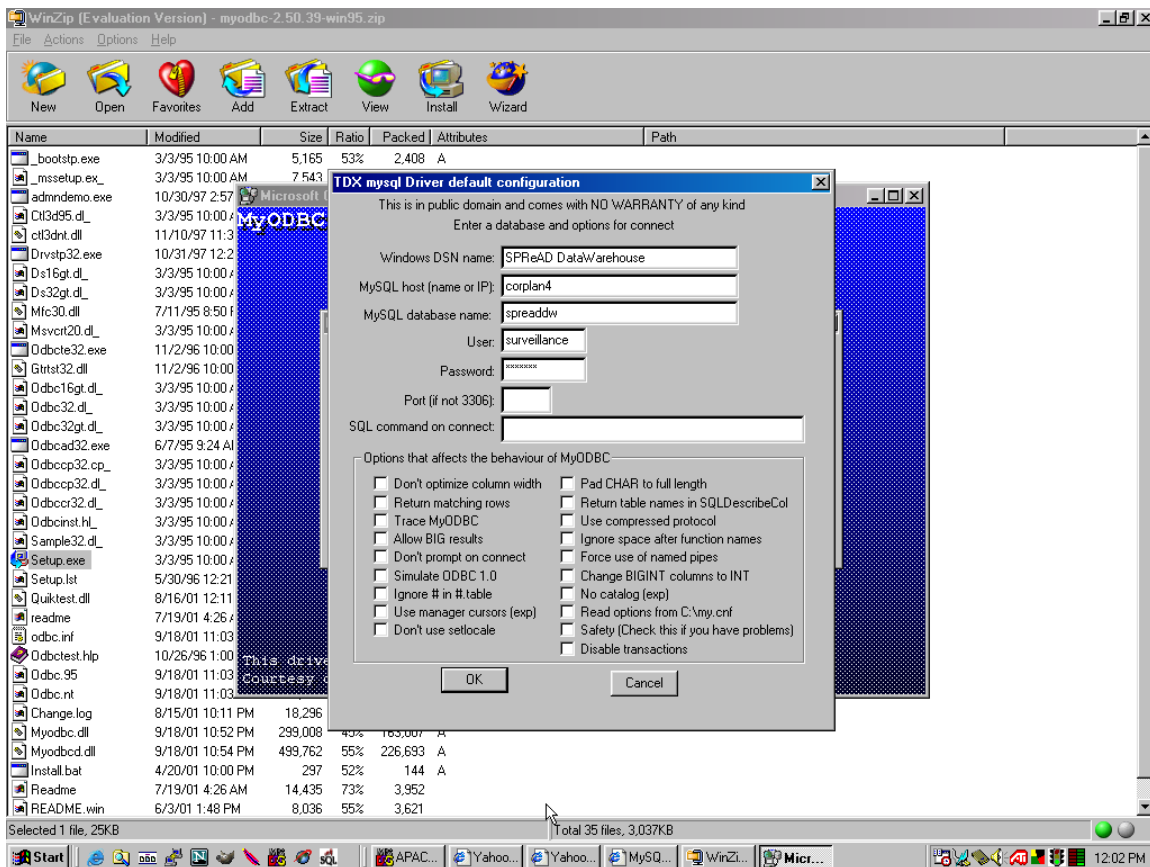
10. A list of available ODBC drivers will be shown. Choose MySQL then click on Ok.



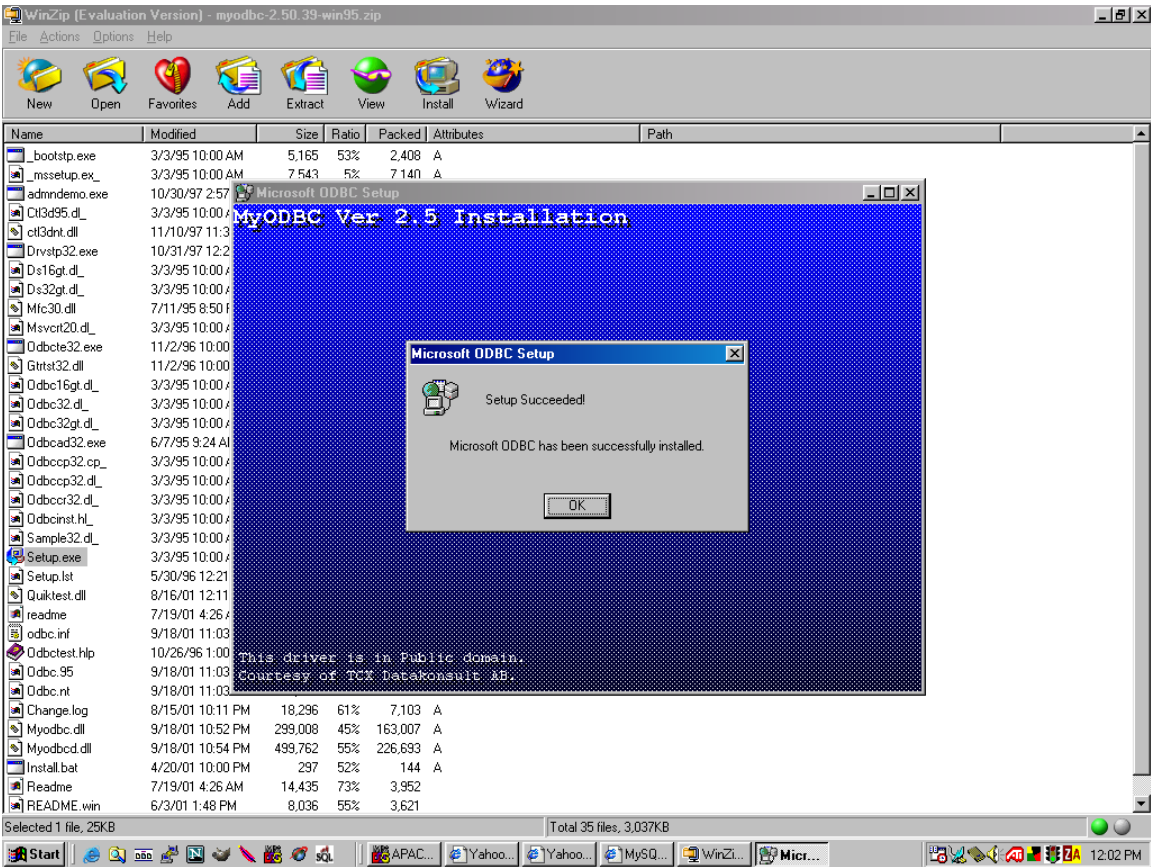
11. This will install the MyODBC driver. The next window will list all available ODBC drivers. Choose 'MySQL' then click 'Ok'.



12. The next window is critically important. The correct values need to be entered to establish a successful connection between the Windows machine and the SPReAD server. The following data as shown on the image below should be entered.



13. A successful installation will show the following message. Successful installation means SPReAD databases may now be accessed by external computer programs through MyODBC.



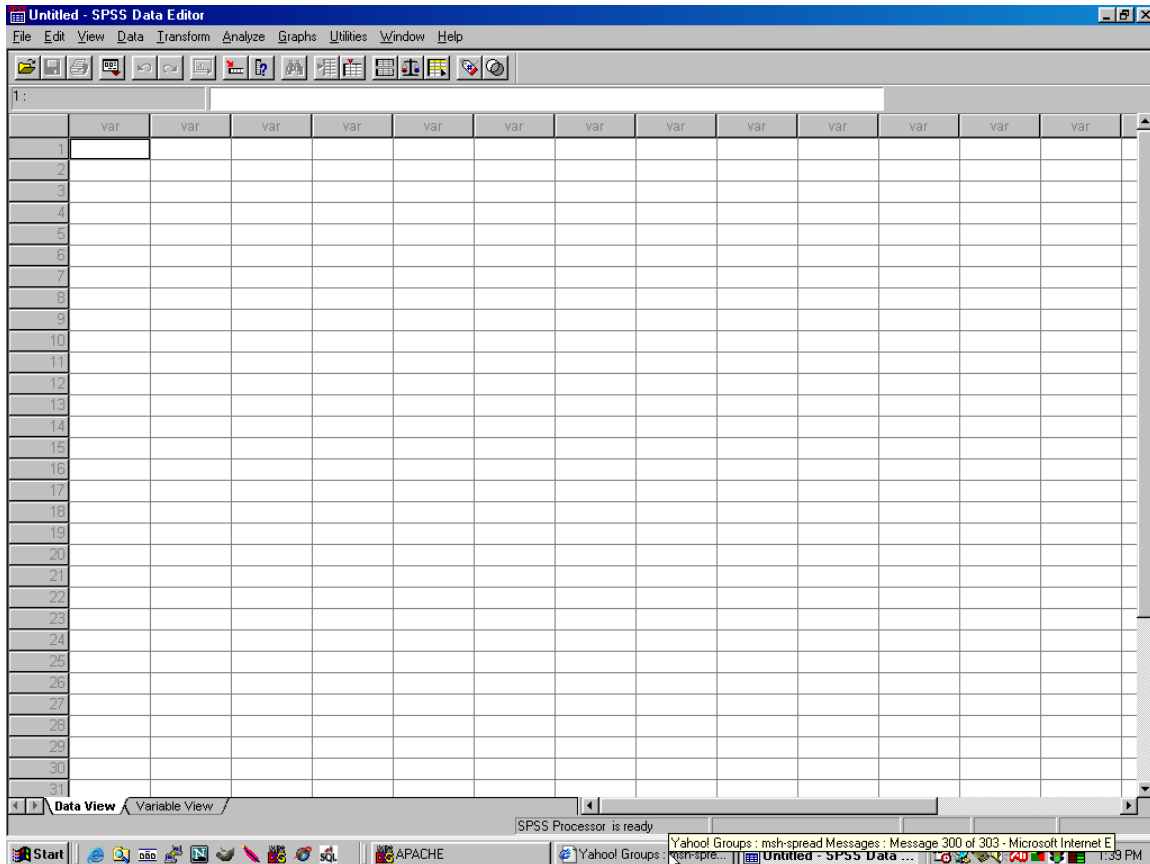
The next section will show how to access the SPReAD datawarehouse

