



**Software  
Requirements  
Specification**

**For**

**Monetary Statistics Database**

**Central Bank of Iraq, Information Technology**

**Version 1.0**

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## CONTACT

This document was prepared by:

<b>Jonathan Corning</b> BearingPoint, Inc. International Zone Baghdad, Iraq <a href="mailto:jonathan.corning@bearingpoint.com">jonathan.corning@bearingpoint.com</a>	<b>Jinan Al Beiruti</b> Internal Statistics Division CBI Baghdad, Iraq <a href="mailto:jinan.albeiruti@cbiraq.org">jinan.albeiruti@cbiraq.org</a>	
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# 1. INTRODUCTION

## 1.1. Purpose

CBIIT software developers will use this document to create a monetary statistics database that will improve the productivity and accuracy of data handling functions in departments throughout the CBI. The project is being initiated by Statistics & Research because of its role in providing reports and analysis in support of monetary policy. This document specifies requirements to guide the software development by describing the anticipated use and desired function of the software.

## 1.2. Overview

Statistics & Research has identified the need for an electronic database to replace the current system of hardcopy storage. In addition to storing data, software should provide a means for entering that data, as well as the capability of generating reports from that data.

This document describes the larger database project which follows on from the Reserve Requirement pilot. While the application developed for the pilot simply maintained and produced reports from reserve requirement data, this project will be broader and provide additional functionality. In the pilot project, data was uploaded by IT, but this database application will allow departments within the Bank to upload or manually enter the data they are responsible for. Furthermore, this database will store data from several departments, and produce reports from that data. Because coding this entire database will be a complex and difficult task, the pilot served to provide opportunities to resolve issues and identify improvements on a smaller scale.

## 1.3. Approach

The requirements for the application were developed through detailed conversations and design meetings with Governor Shabibi, and staff from Statistics & Research and other departments who will either use or maintain data stored in the database. In addition, a working group including staff from IT and the various user departments will ensure that the design meets users needs and is feasible.

## 1.4. Description of Data Entry/Uploading

In the pilot project, data was delivered in electronic format to IT which then uploaded it into the database. With this larger project, it is necessary that each department maintain the responsibility and ownership of their data. Therefore, the application must provide those users with appropriate access rights the ability to manually enter data, and upload data electronically.

## 1.5. Description of Data Maintenance

Because each department should remain in control over their data, users with appropriate access rights must have the ability to modify existing data as needed. That is, only the department that “owns” a data item can add to or modify that data. Typically, the main reason for modifying data will be to correct erroneous entries, so users should have the ability to modify one item at a time.

## 1.6. Description of Data Accessibility and Reporting

Providing data accessibility is the primary objective of the database. Users throughout the Bank will have immediate access to current and historical data, both in print and electronic form. They should be able to display both standardized and custom reports on screen, and then either print them or download them into Excel for easy manipulation. Once the database has been established, users with appropriate access rights should have offsite access via the internet.

## 1.7. Description of Continuing Requirements

Apart from the day-to-day functioning of the software described in this document, there are some requirements that should be anticipated. These include allowing secure offsite access to the database through an internet connection. Also, CBIIT should perform regular backups of the entire database, and continue to provide upgrades to the application. These upgrades could include adding new data items, changing standardized reports, or modifying data entry forms.

## 1.8. Assumptions and Dependencies

The success of this application and the database in general will depend on several factors related to the availability of hardware, other resources, and a stable working environment. Below are some of the assumptions made in this regard.

- That network connectivity is provided to departments requiring access to this data.
- That departments uploading data retain ownership of that data.
- That users adopt this method of data distribution and incorporate it into departmental procedures.
- That users provide feedback to CBIIT about problems or desired improvements to the application.
- That data from commercial banks is increasingly provided in electronic format.

## 1.9. Product Scope

The scope of the monetary statistics database application is as a near-term goal of the Bank's modernization and automation objectives. The database application will completely subsume the reserve requirement pilot. Potentially, the database will become the basis or model for complete automation of virtually all of the Bank's data.

