Software Lab
(EEP702)

Assignment 4

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Contents

1 Abstract:

This assignment will give us an introduction to Object Oriented Programming and Unified Modeling Language. as we are developing a software suite for student the first part consist of information about the student in the collage where as second part we are reading the file where we store the all information along with that we are additing a student login for add or remove any subject or changes has to be made in the record.further that last we added TA login for adding marks and grads. This assignment makes use of Structured Query Language to implement the desired task.

2 Problem Statement:

Write a program in C++/ Java for a University which wants to develop a software suite for Student Management.

1. Use a text file to store the following information about the students in the collage. (Entry No. of the Student) (Name Of Student) (D.O.B.) (Department)(Degree)

   (Stretch ! Can you use a SQL database instead of a text file ? Figure out how !)

2. Read from the file and store them as array of objects. Provide user the functionality to search for some students based on Entry No, Student Name, Department ,Degree,DOB or any combination of these.
   a. Add the Student Login functionality to above program which enables addition or removal of any Subject in the registration cart. The changes must be reflected in the Subject records and all student accounts as well.

3. Assume each subject is an entity which has following info (subject ID, subject Name, Credits).

4. Add the TA Login functionality to above program to give the marks to student in each assignment of subject. Add the functionality to above program to calculate total marks earned by student in each of their subject and calculate grades also.

3 Introduction:

3.1 JAVA:

Java is a general-purpose computer programming language that is concurrent, class-based, object-oriented and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA) meaning that code that runs on one platform does not need to be recompiled to run on another. Java applications are typically compiled to bytecode that can run on any Java virtual machine (JVM) regardless of computer architecture.

3.2 UML:

The Unified Modeling Language (UML) is a general-purpose modeling language in the field of software engineering, which is designed to provide a standard way to visualize the design of a system.
The Unified Modeling Language (UML) offers a way to visualize a system's architectural blueprints in a diagram (see image), including elements such as:

- Any activities (jobs).
- Individual components of the system.
- And how they can interact with other software components.
- How the system will run.
- How entities interact with others (components and interfaces).
- External user interface.

