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Functions, Procedures, and Organization of

C L A S S

I. Functions and Procedures

CLASS is viewed as performing a set of functions and operations as part of the Agricultural Sector Simulation Project. CLASS has as its prime concerns: (1) the development of components consisting of software and documentation; (2) storage of components; (3) component maintenance and review; (4) user related functions such as component retrieval, user consulting, and user training.

The Agricultural Sector Simulation Project was developing software components before work began on the software library. Therefore, the necessary capabilities for component development are already available. However, the components developed were not designed to be readily separable or used by persons unfamiliar with their intended use and methods. Therefore, in order to obtain suitable components and associated documentation from these existing components, a process for modifying the existing software and producing the documentation must be designed. Procedures for both the development and modification of components are shown in Figure I.

The storage functon has two very different parts. First, the software of the component must be stored in machine readable form in an easily retrievable format. Second, the documentation must be stored in printed form in sufficient quantities. The requirements for the storage of software and the procedures for accomplishing it are technical in nature and involve computer expertise readily available to the Agricultural Sector Simulation Project. During the process of storage it is desirable to produce a listing

PROCEDURES FOR COMPONENT DEVELOPMENT AND MODIFICATION

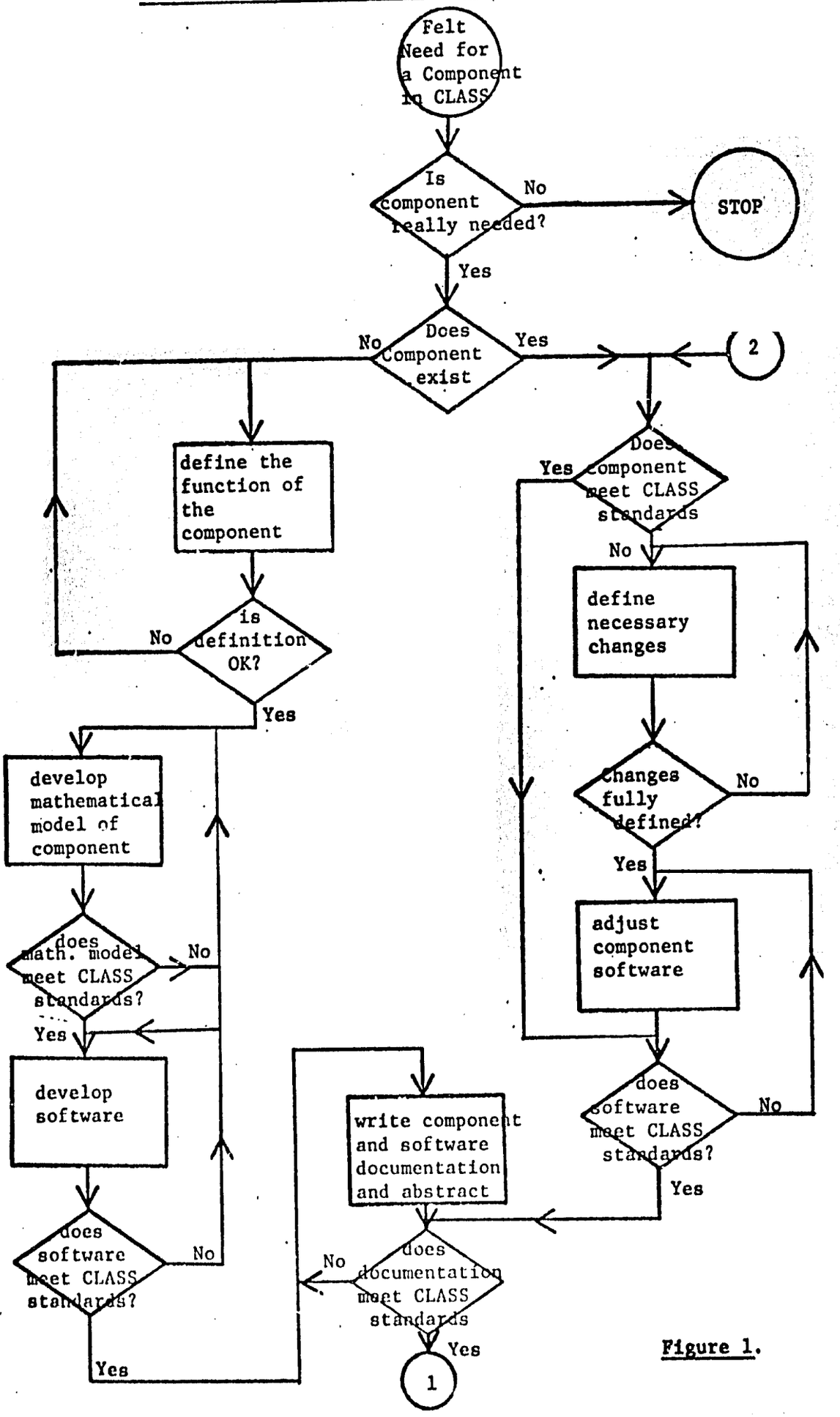
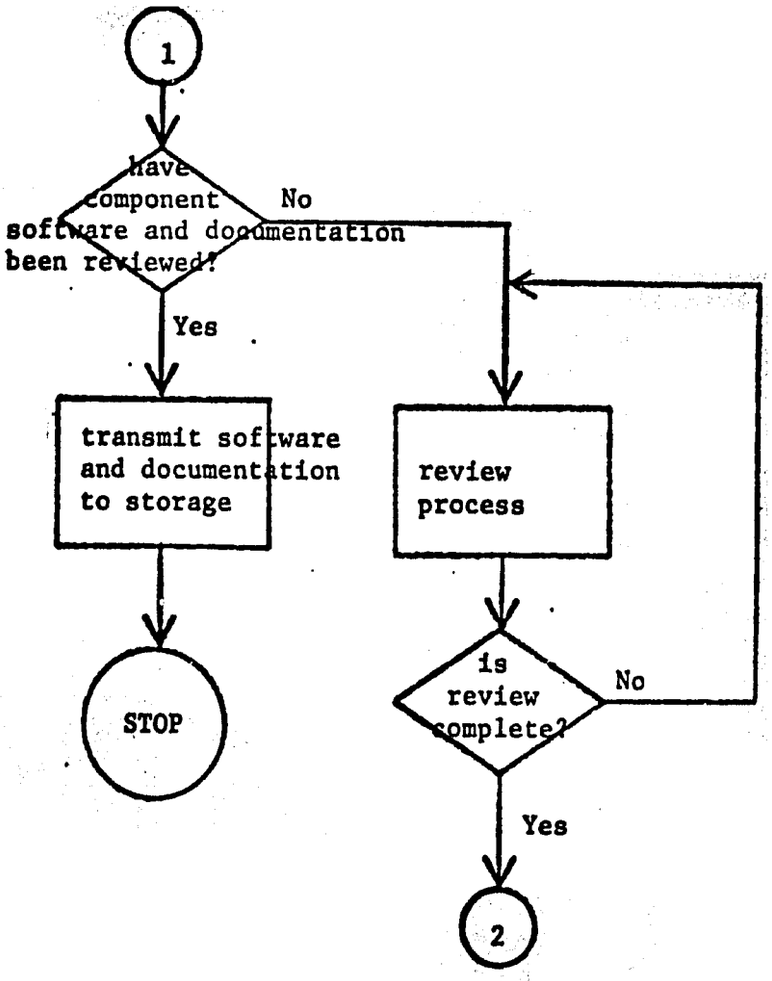


Figure 1.


1
have component software and documentation been reviewed?
No
Yes
transmit software and documentation to storage
review process
STOP
is review complete?
No
Yes
2

of newly stored software components and a list of the names of all components currently stored on the tape.

