Library Management system report

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Section 1. Project Overview

1.1 Project Description

This project is dedicated to students to ease the education and reading process through the hard time we are living in, especially since the covid-19 came in 2020.
The project provides the students to have access to many different books, and the librarian to upload the necessary book students need.

This system has been developed to overcome the problems in the manual system. It avoids errors during data entry and provide error massage. The main objective of the system is to manage the details of students and the books they need to gain knowledge required in life and in their technical career. It is constructed at administrative end and only the administrator is guaranteed the access to upload, delete, and add books.

1.2 Project Scope

The abstract of a library management system is one that organizes and saves books' information electronically to meet the needs of students. Both students and library managers benefit from the system, which allows them to keep track of all of the books available in the library at all times. It allows both the administrator and the student to look for the book they want. Colleges must now keep a constant eye on the books they issue and return, as well as the transaction records. If this operation is completed manually, it will be time-consuming and prone to errors. Enabling the system to maintain track of information including the date or borrowing, the date or book return, and even detailed book information eliminates the manual recording of this information and most importantly it reduced the risk of errors. As a result, this method greatly lowers manual effort and allows for a seamless flow of library activities by eliminating the possibility of errors in the details.

In a short time, the collection of materials and all the details related to the current reading of this year will be obvious and simple to deal with. Our project aims to automate the reading requiring,, we try to computerize the different processes of acquiring book management. This system can used by the administrators, instructors and students. The system can include:

Section 2. System Diagrams :

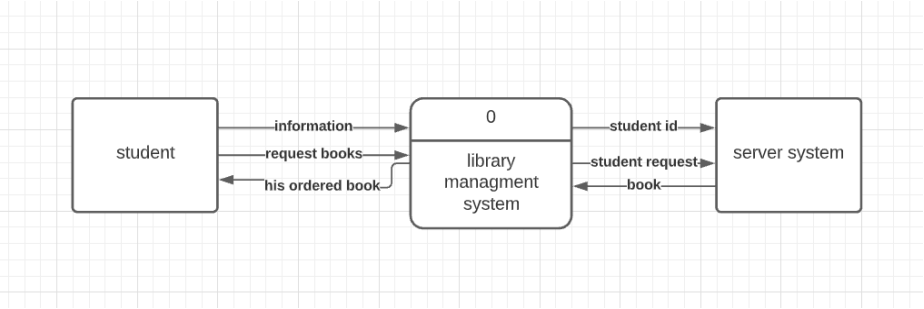
2.2Visualization of data processing" Data flow diagram":

DFD is a process model used to depict the flow of data through a system and the work or processing performed by the system. it shows how data moves through an information system but does not show program logic or processing steps.

We can construct it by several steps:

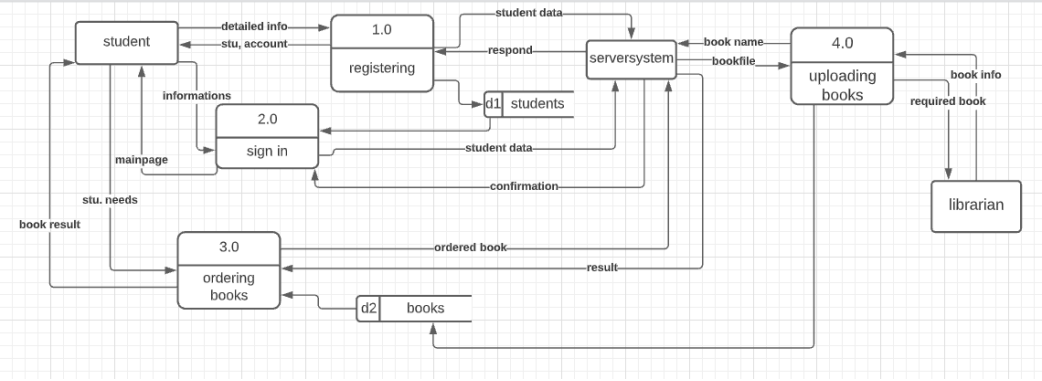
✓ Context diagram:

It identifies the general scope of the system as follow:



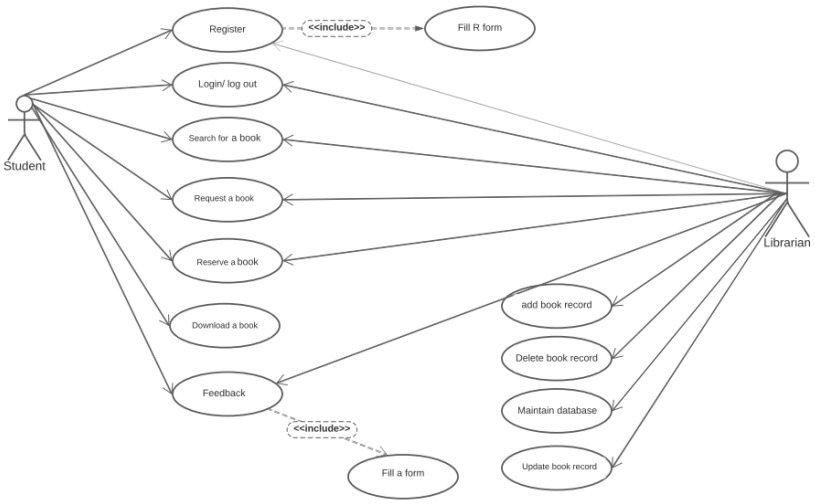
✓ Level 0 and diagram "Data flow diagram":

It identifies the system details, it is more detailed than the context diagram as follow:



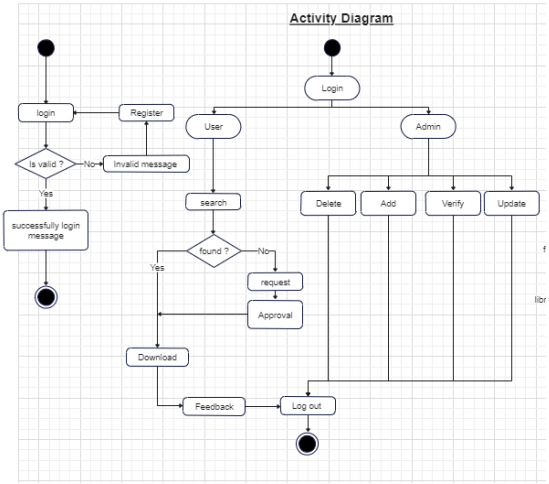
2.3 use case diagram

A **use case diagram** is a graphical depiction of a user's possible interactions with a system. A use case diagram shows various use cases and different types of users the system has and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses. The actors are often shown as stick figures.



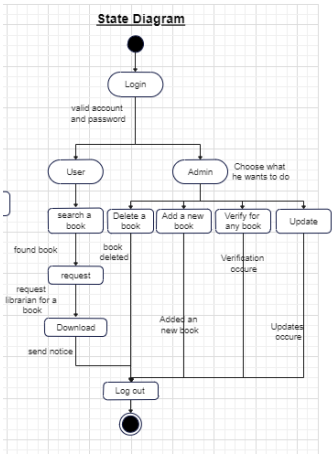
2.4 Activity diagram

Activity Diagrams describe how activities are coordinated to provide a service which can be at different levels of abstraction. Typically, an event needs to be achieved by some operations, particularly where the operation is intended to achieve a number of different things that require coordination, or how the events in a single use case relate to one another, in particular, use cases where activities may overlap and require coordination. It is also suitable for modeling how a collection of use cases coordinate to represent business workflows



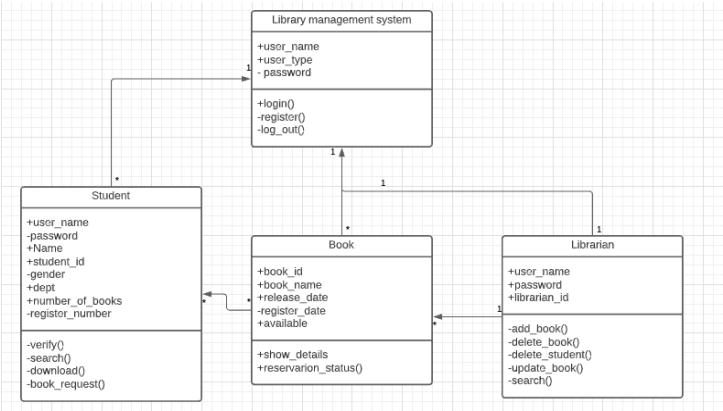
2.5 State diagram

A state diagram is a type of diagram used in computer science and related fields to describe the behavior of systems. State diagrams require that the system described is composed of a finite number of states; sometimes, this is indeed the case, while at other times this is a reasonable abstraction.



2.6 Class diagram:

The class diagram is **the main building block of object-oriented modeling**. It is used for general conceptual modeling of the structure of the application, and for detailed modeling, translating the models into programming code. Class diagrams can also be used for data modeling.



2.7Sequence diagram:

A sequence diagram is a type of interaction diagram because it describes how—and in what order—a group of objects works together. These diagrams are used by software developers and business professionals to understand requirements for a new system or to document an existing process.