3.3 SQL:

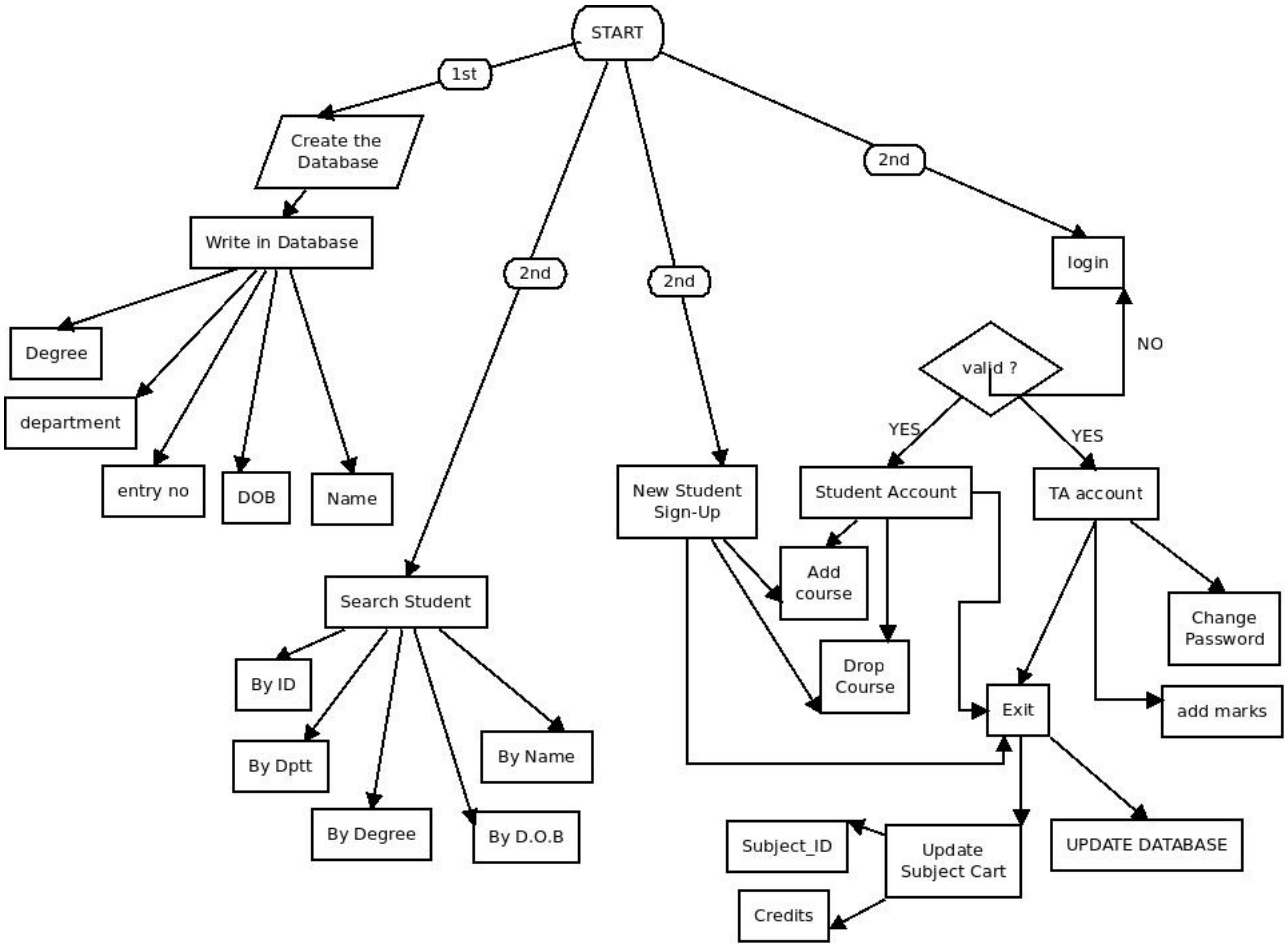
SQL (Structured Query Language) is a special-purpose programming language designed for managing data held in a relational database management system (RDBMS), or for stream processing in a relational data stream management system (RDSMS). The most common operation in SQL is the query, which is performed with the declarative SELECT statement. SELECT retrieves data from one or more tables, or expressions. Standard SELECT statements have no persistent effects on the database. Some non-standard implementations of SELECT can have persistent effects, such as the SELECT INTO syntax that exists in some databases.