The documentation requires quite a different type of storage. A convenient method has been found to be storage on a standard shelf with numbered positions--an alphabetic list of documents is maintained which is cross referenced to shelf numbers. We will also consider the possibility of maintaining a master copy of each document and reproducing them as needed. A flow chart of procedures for the storage function is shown in Figure 2.

The retrieval function of CLASS is a part of the CLASS-user interaction (consulting, training, etc.). Just as there were two parts to the storage function there are two corresponding parts to the retrieval function. The retrieval of documentation associated with various components consists of merely finding the shelf number of the desired documentation and locating it (or reproducing the necessary documents). However, retrieval of the machine readable software requires technical knowledge of the particular storage and retrieval system. Figure 3 outlines the retrieval procedures with attention to its relationship to the CLASS-user interaction.

The maintenance and clerical functions consist of:

(1) recording and filing all information about each component

(2) recording and filing all transactions of CLASS with users and organizations, donating components

(3) regularly reviewing and, if necessary revising, standards, components, software, and documentation.

As each component is stored in the CLASS storage system, a computer listing of the source coding should be produced and stored in that component's office file for use when it is being retrieved and for use should adjustments be necessary. One copy of all up-to-date documentation should be stored in

PROCEDURES OF STORAGE FUNCTION

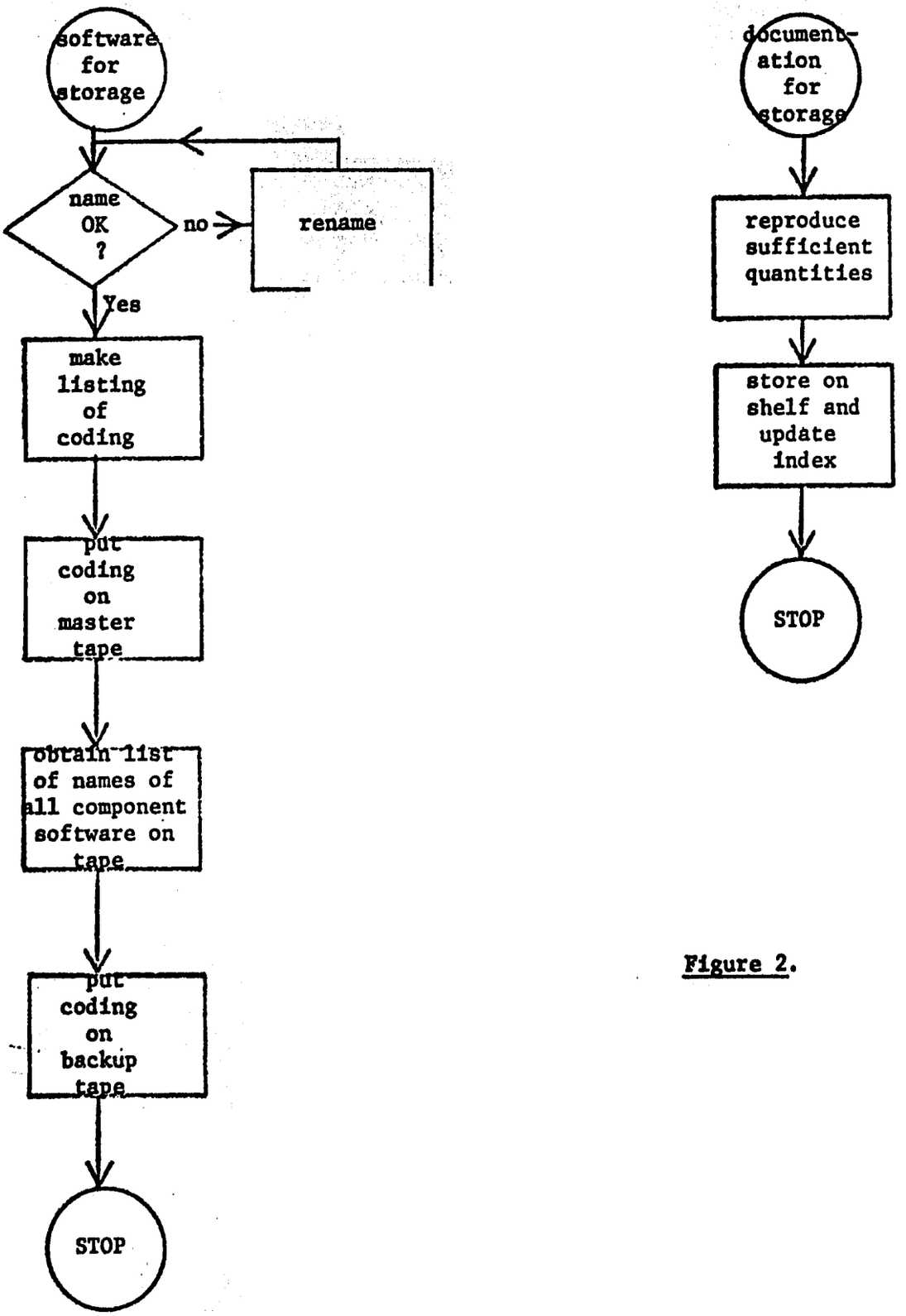


Figure 2.