Appendix K: Connecting The Database To SPSS

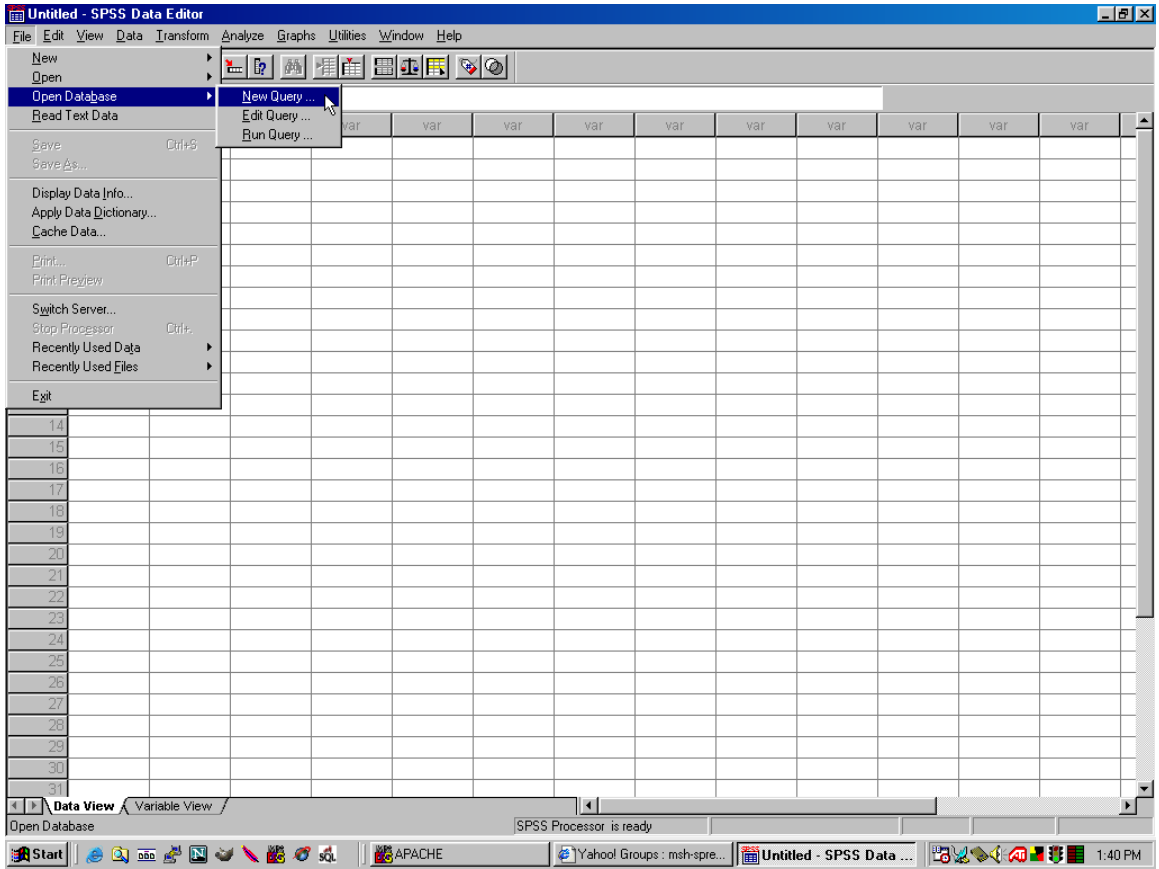
SPSS is a statistical software package created and distributed by LEAD Technoloiges, Inc. It is one of the tools preferred in analyzing data warehouses for its various features and processing speed. This appendix is made up of two sections. The first section demonstrates how to access the SPReAD data warehouse using SPSS. The second section shows how to analyze the data after access to the warehouse has been established.

How to Access the SPReAD Data Warehouse using SPSS

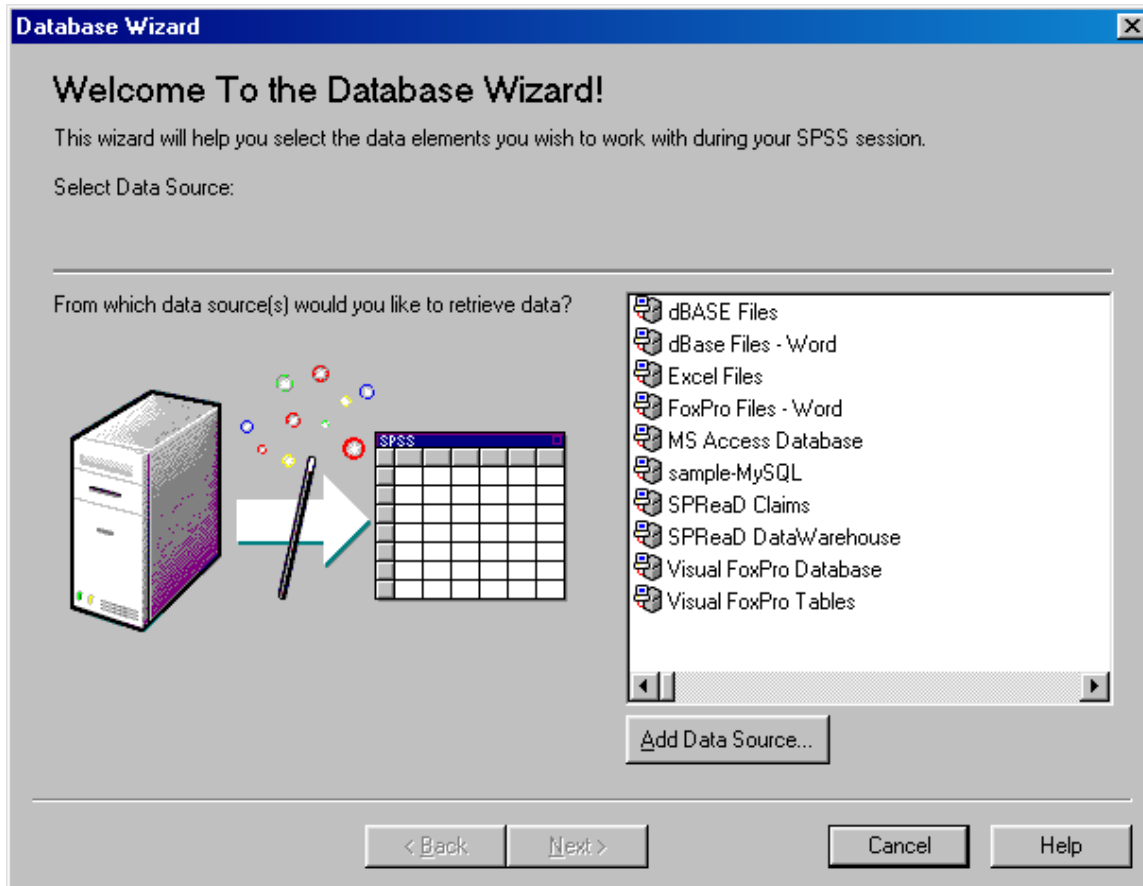
1. Click on Start → Program Files → SPSS for Windows. This will start the SPSS application. You should be able to see the screen below.



2. On the top menu, click on File → Open Database → New query

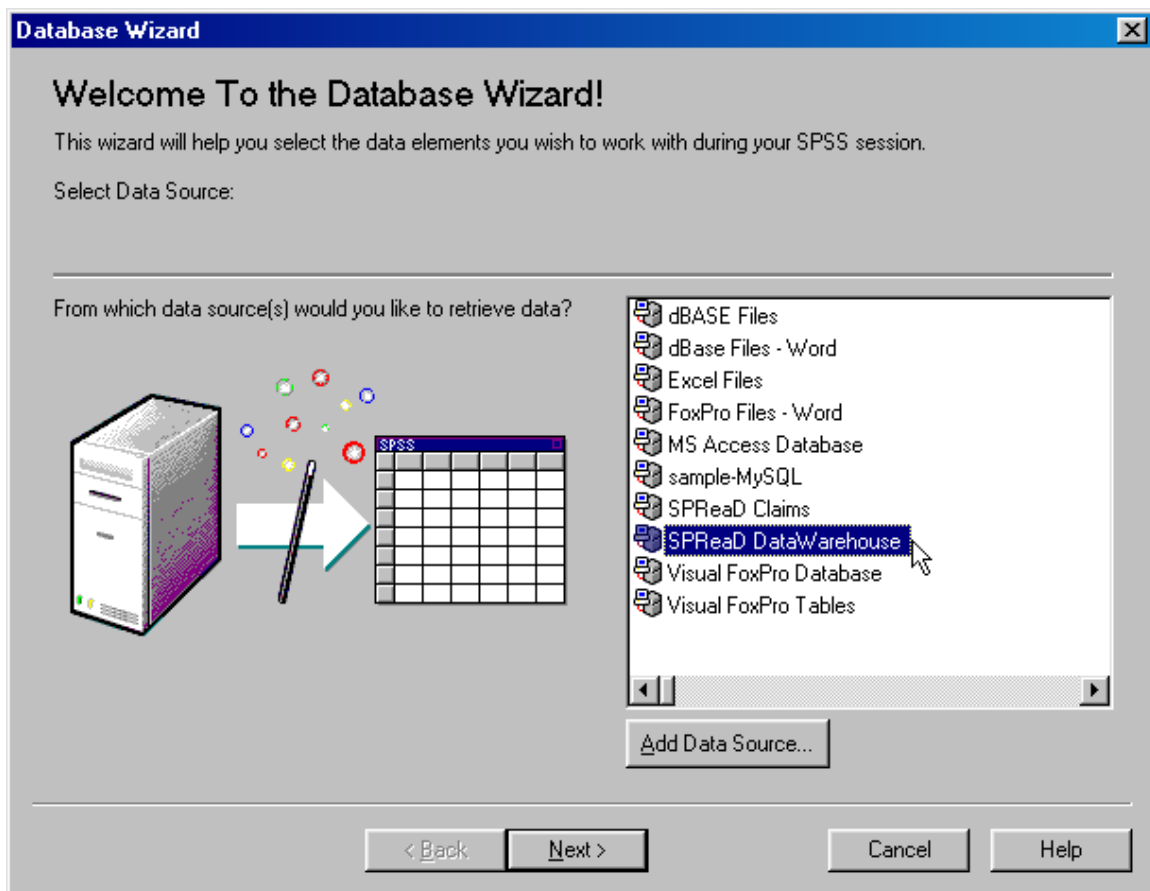


5. This opens the Database Wizard



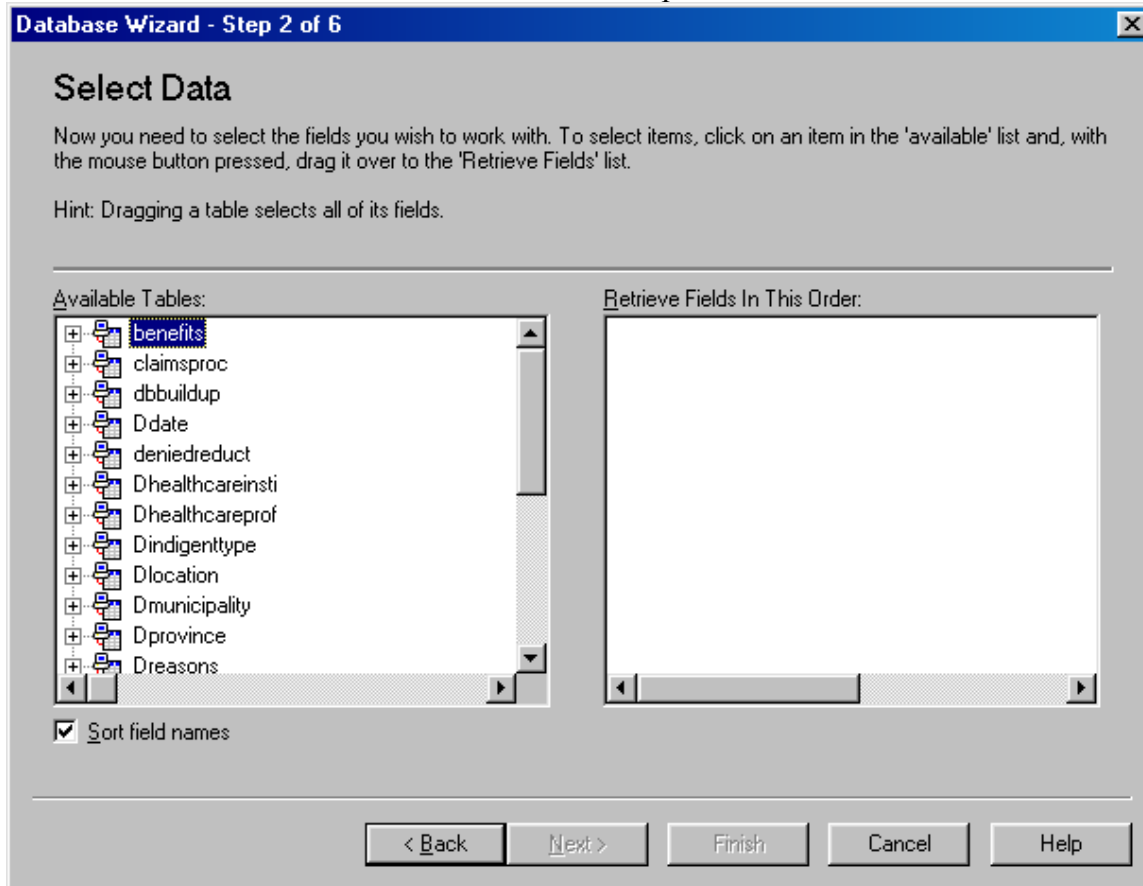
6. In the box of available databases, you will see two SPReAD Databases: **SPReAD Claims** and **SPReAD DataWarehouse**. **SPReAD Claims** contains claims data on a record per record basis (obtained from the Unified Claims Processing System or UPCS) while **SPReAD DataWarehouse** contains the data from Monthly Operating Reports from the PhilHealth Regional Offices.