4 Methodology:

4.1 Brief analogy:

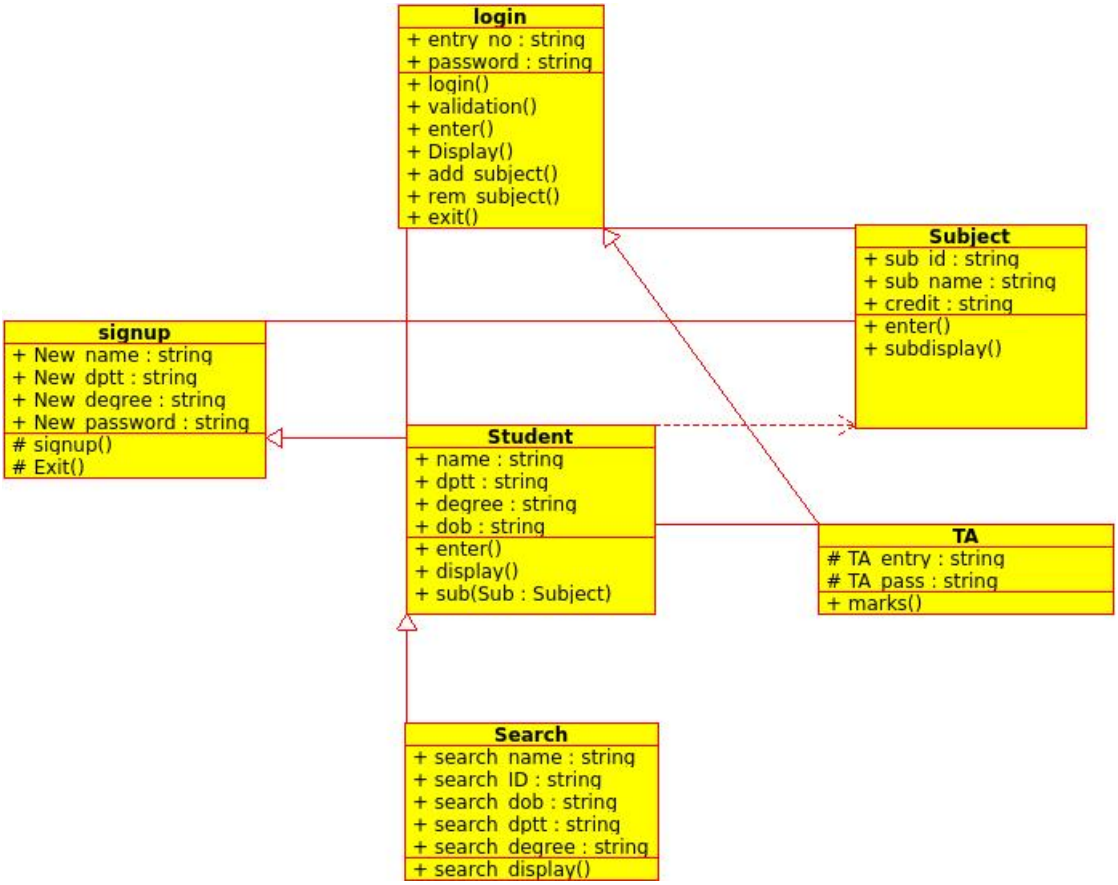
- The main code consist of generating the database and writing into it.
- once the data has to be written in the file which contain student info such as (Entry No. of the Student) ,(Name Of Student) , (D.O.B.), (Department)(Degree) .
- The second Problem consist of searching. We have to search ,edit,delete on the based on Entry No, Student Name, Department ,Degree,DOB.
- In the next part we added the Student Login functionality to program which enables addition or removal of any Subject in the registration cart. The changes must be reflected in the Subject records and all student accounts as well. even also each subject is an entity which has following info (subject ID, subject Name, Credits).
- We added a TA Login functionality to program to give the marks to student in each assignment of subject. the functionality program to calculate total marks earned by student in each of their subject and calculate grades also.