The scope of this document is limited to describing the application in sufficient detail so that CBI IT has necessary information from which to perform the development. This is a final document and the development will take place in a single iteration. Any changes or clarifications will be communicated to CBI IT in additional documents.

## 1.10. Listing of Functionality Requirements

The table below shows individual functionalities (called 'use cases') the application must provide. These items are covered in detail in section 3.

Reference Number	Use Case
UC_1	Logging In to the Application
UC_2	Uploading Data
UC_3	Manually Entering Data
UC_4	Editing Data
UC_5	Editing Standardized Report Notes
UC_6	Generating a Standardized Report for Printing or Downloading
UC_7	Generating a Custom Report for Printing or Downloading
UC_8	Logging Out of the Application

## 2. GENERAL DESCRIPTION

### 2.1. General Functionality

Currently, most data arrives at the Bank or is passed between departments in paper form, but some is transmitted electronically. Data storage is accomplished with hardcopies filed in binders that are kept in the respective departments. Within departments, data is entered manually into spreadsheets as needed for manipulation or to create reports. Ensuring data security is accomplished by sharing only regular reports with other departments or granting access on a case-by-case basis.

When the centralized, electronic database is created, data will only be entered one time regardless of how many different reports or departments draw from that data. Once entered, the data must be released by the department that entered it before others in the Bank can access it. Ownership of the data will remain with the department that originally receives or creates it, which means that only that department will have the ability to modify that data. Storage will be performed by IT. Accessing raw data or generating reports will be done individually and as needed by departments. Data security will be maintained by requiring user IDs and passwords to access data, or by granting access on a department-by-department basis.

### 2.2. User Characteristics

Although the typical user of this application has mid-level computer skills, many users have little experience with custom applications such as this. To encourage accessibility and usability of the database capabilities among users with varied computer skills, the interface of the report generating portion will consist only of dropdown boxes, check boxes and radio buttons. Users of the data editing function will require a slightly more complex interface. In addition to the above, the data editing function will require text entry boxes with simple data validation capabilities.

### 2.3. User Problem Statement

Currently, data is stored in multiple locations and in multiple formats. As a result, data is entered into spreadsheets or reports each time it is needed which in turn requires more effort and more access permissions, allows for more errors, and generally slows reporting. In addition, the resources expended by each department to enter, verify, maintain, and transmit data are resources that are diverted from each department's primary tasks. Finally, all these costs are magnified because of the importance and sensitivity of the monetary statistics data.

### 2.4. User Objectives

The objectives for users of the Monetary Statistics Database application are to:

- Maintain data security at a low cost.
- Strengthen ownership and responsibility between departments and their data.
- Broaden data accessibility to staff throughout the Bank.
- Allow immediate, electronic access to current and historical data.
- Provide low-cost generation of reports in standardized formats.

### 2.5. Constraints

The main constraints for this application are:

- **Adoption.** Before any data can be accessed, it must be uploaded and checked for accuracy by the respective departments. If the completion of either task is delayed, much of the benefits of the application will be lost. Therefore, it is essential that departments recognize the importance of their contributions and adopt specific procedures to ensure timely and accurate completion of these tasks.

- **Backfilling Data** Once the database has been implemented, departments should upload their periodic data as it is released. However, the prior years data must also be entered which will require some time and effort soon after the implementation. Departments must plan to devote staff resources for this one-time task of uploading historical data.

### 3. REPORT DESCRIPTIONS

#### 3.1. Standardized Reports

These reports are typically single page tables used frequently by various departments for displaying recent data. The content is pre-defined and cannot be changed by users. The reports will usually be printed for immediate use and therefore must be displayed on-screen in a ready-to-print format. However, the user should have the option, as described above, to download the report in Excel format.

The numeric data is labeled using titles, row and column headings, and footnotes. The formatting is minimal and intended to clarify the readability of the tables. Separate documents will describe in detail the construction of each individual report. These reports are listed in section 5.