You may choose either source when analyzing data. For the following steps, let us choose SPReAD DataWarehouse. Click Next after highlighting SPReAD DataWarehouse.



7. The next window will show the available tables in the SPReAD DataWarehouse. There are two types of tables in a data warehouse: fact table and dimension tables. Fact tables contain data collected from the regions. Dimension tables contain parameters from which queries to the fact tables may be done (eg., Date dimension to do queries by date, Location dimension to do queries by province or region, Sector dimension to do queries by type of member – government, individually paying, etc).

Dimension tables, by convention, start with a letter 'D' (eg., Ddate, Drhio, Dsector). Fact tables are those which do not start with a capital letter 'D'.



8. Depending on the query, the user can then drag and drop the tables from the Available Tables box to the Retrieve Fields In This Order box. For purposes of this example, let us drag the benefits fact table and the Ddate dimension table.

Select Data

Now you need to select the fields you wish to work with. To select items, click on an item in the 'available' list and, with the mouse button pressed, drag it over to the 'Retrieve Fields' list.

Hint: Dragging a table selects all of its fields.

Available Tables:

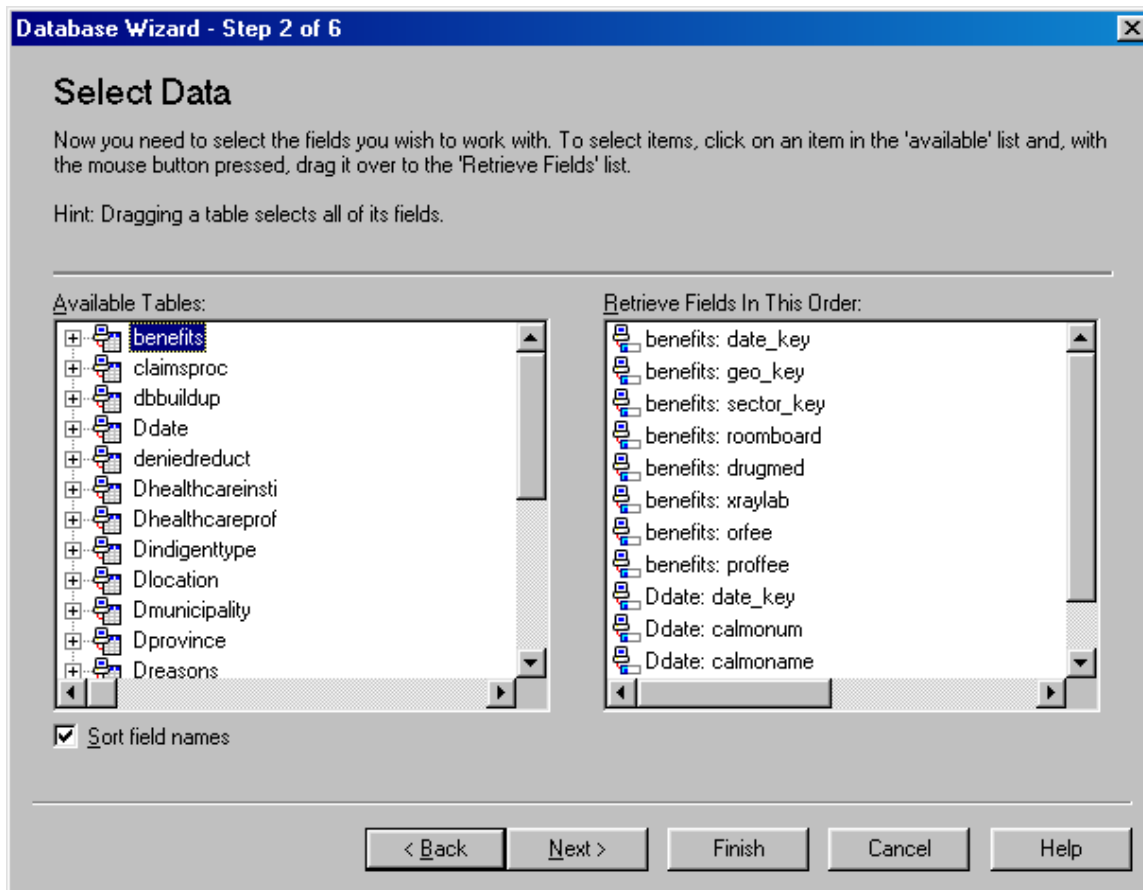
- benefits
- claimsproc
- dbbuildup
- Ddate
- deniedreduct
- Dhealthcareinsti
- Dhealthcareprof
- Dindigenttype
- Dlocation
- Dmunicipality
- Dprovince
- Dreasons

Retrieve Fields In This Order:

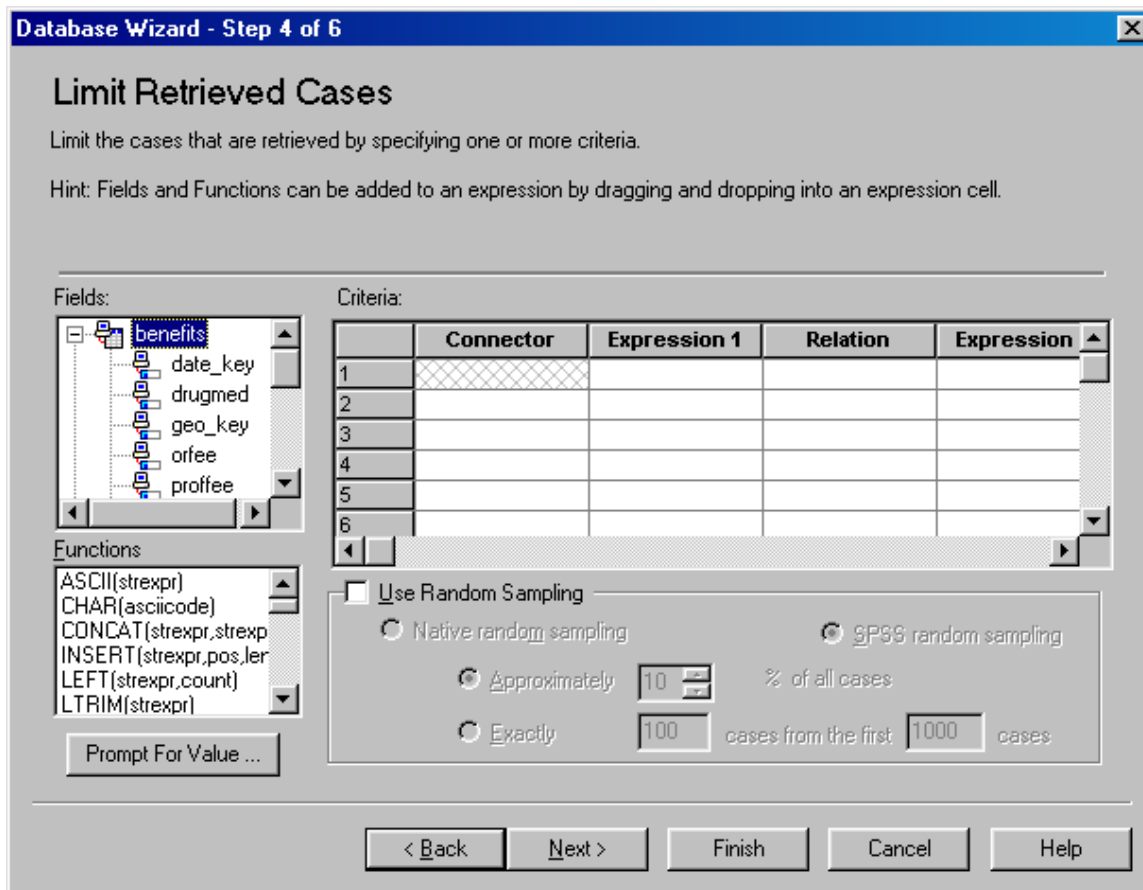
-

Sort field names

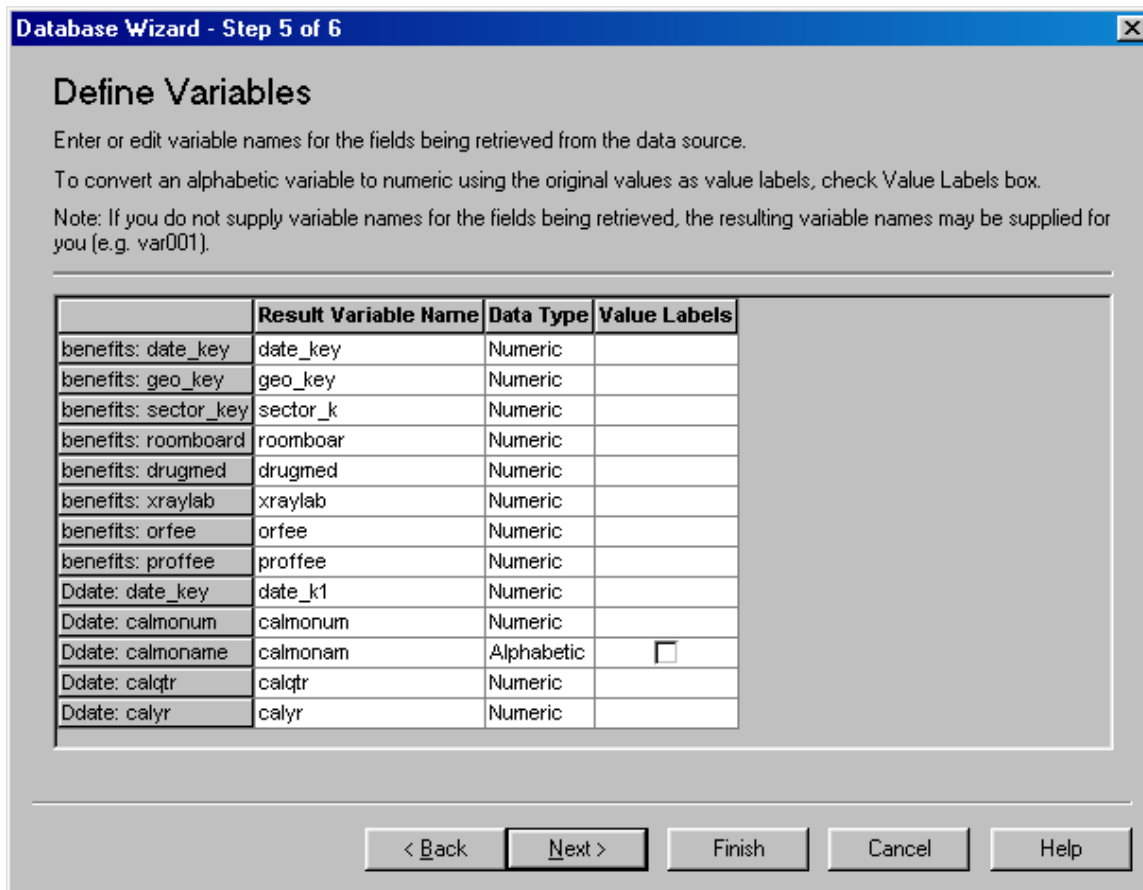
< Back Next > Finish Cancel Help



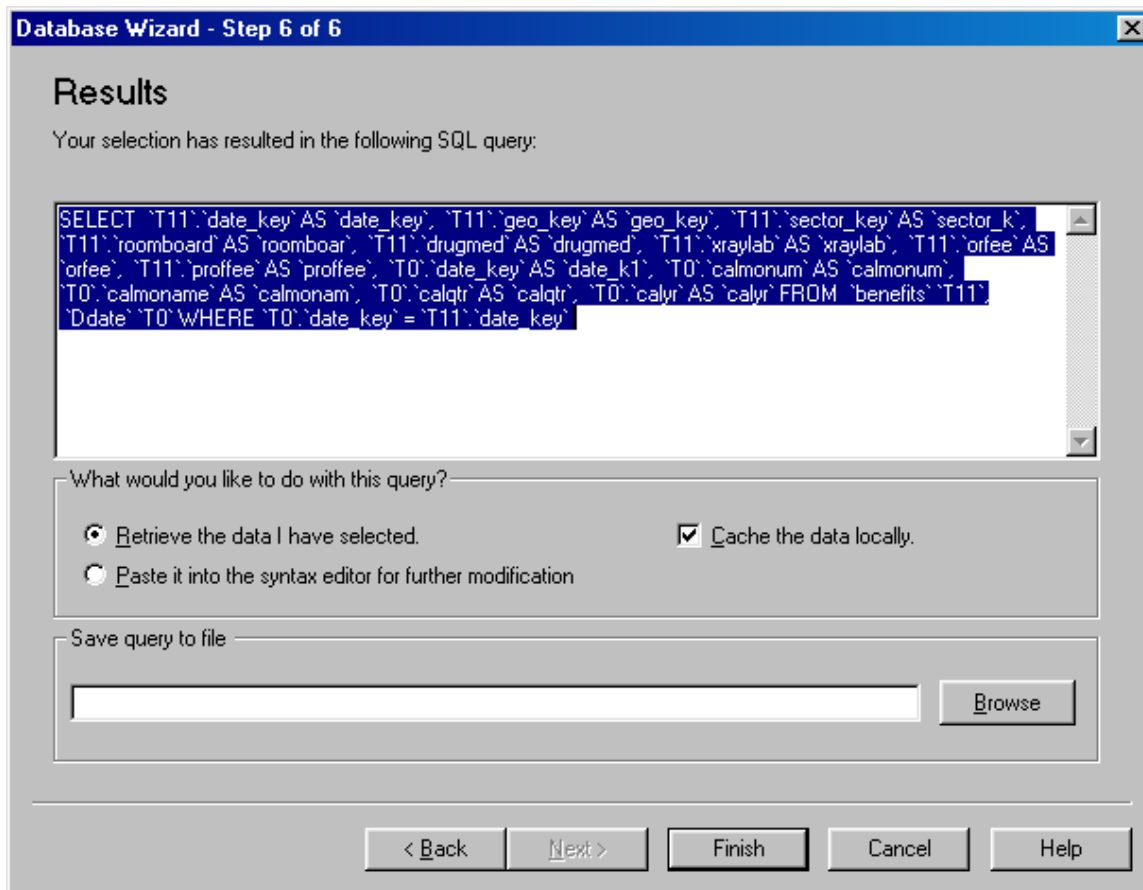
7. Once the necessary tables are on the right side, click on the Next button subsequently until the wizard exits. The next few figures show the subsequent windows and their purposes. The user may opt to leave these options alone. The next step for example allows the user to limit the retrieved fields. This is useful if there are unnecessary fields in the tables chosen. Limiting the fields will also speed up the performance of the query.



9. Variables may also be defined to a more human readable format. Step 5 shows the window where the user can rename the fields from the tables.



10. The final step will show the SQL query required to perform the merging of the fact and dimension tables. Advanced SQL queries may be written directly on this window.



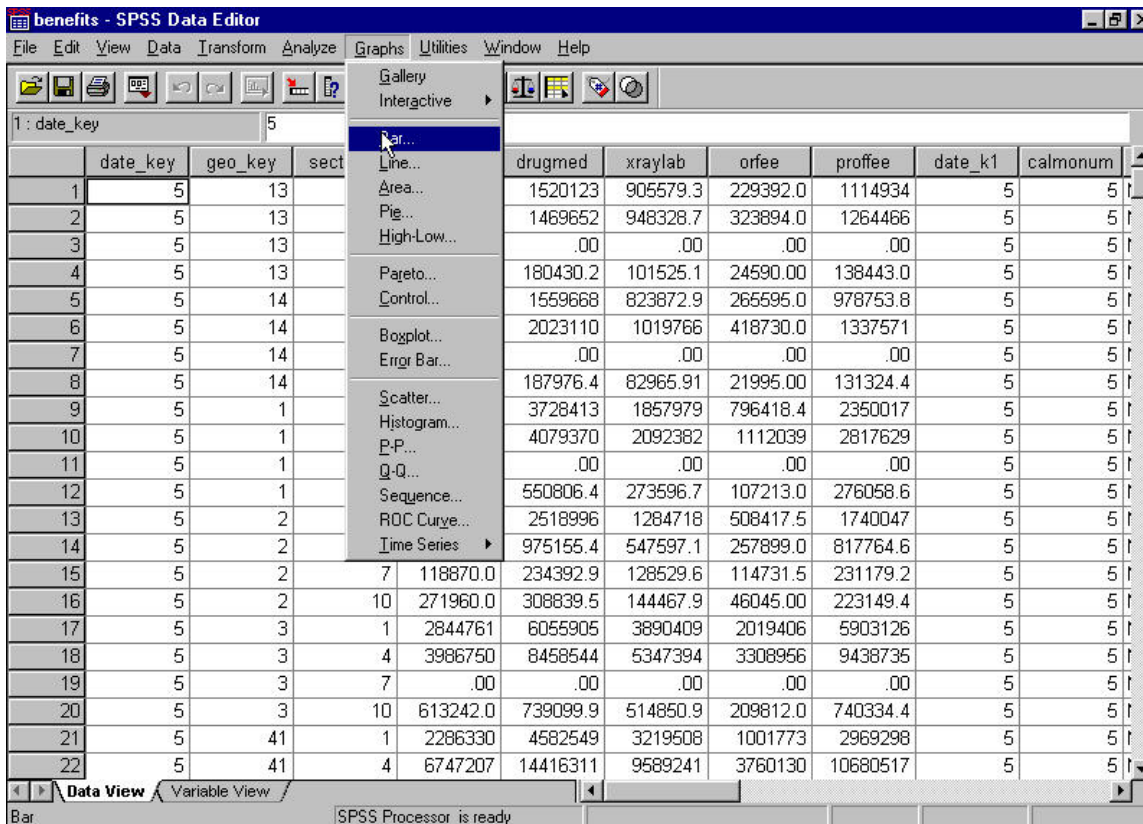
11. Finally, the fields of the chosen tables are displayed.

	date_key	geo_key	sector_k	roomboar	drugmed	xraylab	orfee	proffee	date_k1	calmonum	calmonam	calqtr	calyr
1	5	13	1	1117140	1520123	905579.3	229392.0	1114934	5	5	May	2	2002
2	5	13	4	999680.0	1469652	948328.7	323894.0	1264466	5	5	May	2	2002
3	5	13	7	.00	.00	.00	.00	.00	5	5	May	2	2002
4	5	13	10	175755.0	180430.2	101525.1	24590.00	138443.0	5	5	May	2	2002
5	5	14	1	988175.0	1559668	823872.9	265595.0	978753.8	5	5	May	2	2002
6	5	14	4	12448615	2023110	1019766	418730.0	1337571	5	5	May	2	2002
7	5	14	7	.00	.00	.00	.00	.00	5	5	May	2	2002
8	5	14	10	219050.0	187976.4	82965.91	21995.00	131324.4	5	5	May	2	2002
9	5	1	1	1931235	3728413	1857979	796418.4	2350017	5	5	May	2	2002
10	5	1	4	2142628	4079370	2092382	1112039	2817629	5	5	May	2	2002
11	5	1	7	.00	.00	.00	.00	.00	5	5	May	2	2002
12	5	1	10	394890.0	550806.4	273596.7	107213.0	276058.6	5	5	May	2	2002
13	5	2	1	1373880	2518996	1284718	508417.5	1740047	5	5	May	2	2002
14	5	2	4	521640.0	975155.4	547597.1	257899.0	817764.6	5	5	May	2	2002
15	5	2	7	118870.0	234392.9	128529.6	114731.5	231179.2	5	5	May	2	2002
16	5	2	10	271960.0	308839.5	144467.9	46045.00	223149.4	5	5	May	2	2002
17	5	3	1	2844761	6055905	3890409	2019406	5903126	5	5	May	2	2002
18	5	3	4	3986750	8458544	5347394	3308956	9438735	5	5	May	2	2002
19	5	3	7	.00	.00	.00	.00	.00	5	5	May	2	2002
20	5	3	10	613242.0	739099.9	514850.9	209812.0	740334.4	5	5	May	2	2002
21	5	41	1	2286330	4582549	3219508	1001773	2969298	5	5	May	2	2002
22	5	41	4	6747207	14416311	9589241	3760130	10680517	5	5	May	2	2002
23	5	41	7	.00	.00	.00	.00	.00	5	5	May	2	2002
24	5	41	10	180700.0	325500.7	203533.9	56770.00	203923.0	5	5	May	2	2002
25	5	42	1	1007190	2305659	1432542	440041.0	1319876	5	5	May	2	2002
26	5	42	4	1904816	4724699	3111529	1077850	3139821	5	5	May	2	2002
27	5	42	7	286940.0	813667.5	606091.8	224980.0	655292.4	5	5	May	2	2002
28	5	42	10	351221.0	686622.4	389960.6	137280.0	458446.6	5	5	May	2	2002
29	5	9	1	1761030	2951351	1467142	589178.0	2108109	5	5	May	2	2002
30	5	9	4	938835.0	1574743	777202.9	332850.0	962350.0	5	5	May	2	2002
31	5	9	7	263795.0	483270.7	222914.0	136070.0	428260.4	5	5	May	2	2002

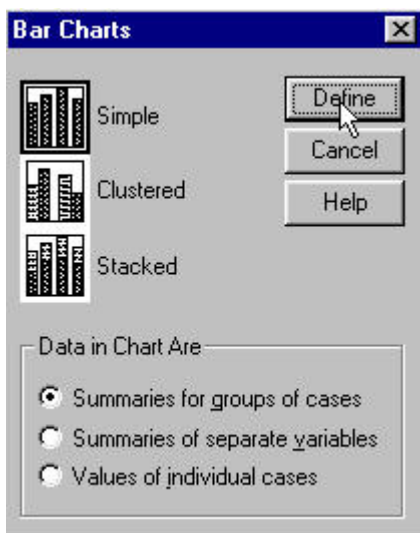
Once the tables have been displayed as above, the end user may now perform analyses on the table like any other table. Note that because of the dimension table (Ddate), it is now possible to analyze the data through various parameters (eg., by month, by year, by quarter, by type of holiday, etc). The aforementioned steps demonstrate how to open tables from the SPReAD data warehouse.

How to analyze the data by making graphs

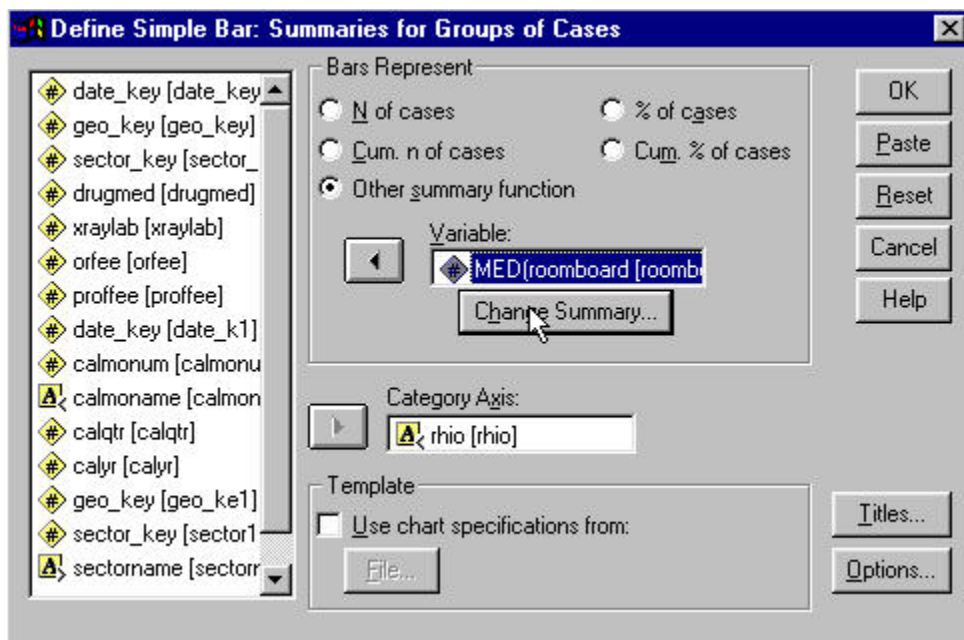
1. Using a sample dataset such as the **benefits** from the **SPReAD** Data Warehouse as shown above, select **Graph** → **Bar** from the top menu of the SPSS program.