5 Flowchart:

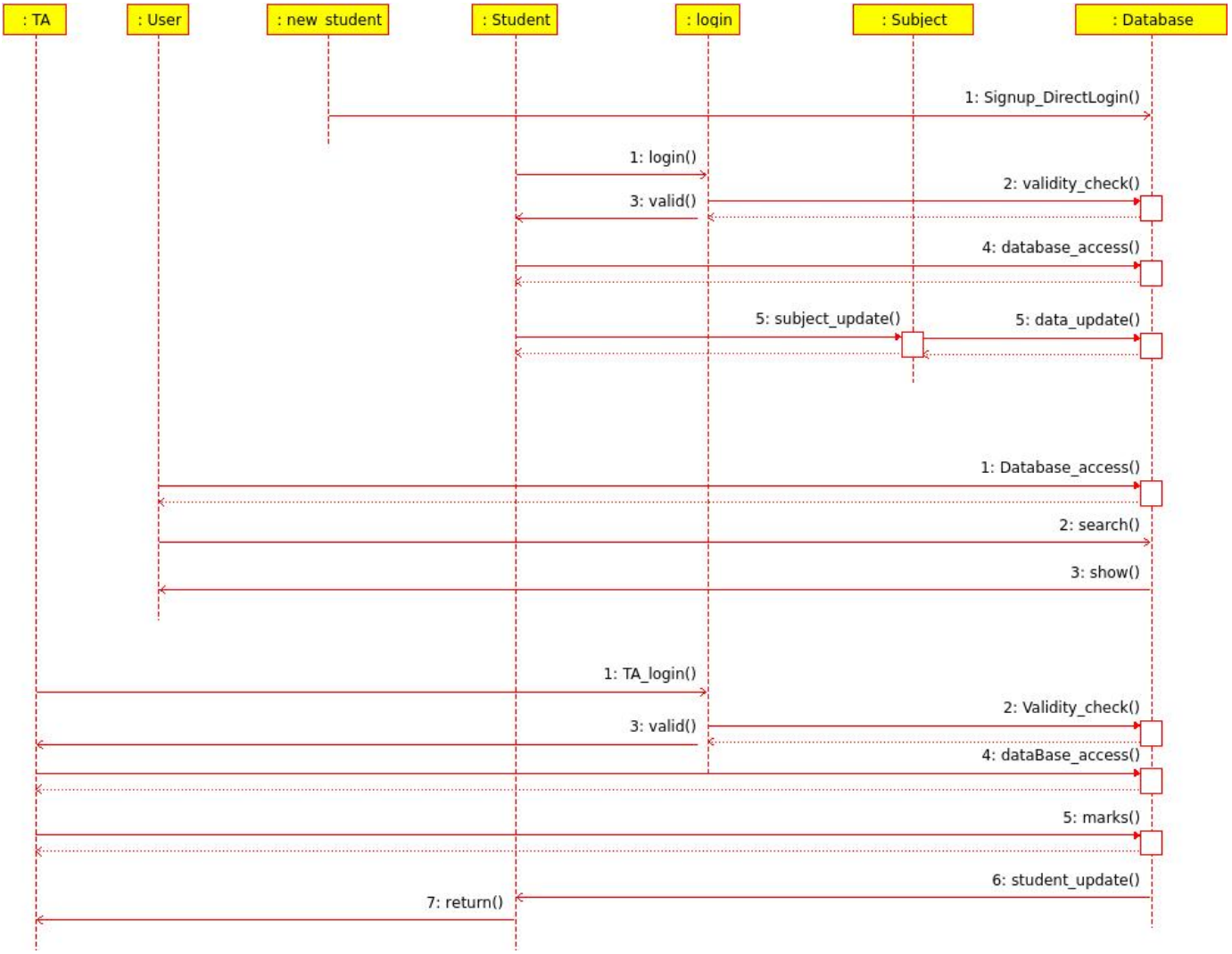

START
1st
Create the Database
Write in Database
Degree
department
entry no
DOB
Name
2nd
Search Student
By ID
By Dptt
By Degree
By D.O.B
By Name
2nd
New Student Sign-Up
2nd
login
valid ?
NO
YES
YES
Student Account
TA account
Add course
Drop Course
Change Password
add marks
Exit
Subject_ID
Update Subject Cart
Credits
UPDATE DATABASE