#### 3.2. Custom Reports

These reports allow a user to specify the individual data items that are to appear in the report. The selected items will appear side-by-side in vertical columns. These reports will usually not be printed, but downloaded to Excel for further manipulation. However, the capability to print should be offered.

The numeric data will be displayed in column form with row and column headings. The column headings will consist of the data item names. There will be no titles or footnotes. The formatting should be designed to maximize the ease of manipulation in Excel.

### 4. FUNCTIONAL REQUIREMENTS

#### 4.1. General

The application shall be menu-driven. All menus and instructions shall be given in Arabic, field names in reports shall be in both Arabic and English, and numeric data shall be stored as European numerals (1, 2, 3, etc.). The application shall have no translation capability between Arabic and other languages.

#### 4.2. Use Cases

The following use cases define the general functionality of the system. Each scenario describes the user inputs and the resulting response from the application. With the exception of the Login to System use case (Section 3.3.1), all use cases assume that a user has successfully logged into the system.

Each user's access permissions determine the specific data that user can view or modify.

##### 4.2.1. UC\_1 Logging into the Application

###### *UC\_1.1 User Roles*

The following users are able to perform this use case:

- All users with a valid username and password are able to log into the application.

###### *UC\_1.2 Pre-conditions*

- None.

### *UC\_1.3 Use Case Steps*

The following description describes the main process flow and any alternate flows for the login function of the system.

- *Primary Data Flow:*
  1. The user enters a valid username and password.
  2. The system validates the data, and if valid, the system displays the main menu.
- *Alternate Data Flow 1:*
  1. The user enters an invalid username and/or password.
  2. The system is unable to validate the username or password, and the user is given an error message informing them that the username and/or password are not valid.
- *Alternate Data Flow 2:*
  1. The user enters a valid username and an invalid password for the third time in a row.
  2. The system is unable to validate the password, and the user is given an error message informing them that the password supplied is invalid, and that their account is locked.

### *UC\_1.4 Post-conditions*

- The user is logged into the system.
- The system assigns the user appropriate permissions.

## **4.2.2. UC\_2 Uploading Data**

### *UC\_2.1 Pre-conditions*

- None.

### *UC\_2.2 Use Case Steps*

- *Primary Data Flow:*
  1. The user selects the Upload Data option from the main menu.
  2. The application offers a list of data items that the user has permission to access.
  3. The user chooses a data item to upload.
  4. The application directs the user to upload data in a predetermined format.

### *UC\_2.3 Post-conditions*

- The application saves the data to the database.

## **4.2.3. UC\_3 Manually Entering Data**

### *UC\_3.1 Pre-conditions*

- None.

### *UC\_3.2 Use Case Steps*

- *Primary Data Flow:*
  1. The user selects the Manually Enter Data option from the main menu.
  2. The application displays a list of data items that the user has permission to access.
  3. The user chooses a data item to enter.
  4. The application displays a form with appropriate fields for the selected data item. Any fields with existing data are pre-filled with the values.
  5. The same form includes a checkbox to allow or prevent the release of the data.

### *UC\_3.3 Post-conditions*

- The application saves the data to the database.

## **4.2.4. UC\_4 Editing Data**

### *UC\_4.1 Pre-conditions*

- None

### *UC\_4.2 Use Case Steps*

- *Primary Data Flow:*
  1. The user selects the menu item to edit data.
  2. The application displays a list of data items that the user has permission to access.
  3. The user selects a data item and the corresponding series of data is displayed in an editable format.
  4. The user makes the desired changes.
  5. The same form includes a checkbox to allow or prevent the release of the data.
  6. The system saves the data.
- *Alternate Data Flow 2:*
  5. The application determines that non-numeric or out of bounds data was entered.
  6. The application displays an error message explaining the problem and returns to the entry screen.

### *UC\_4.3 Post-conditions*

- A log is stored that contains the date, user ID, and changes made.
- Provisions to reverse any changes for a certain period are available.