A window such as the one below will provide choices as to what type of graph can be made.

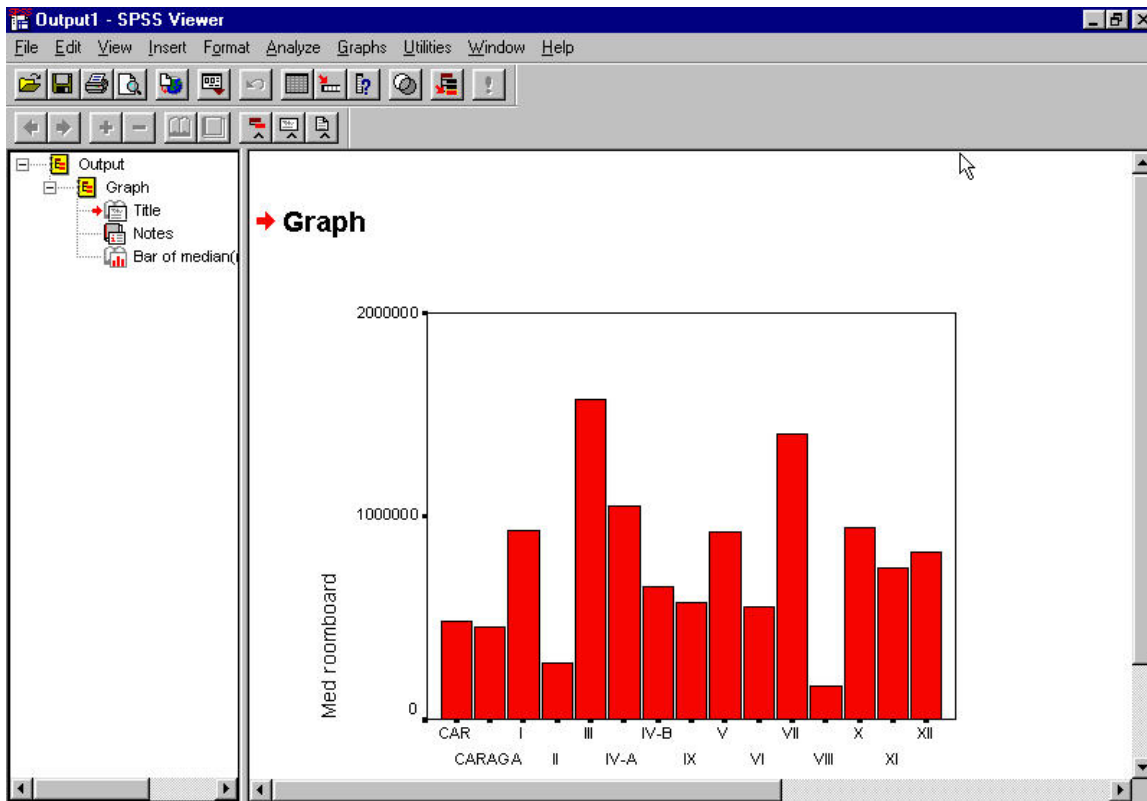


Select the variables that may be used for constructing the graph. Select the appropriate categorical variable (e.g. by location (RHIO), by date (month) or by sector) that can be used for the x-axis. Variables such as costs of benefits for room and accommodation, drugs and medicines, radiology, surgery and professional fees can be selected for the y-axis.

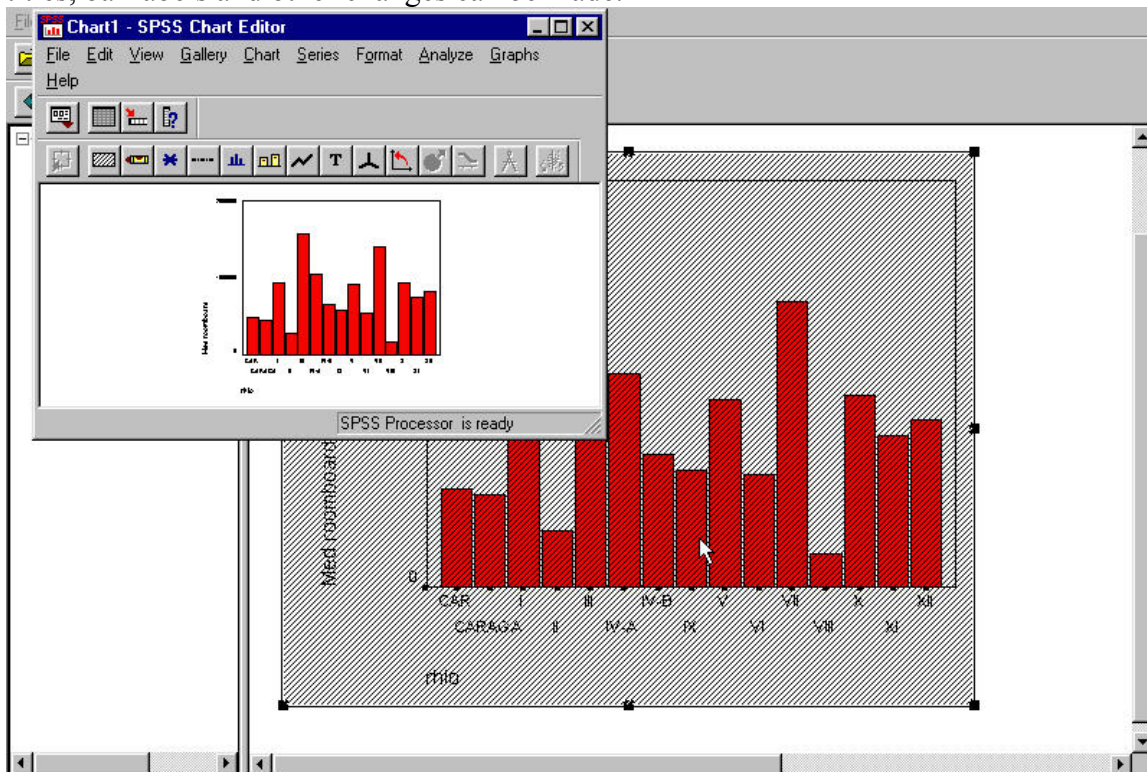


For more information about the different choices, click on **Help**.

The chart is then displayed in the the SPSS Viewer, another window which shows all the results of analysis and graph construction.

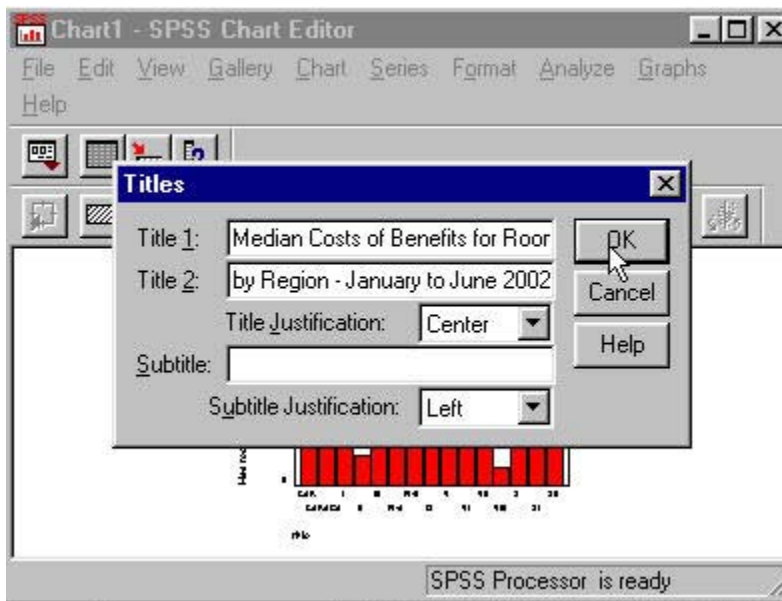
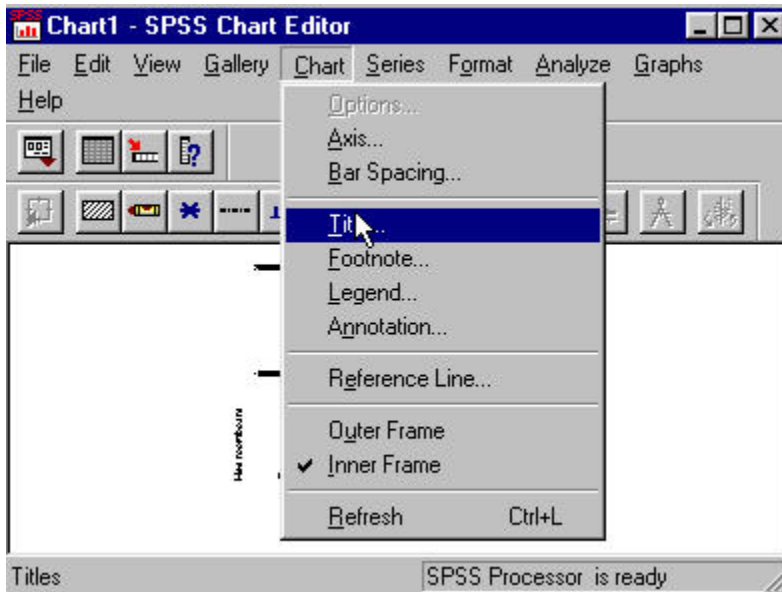


The chart can be edited by double-clicking on the chart itself. From the chart editor window, titles, bar labels and other changes can be made.

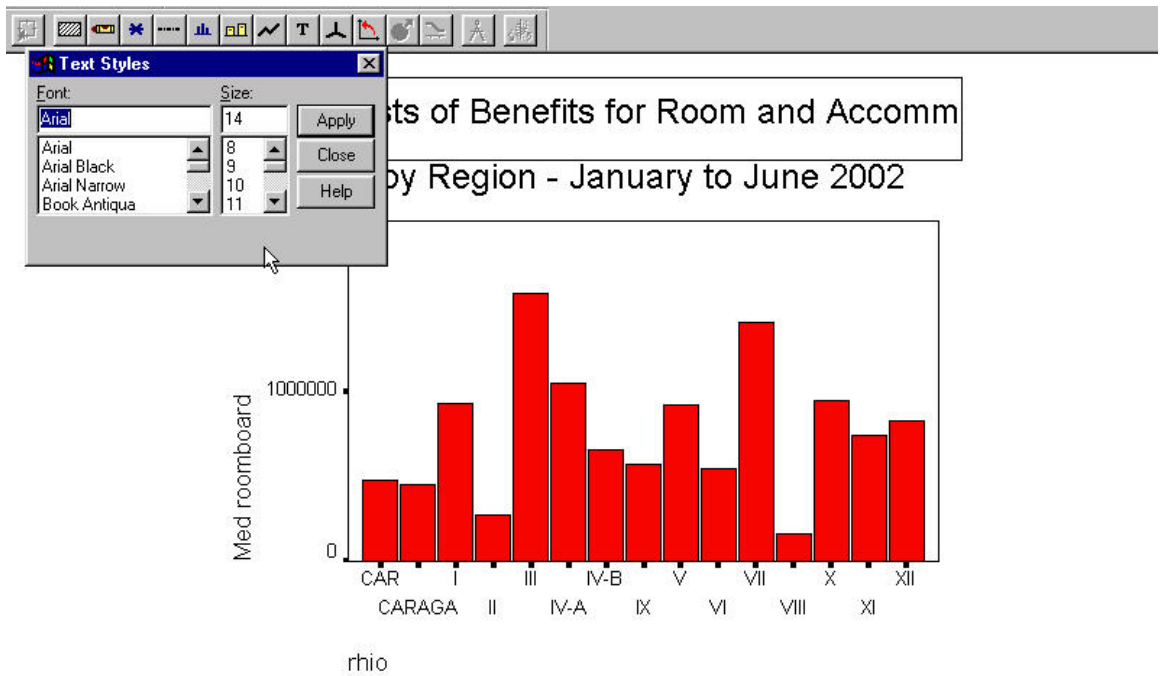


Changes can be made by drop down menus from the SPSS top bar or by double-clicking on different parts of the chart.