PROCEDURES OF RETRIEVAL FUNCTION INCLUDING USER-CLASS INTERACTION

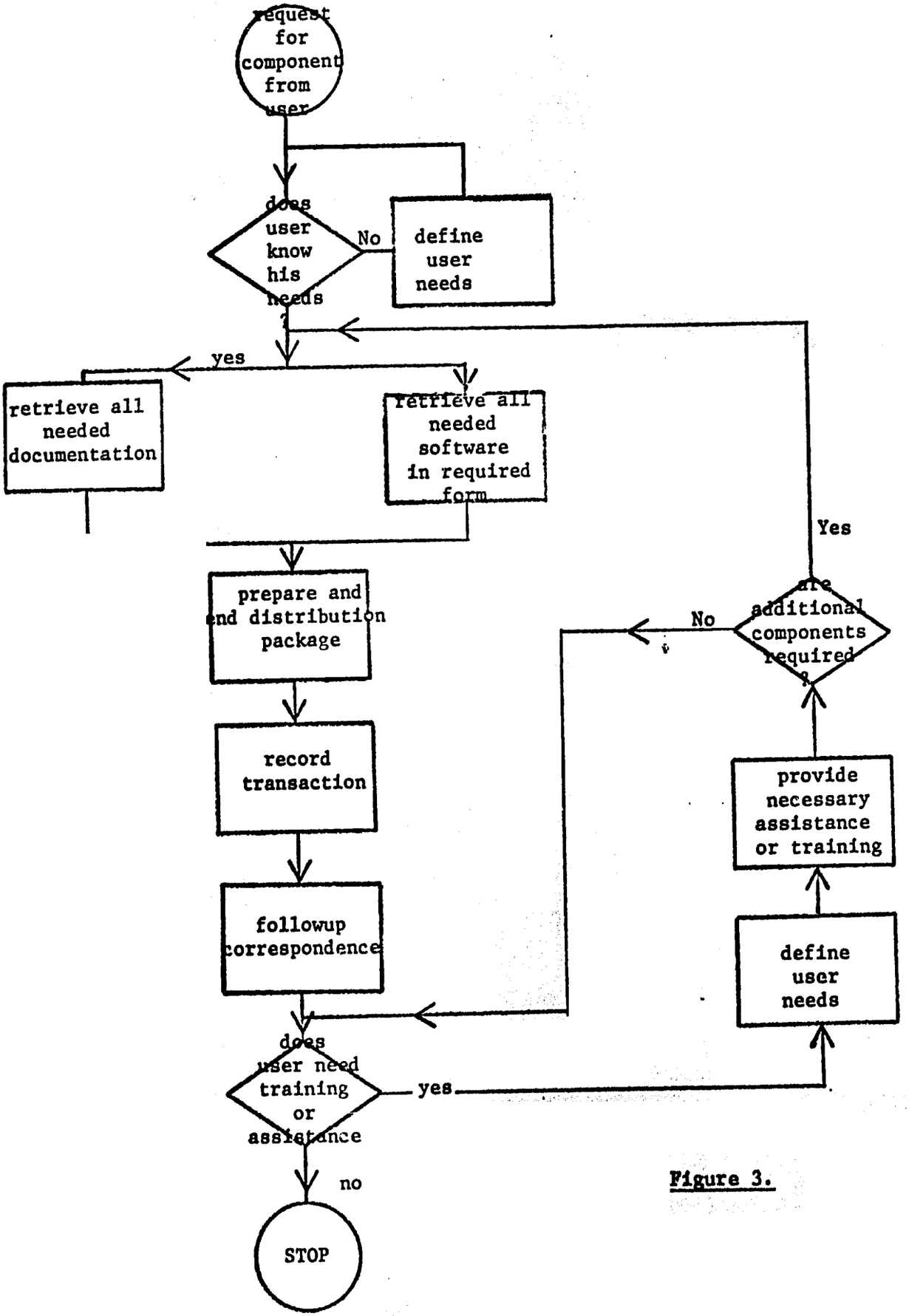


Figure 3.

the office file of each component. Also, all transmittal forms and checklists should be stored in these office files.

Separate office files should be maintained for each individual or organization who uses CLASS's facilities or donates components to CLASS. All correspondence is kept in these files.

In order to maintain CLASS at a high level of usefulness, each component should be regularly reviewed and if necessary revised or deleted from CLASS. By this process the components, software and documentation will be kept up-to-date with regard to both needs and growing technical knowledge. Figure 4 provides an understanding of the procedures involved in this function.

II. Organization

The functional organization of CLASS is developed here on the basis of the flow of materials (software, documentation, requests, etc.) and attempts to group under various heading those more basic functions which make up the four prime concerns of CLASS. CLASS coordination is a ubiquitous function which pervades the entire organization using the monitoring tools of checklists and transmittal forms to coordinate operations.

Component development, as a prime function of CLASS, is composed of four basic functions (analysis, programming, documentation, and review). Component storage consists of the clerical function involved in storing and retrieving documentation, and the programming function involved in storing and retrieving the machine readable coding. Component maintenance and review consists of the analysis of the component and the relevant programming, documentation and editing functions associated with the analysis, as well as the clerical function of maintaining the component office files. The user-related