6 UML Diagrams:

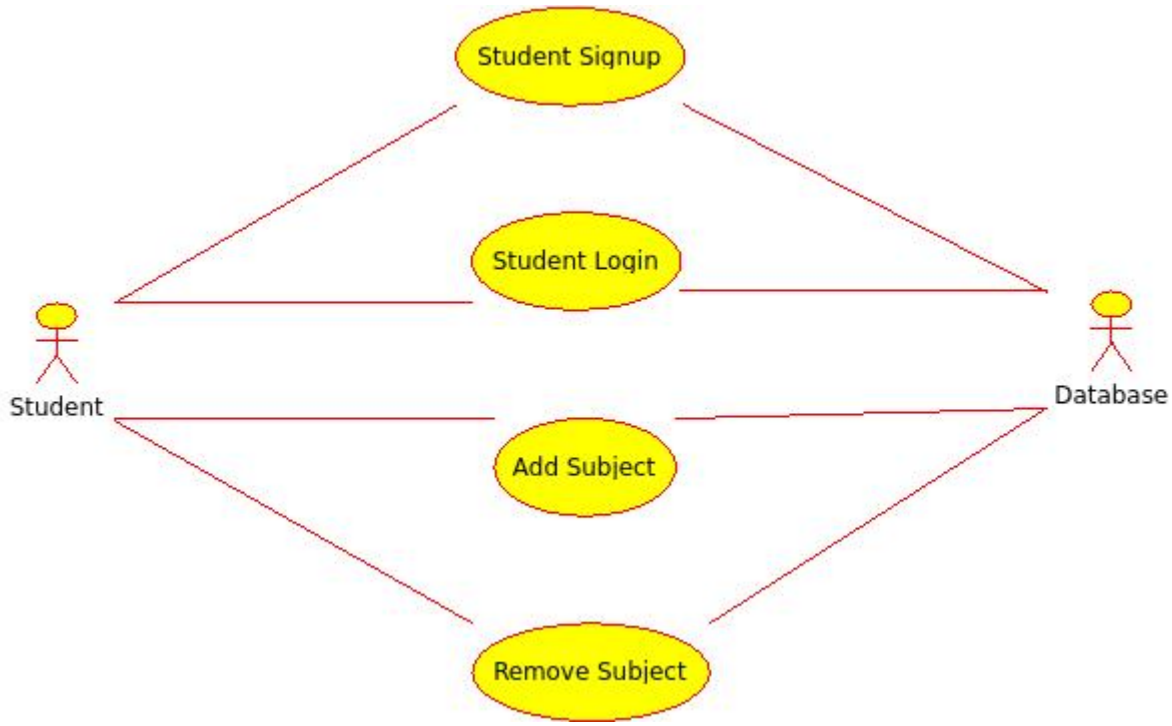
6.1 Class Diagram:

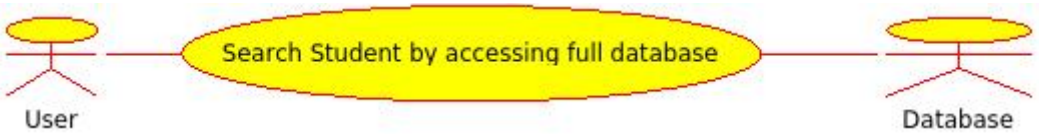


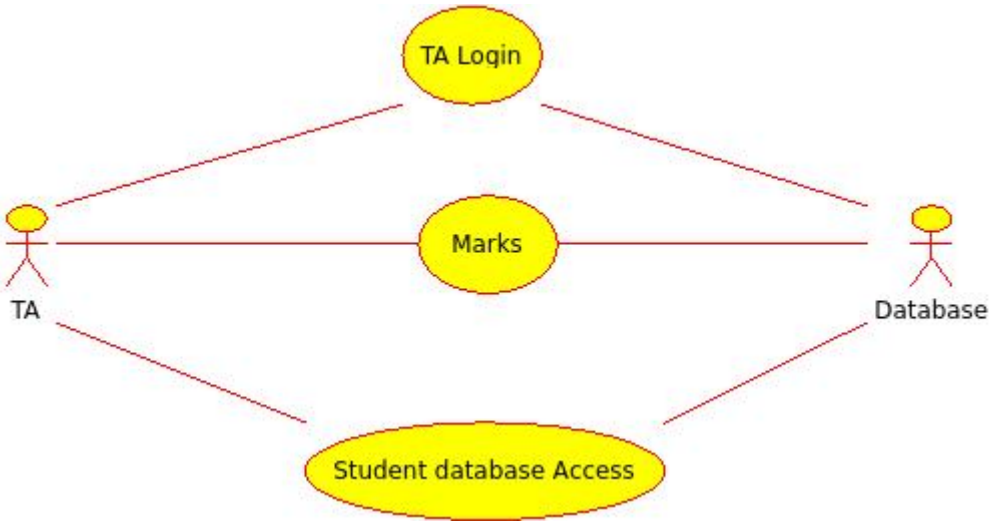
6.2 Sequence Diagram:



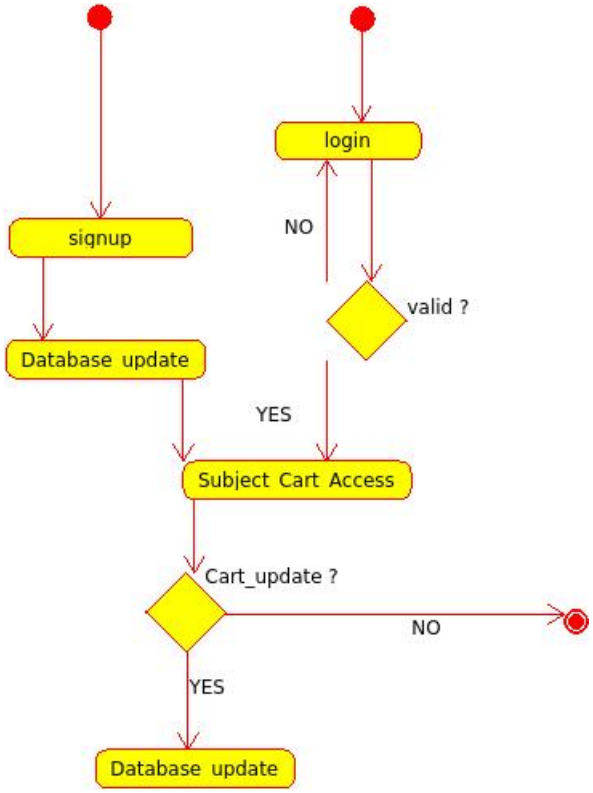
6.3 Use Case Diagrams:

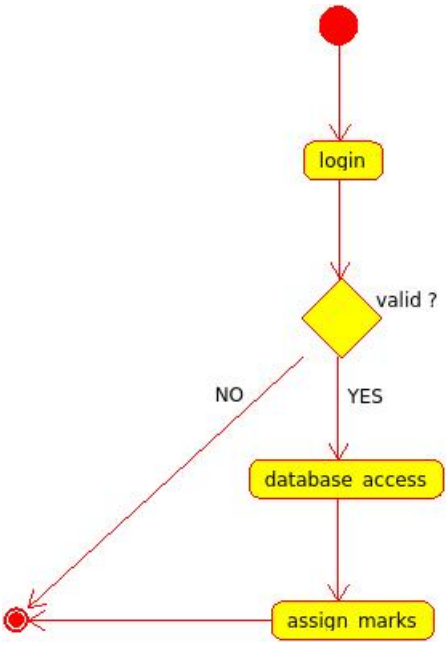


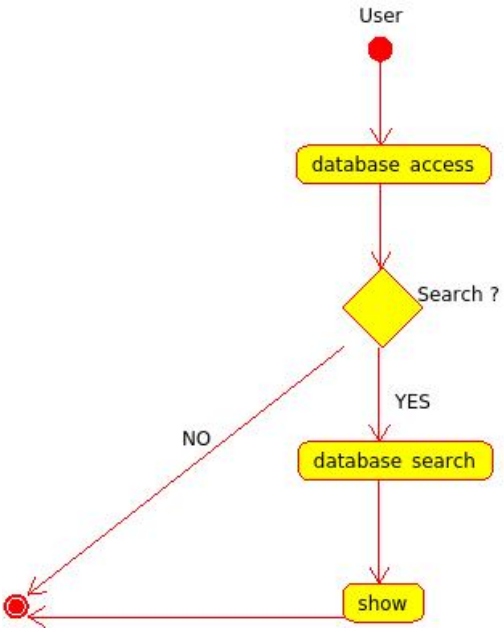




6.4 Activity Diagrams:







7 Conclusions:

Thus, we have performed object oriented programming in java and class model of UML is added. all the part of creating text file of student data and requried all analogy has performed and output showed in the file.