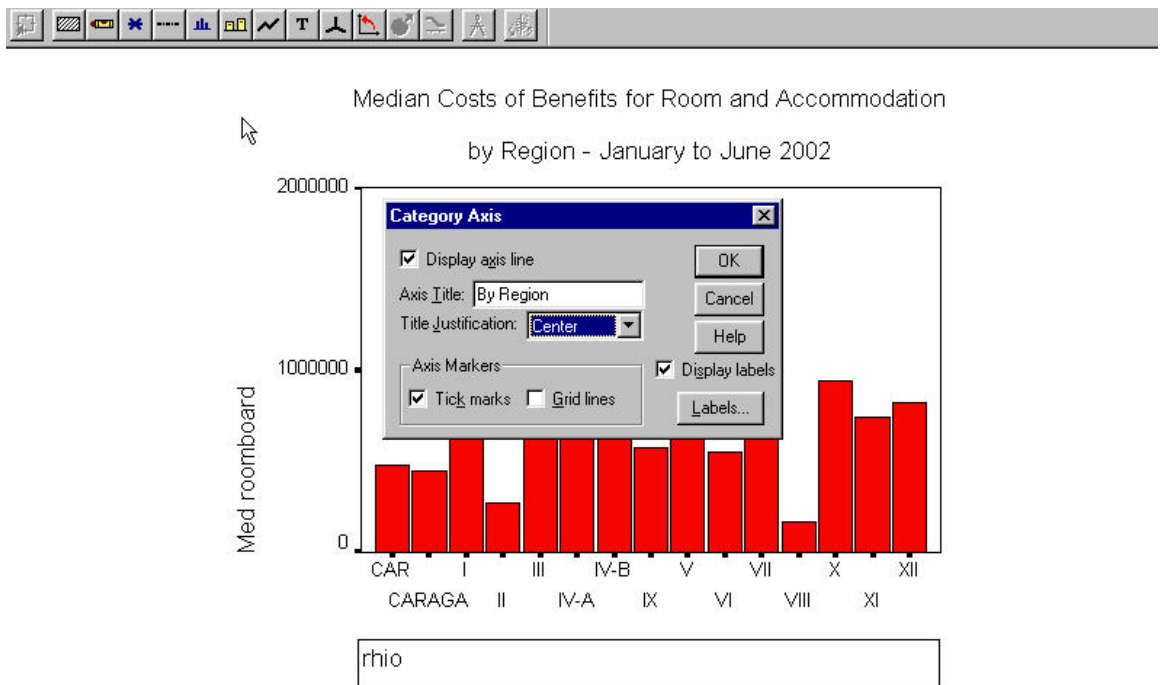
Putting in a title for the chart:



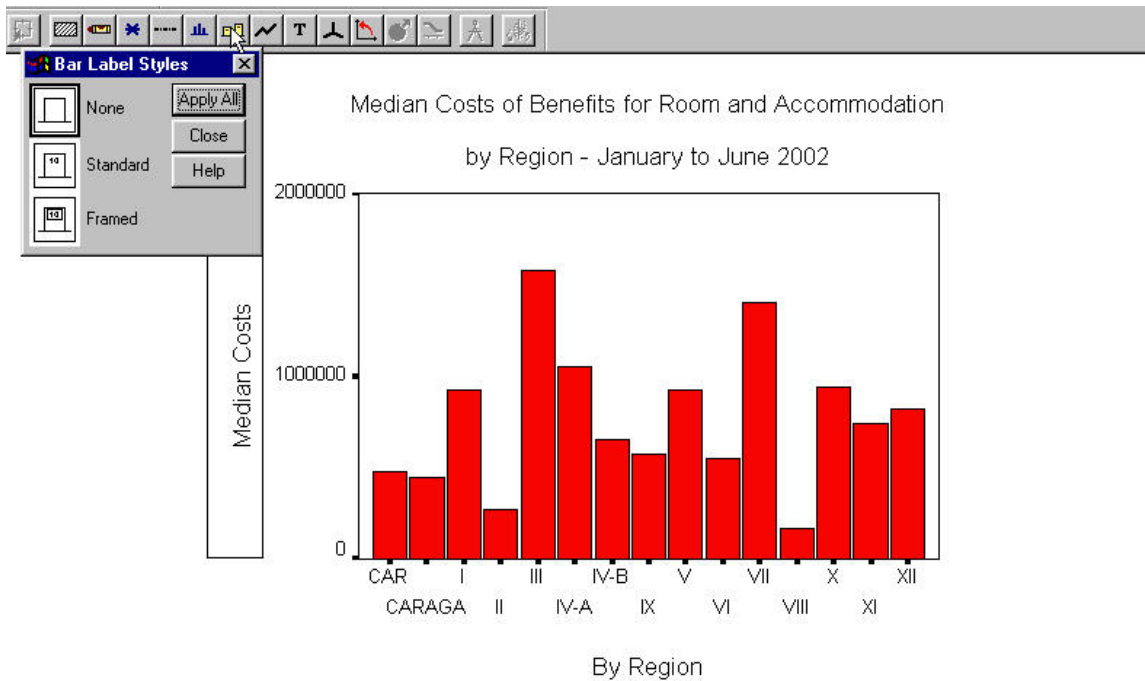
Fonts can be changed by selecting the title bars and selecting the font symbol.



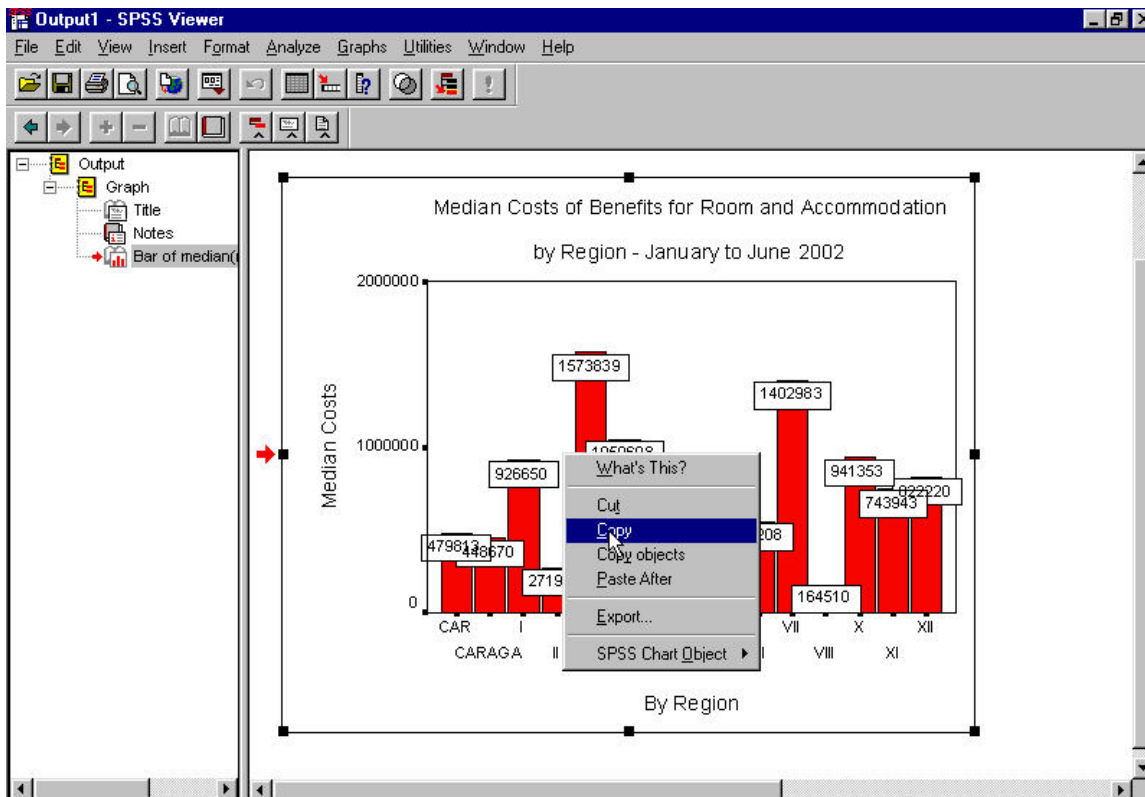
Axis labels can be modified by double-clicking on either the x or y axis.