PROCEDURES OF MAINTENANCE FUNCTION

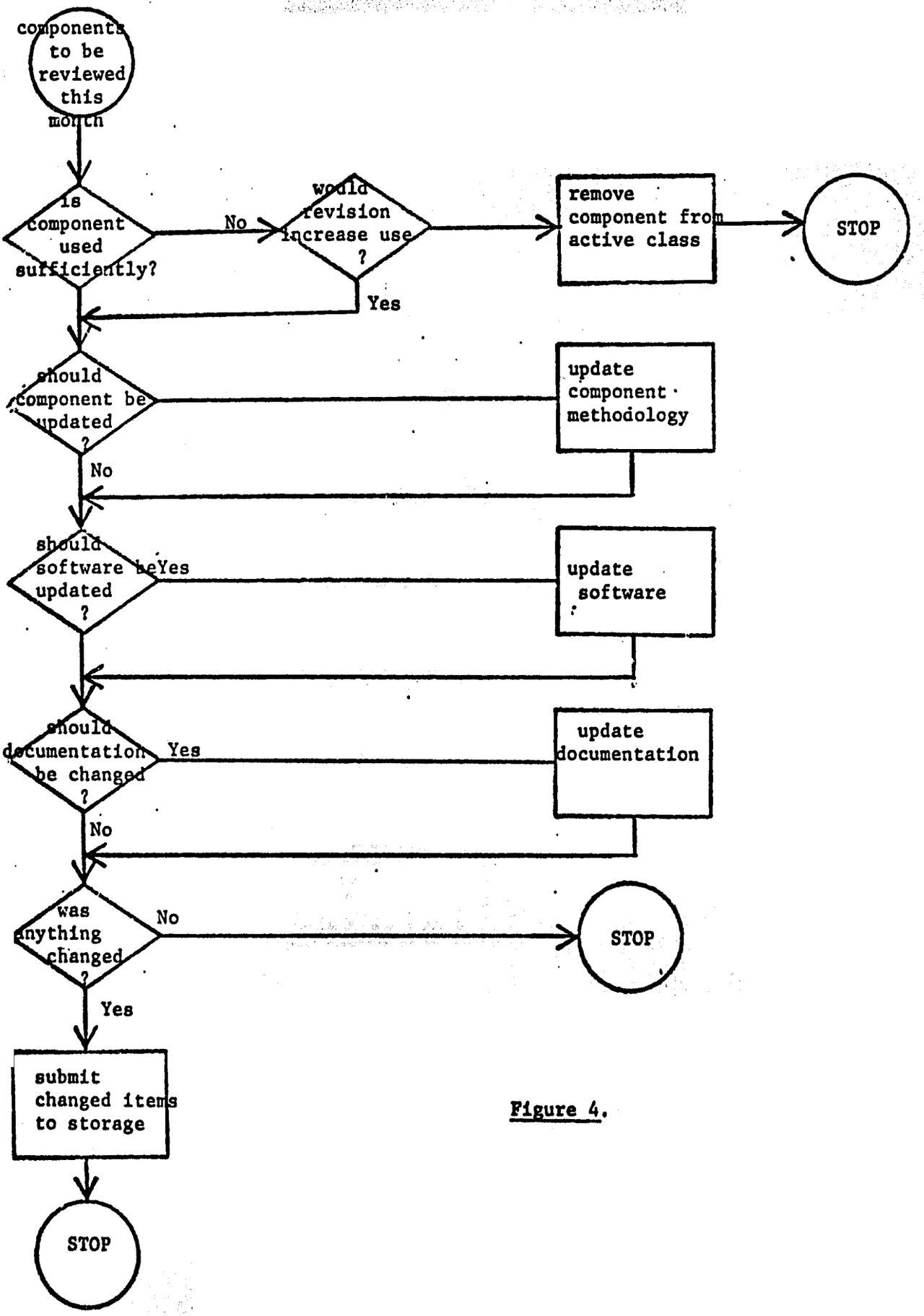


Figure 4.

functions consist of two secondary functions: (1) component retrieval which in turn is made up of the relevant programming and clerical functions as in the storage function, and (2) user consulting and training, which could consist of one or more of the basic functions of CLASS and/or the functions of the organizaiton to which CLASS is attached. See Figure 5 for a graphical description of the organization of CLASS.

Summary of Equipment Needed to Begin Operation

The equipment needed for full operation of CLASS (apart from the obvious need for a computer) is as follows:

(1) 3 tapes

2 to store machine readable coding of components (1 master, 1 backup)
1 to store the execution or calling routines and sample data

(2) 3 sets of office files

1 to store information about each component
1 to store information about the transactions with each user of CLASS (specific correspondence)
1 to store general correspondence

(3) 2 checklists to monitor 2 of the basic functions

1 checklist for component development and/or modification divided into two parts--documentation
--software
1 checklist for component storage

(4) 2 transmittal forms

1 to transmit the software and documentation from the component development function to the storage function. This may in fact be part of the checklist for component development/modification.
1 to transmit the desired component to CLASS users. Attached to this form may be a comment page to be returned to CLASS as feedback from users