## **4.2.5. UC\_5 Editing Standardized Report Notes**

### *UC\_5.1 Pre-conditions*

- None

#### *UC\_5.2 Use Case Steps*

- *Primary Data Flow:*

1. The user selects the menu item to edit report notes.
2. The application displays a list of standardized reports that the user has permission to access.
3. The user selects a report.
4. The application displays the notes currently stored for that report in an editable text box.
5. The user makes the desired changes and submits them.
6. The application displays a full page view of the report with notes and requests user confirmation.
7. The application saves the data.

#### *UC\_5.3 Post-conditions*

- A log is stored that contains the date, user ID, and changes made.
- Provisions to reverse any changes for a certain period are available.

### **4.2.6. UC\_6 Generating a Standardized Report for Printing or Downloading**

#### *UC\_6.1 Pre-conditions*

- None.

#### *UC\_6.2 Use Case Steps*

- *Primary Data Flow:*

1. The user selects the menu item to retrieve standardized reports.
2. The application displays a list of available reports.
3. The user selects the desired report.
4. The application displays a list of available time periods relevant to the selected report.
5. The user selects the desired time period and chooses to either display or download the report.
6. The application displays or downloads the selected report.

#### *UC\_6.3 Post-conditions*

- None.

### **4.2.7. UC\_7 Generating a Custom Report for Printing or Downloading**

#### *UC\_7.1 Pre-conditions*

- None.

### *UC\_7.2 Use Case Steps*

- *Primary Data Flow:*
  1. The user selects the menu item to retrieve custom reports.
  2. The application displays a list of available data items.
  3. The user selects the desired items.
  4. The application displays the selected items and a list of available banks.
  5. The user selects the desired banks.
  6. The application displays the selected items and banks, and dropdown boxes with start and end dates.
  7. The user selects the desired time period and chooses to either display or download the report.
  8. The application displays or downloads the custom report.

### *UC\_7.3 Post-conditions*

- None.

## **4.2.8. UC\_8 Logging Out of the Application**

### *UC\_8.1 Pre-conditions*

- User is currently logged in.

### *UC\_8.2 Use Case Steps*

- *Primary Data Flow:*
  1. The user selects the Logout menu item.
  2. The system logs the user out of the system and displays the login screen.
- *Alternate Data Flow 1:*
  1. The user leaves the session open for a predetermined amount of time without activity
  2. The system automatically logs the user out of the session

### *UC\_8.3 Post-conditions*

- The user is logged out of the system.

## 5. STANDARDIZED REPORTS

### 5.1. Report List

The following table shows the titles of reports that should be available to users of this application. While other reports will be added as the application is developed over time, this list will be available at implementation. Also shown are the departments that provide the data for each report. These reports were selected because they are regularly and frequently generated and because the data they display is of primary interest in the conduct of monetary policy.

	<b>Department / Source</b>	<b>Report</b>	<b>Frequency</b>
1	Statistics & Research	Baghdad CPI	monthly
2	Credit Division	Interest Rate	monthly
3	Domestic Economy	Real Sector	monthly
4	Accounting	CBI Sectoral Balance	monthly
5		Monetary Balance Sheet	monthly
6		Clearance (FX)	monthly
7		Auction	monthly
8		Financial Statement	monthly
9	Current Account Division	Accounts at CBI	weekly
10*	Agreements & Loans	Reserve Requirements	monthly
11		Overnight Deposit	weekly
12		Deposit Facilities	weekly & monthly
13		MOF Bill Auction	weekly
14		CBI Bill Auction	weekly
15	Investment	Foreign Assets	weekly & monthly
16	Letters of Credit	Oil Revenue Statistics	monthly
17	Foreign Exchange	Auction Results	daily
18	Issuing	Currency Issued	weekly & monthly
19	Banking Supervision	Vault Cash	monthly
20		Trial Balance	monthly
21		Balance Sheet	monthly
22*		Reserve Requirements	monthly
23		Movements of Deposits	monthly
24		Movements of Credits	monthly
25		Loans by Sector	quarterly
26	MOF	Government Budget	monthly
27	COSIT	CPI	monthly

\*completed under Reserve Requirement pilot project