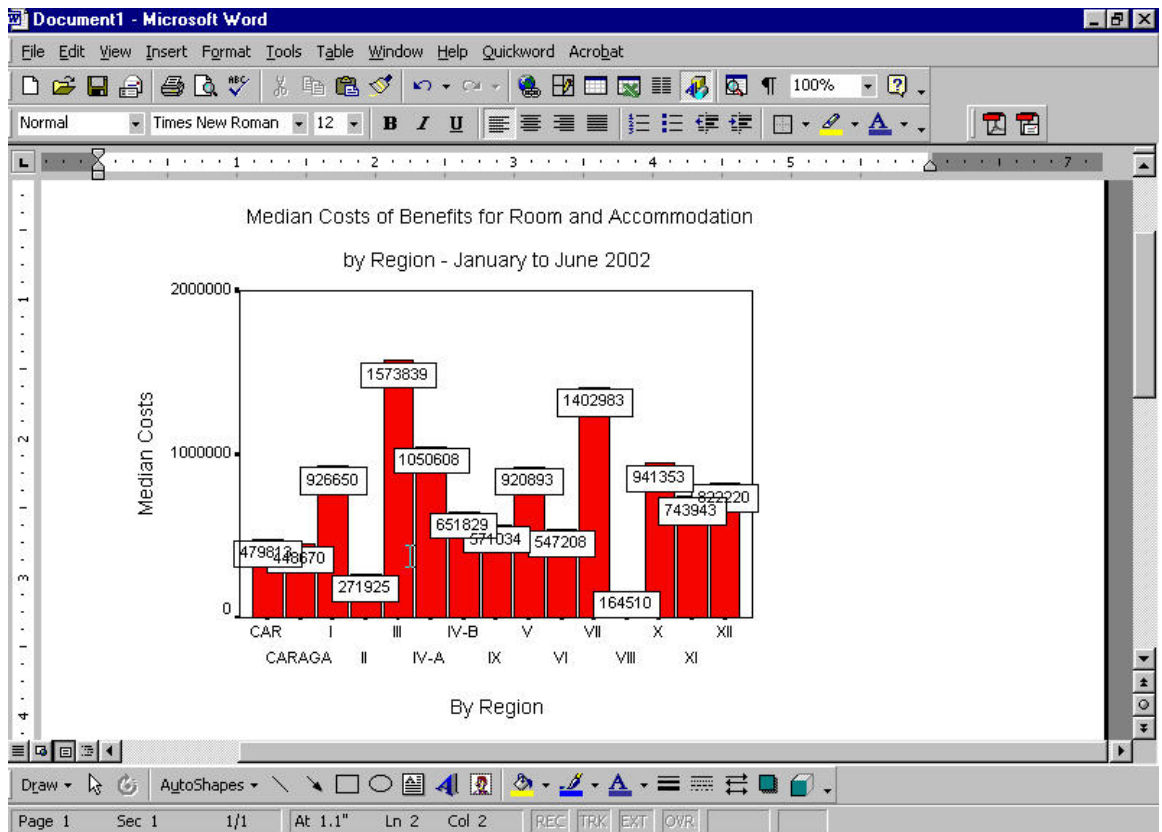
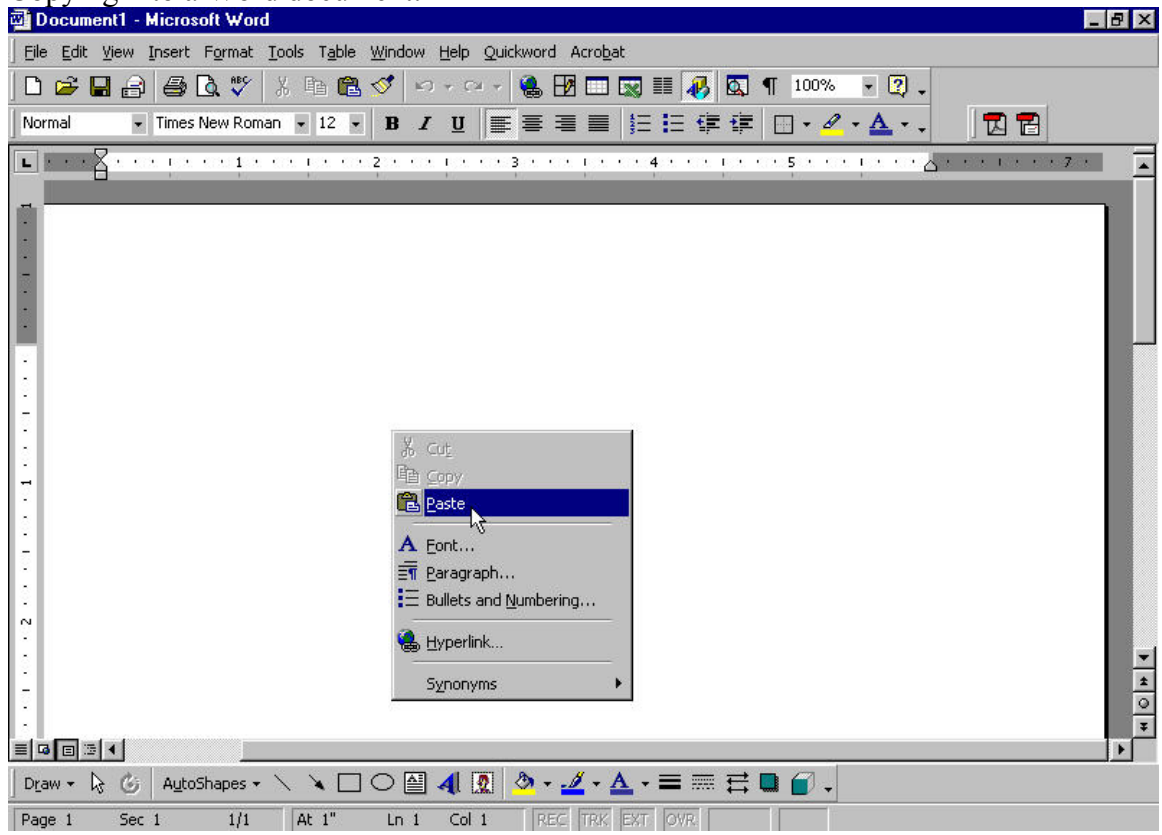
Additionally, one may choose to put in bar labels to facilitate viewing of results.



Once the chart editor window is closed, the chart can be copied from the viewer window and be pasted on any other document (i.e. Word or Powerpoint) as an image file (*.BMP).

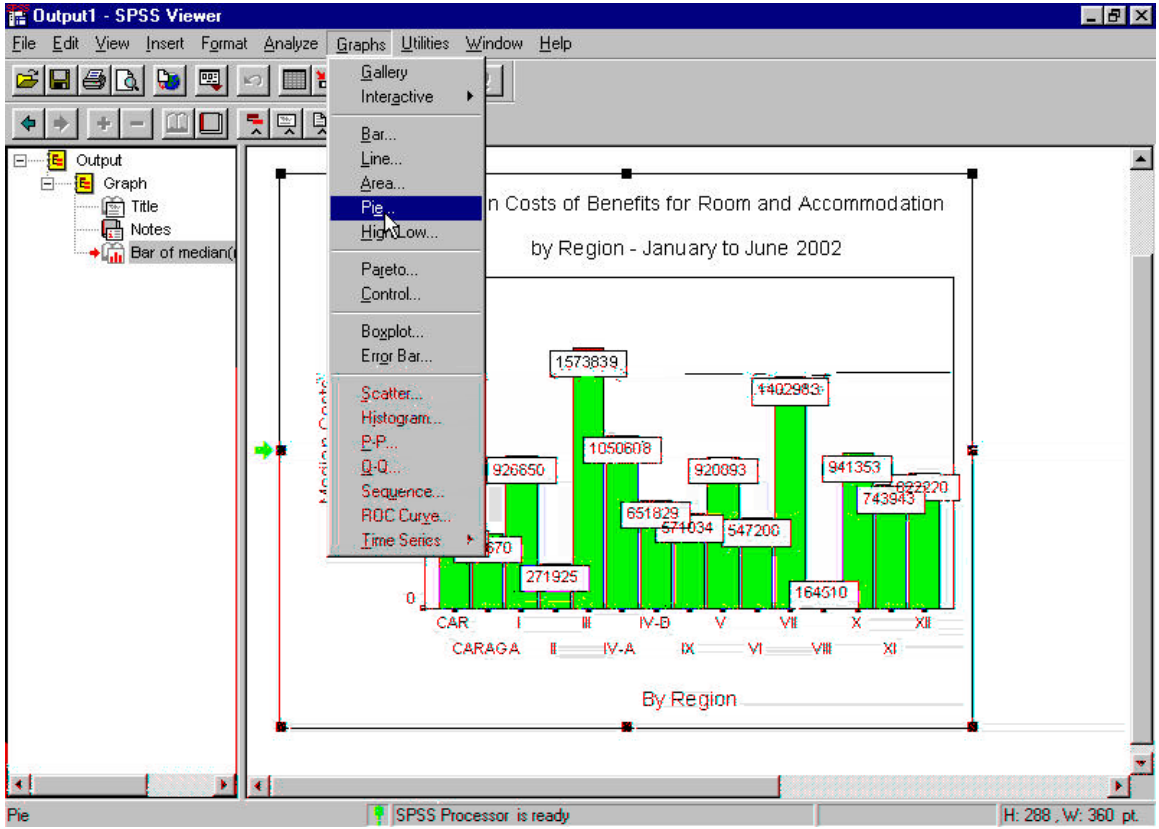


Copying into a Word document:

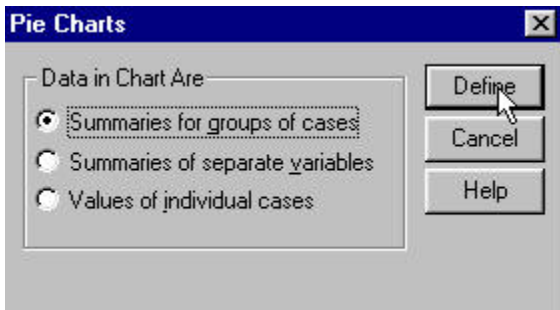


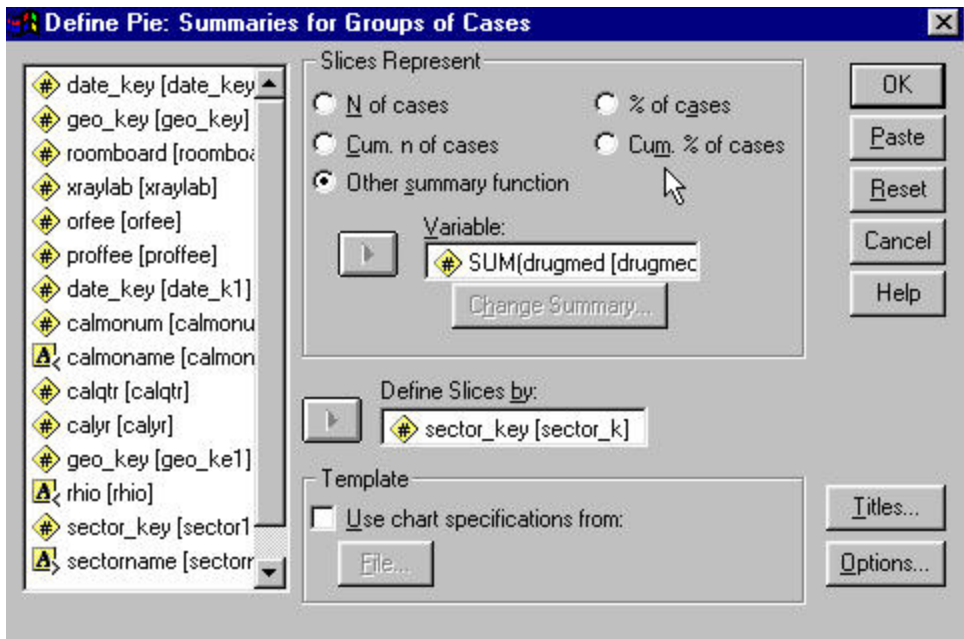
Editing should be done in the SPSS Chart Editor as the pasted imaged file in the receiving document can not be edited.

2. Using the same dataset above, select **Graph** → **Pie** from the top menu of the SPSS program either from the SPSS Data Editor window or the SPSS Viewer window.

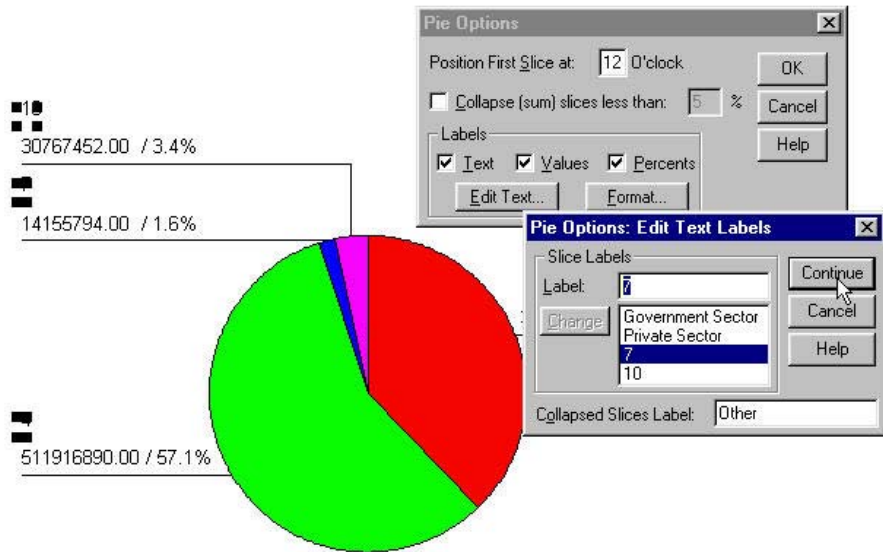


Select the type of chart.