UNCTIONAL ORGANIZATION OF CLASS

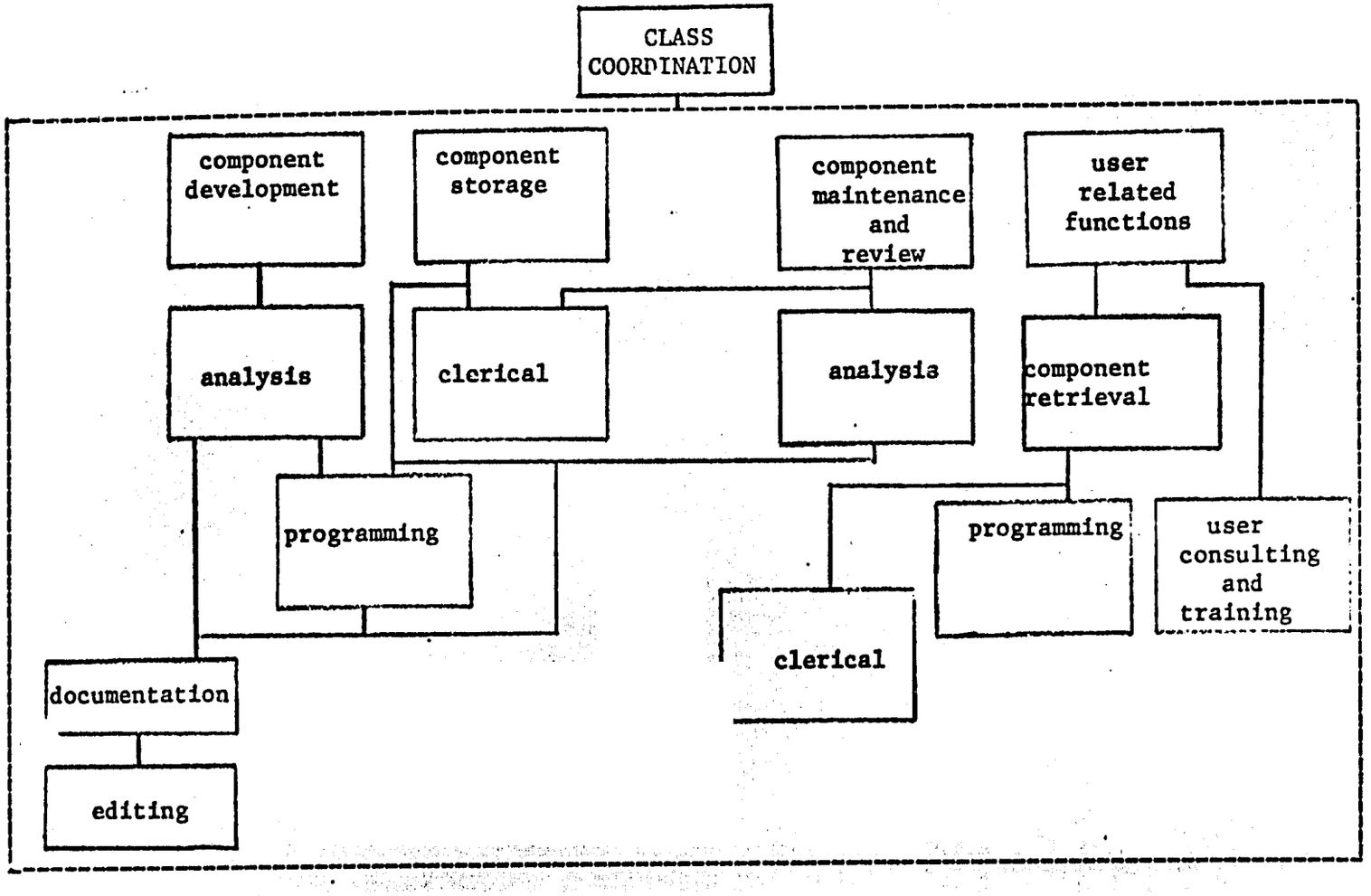


Figure 5.