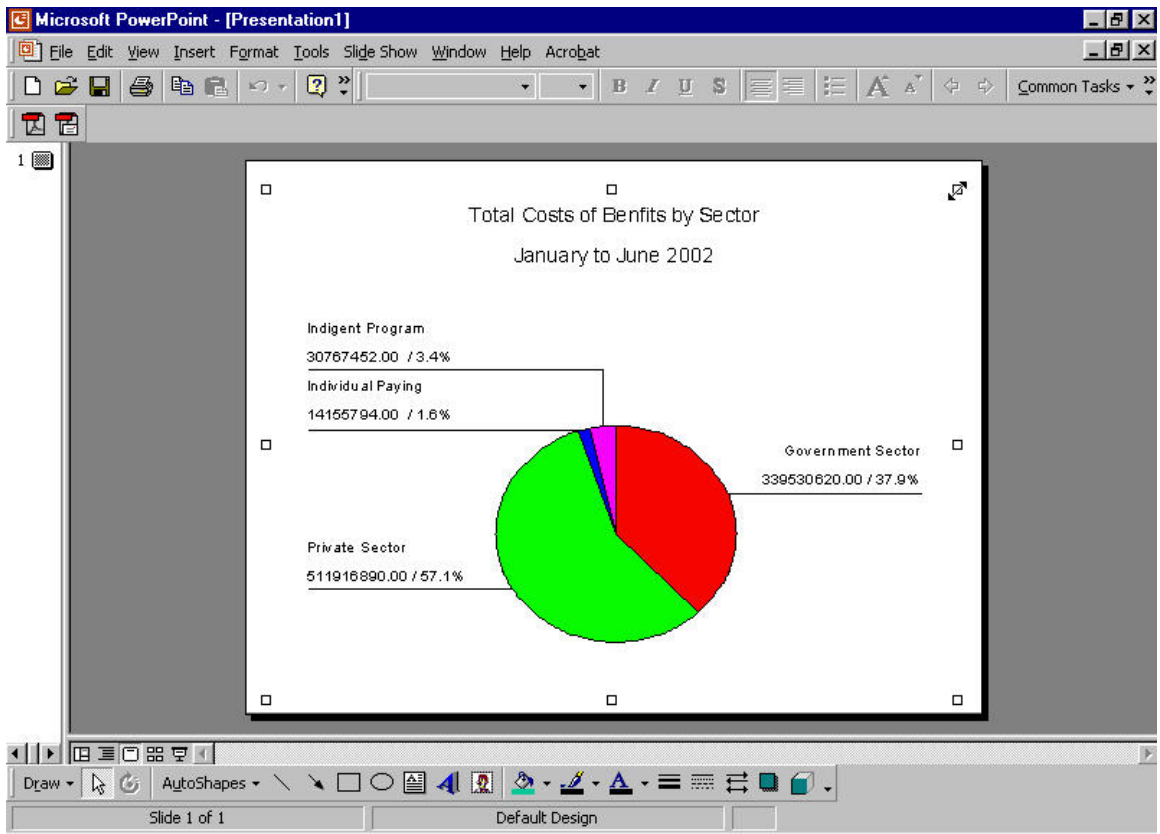




Further editing can be done by double-clicking on the graphs and by using the menus.

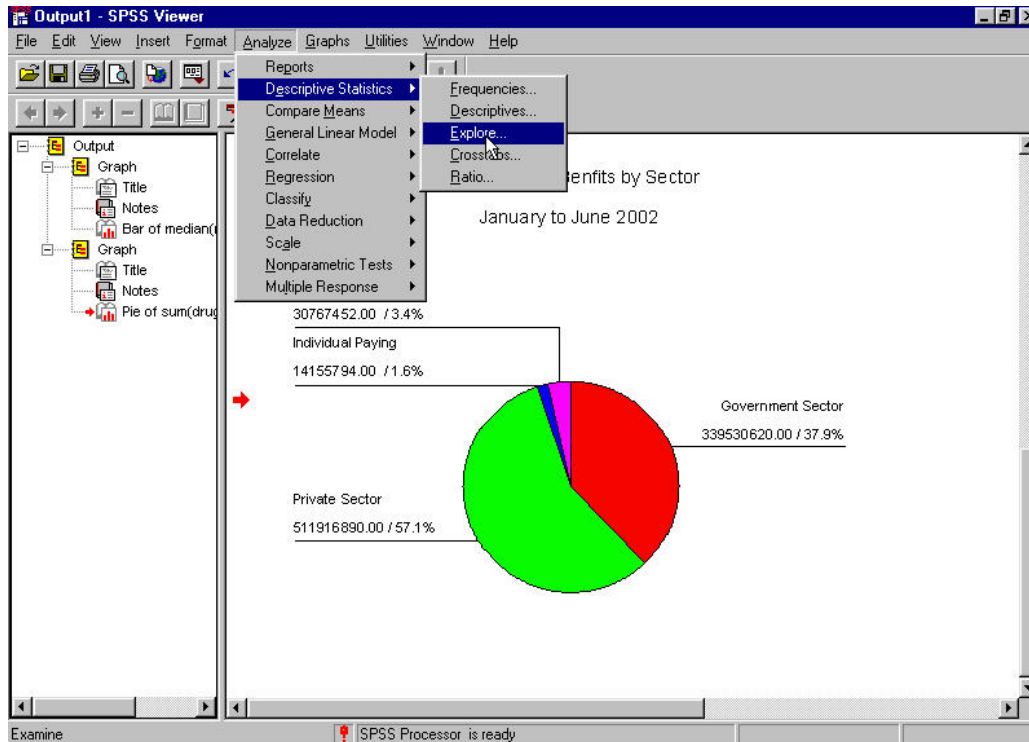


The graph can then be copied and pasted into another document. The image can be resized to fit into the page width.

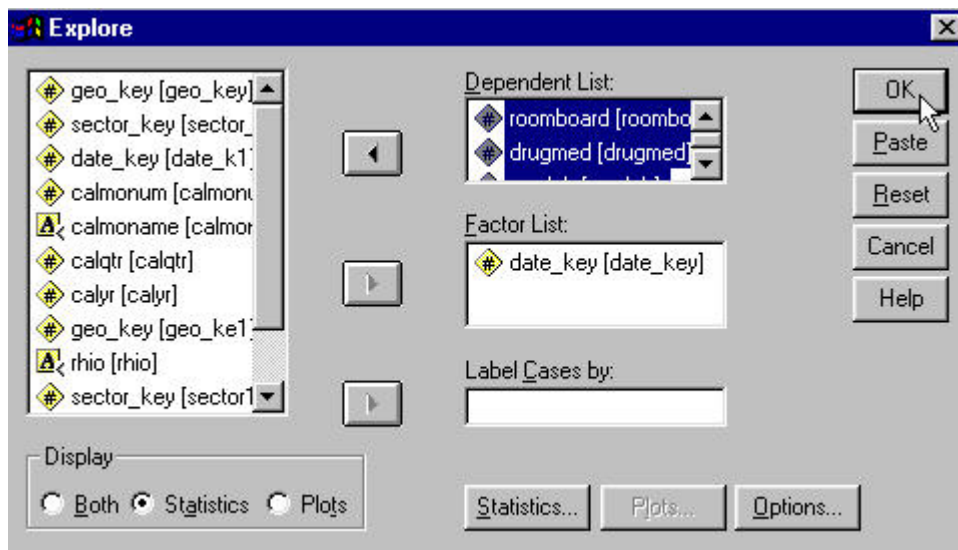


How to analyze data by creating explore tables

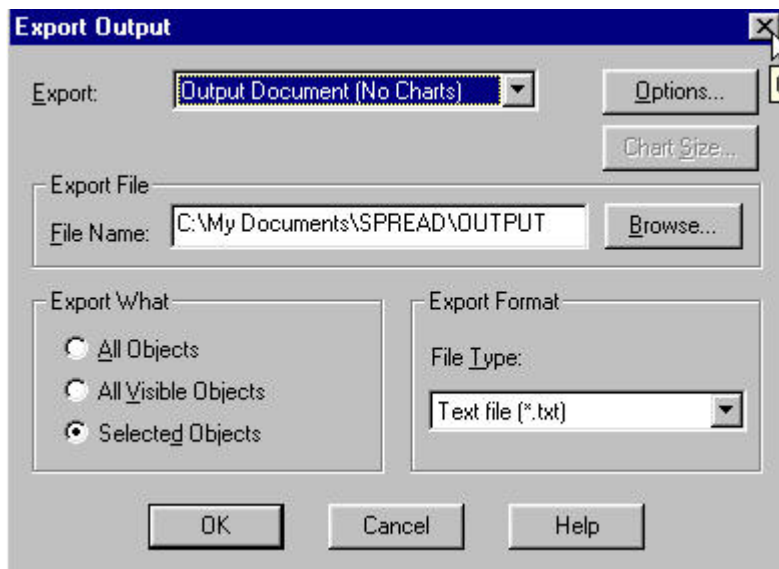
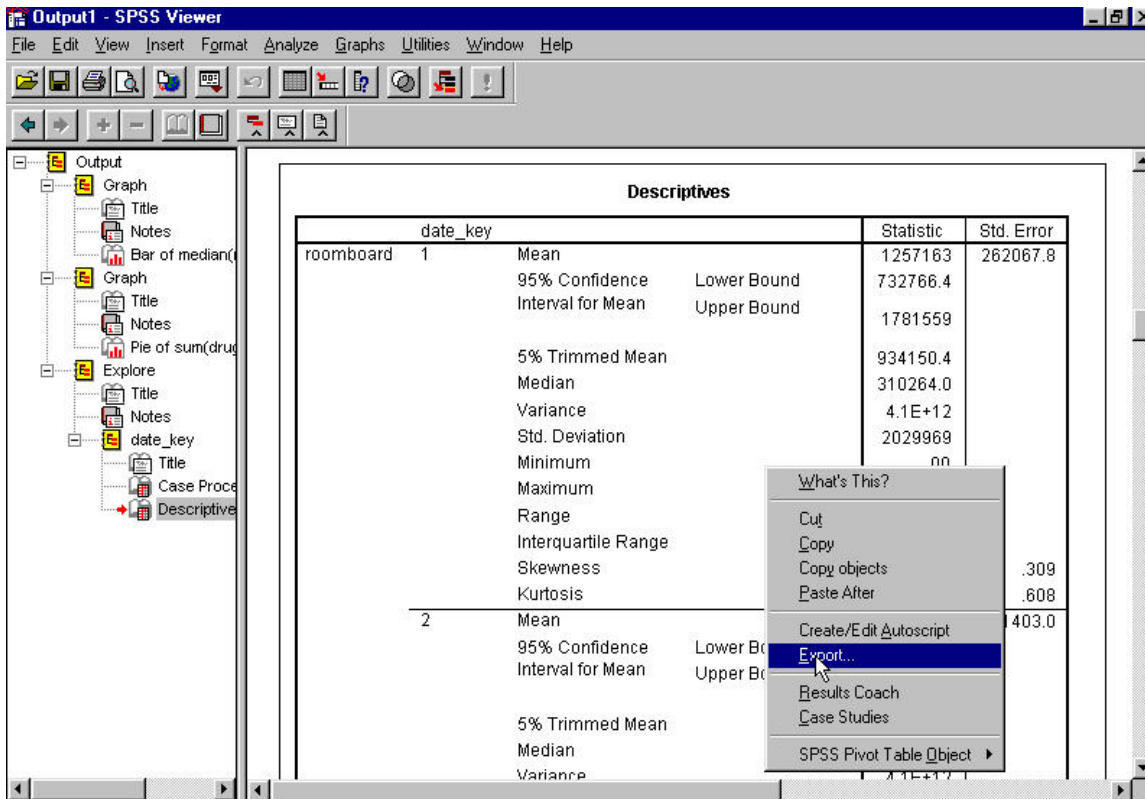
1. Select **Analyze** → **Descriptive Statistics** → **Explore** from the top menu of the SPSS program either from the SPSS Data Editor window or the SPSS Viewer window.



2. Select variables for analysis. Enter quantitative variables into the Dependent List and then choose categorical variables into the Factor List.



3. The resulting output can be then exported by saving it as a text file for printing and interpretation.



Output - WordPad

File Edit View Insert Format Help

descriptives

	date_key	Statistic	Std. Error
roomboard	1	Mean	1257162.9345
		95% Confidence Interval for Mean	262067.84038
		Lower Bound	732766.3972
		Upper Bound	1781559.4718
		5% Trimmed Mean	934150.4239
		Median	310264.0000
		Variance	4120773177552.083
		Std. Deviation	2029968.76270
		Minimum	.00
		Maximum	10156004
		Range	10156004
		Interquartile Range	1595656.5050
		Skewness	2.747
			.309
		Kurtosis	8.470
			.608

Other methods of analysis can be done from choosing other options in the **Analyze** → **Descriptive Statistics** (i.e. Frequencies, Descriptives and Crosstabs).