Deccan Education Society's

FERGUSSON COLLEGE (AUTONOMOUS), PUNE-4

Department of Computer Science

A

Project Report
On

FLASHCARD APPLICATION

By

PRASAD JADHAV
[Roll no 218826]

[2021 – 2022]

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FLASHCARD APPLICATION

In partial fulfillment of requirements of the completion of T.Y.B.Sc (C.S.)

Semester-VI

Bachelor of Science

Computer Science

SUBMITTED BY:

PRASAD JADHAV
Roll No. 218826

Under the Guidance of

MRS. SUJATA SATHE

[2021 – 2022]

(CSC3609) Computer Science Project-II

ACKNOWLEDGEMENT

We are grateful in the successful completion of our project **FLASHCARD APPLICATION** as a part of our final year project. We would like to extend our sincere gratitude to our project guide **Mrs. Sujata Sathe** mam, for her guidance and support in each and every stage of our project, because of which our project became a great success.

We would also like to thank our Head of Department, **Dr. Kavita A. Khobragade** for giving us this opportunity to take up this project and for her constant support. We would like to extend our special thanks to all our **teachers** for the knowledge they have imparted in us, which helped us in the successful making of this project.

Sincere thanks to all our **friends** for their support in the process. Finally, special thanks to my **group members** for thier team spirit, coordination and hard work.

PRASAD JADHAV

SLOT WISE PERFORMANCE SHEET

Name and roll no of the student	Prasad Jadhav (218826)
Title of the project	FLASHCARD APPLICATION
Project guide name	Mrs. Sujata Sathe

Sr. No.	Date	Task done	Sign
1	02.03.2022	Coding and explanation of diagrams	
2	09.03.2022	Sequence and activity diagram	
3	16.03.2022	Behavioral modeling	
4	23.03.2022	State diagram	
5	30.03.2022	Coding and implementation	
6	30.03.2022	Activity (Project Demo)	
7	06.04.2022	Review activity of project demo	
8	13.04.2022	Architectural modeling	
9	20.04.2022	Coding and implementation of interlinking	
10	20.04.2022	Coding and implementation of events	
11	27.04.2022	Coding and implementation of validation	
12	27.04.2022	Documentation	
13	04.05.2022	Test Case Design	
14	04.05.2022	Activity (final project Demo)	

INDEX

1. INTRODUCTION

1.1 Detailed Problem definition

Memorization of facts and small-small nuances of a subject has always been a threat to students especially those preparing for competitive exams. Moreover the amount of stress one has to go through in sitting and memorizing those tiny facts decreases the interest of the student in the subject. Proper visual memory training would make the process easier and handy. Adding some essence of game in it will make it interesting too.

1.2 Presently available system for the same

The existing traditional solution for this is to write them a number of times and revise, which would be so boring. However there are many online platforms which involves the use of flashcards like ‘app.classmaster.io’ which turns out to be handy and user friendly.

1.3 Need for new system

All the now available website applications are so basic and are not personalized. Also the user accessibility and proper organization of the interface possess a major threat of the existing systems.

Some of the systems are paid and has fewer features, and the systems are only for a particular group.

1.4 Project scope

The proposed idea is to create such a flashcard application, which has user management systems to personalize user account. The user will be able to add his own study contents and the system would turn into a flashcard game and would also give the user feedback. Keeping in mind the scope of the system, we would like to extend it to those kids too who are currently into the learning of languages. We would also incorporate some readily available flashcard decks that can be used for basic language trainings and much more.

The system can also be extended so that it is designed for the institution friendly manner for teachers and students.

2. ANALYSIS

2.1 Feasibility Study

2.1.1 Technical feasibility

Each of the technologies used in the application are freely available and the technical skills required are manageable. Time limitations of the product development and the ease of implementing using these technologies are synchronized.

The website can be hosted in a free web hosting space. Bandwidth required in the application is low, since it doesn't incorporate any multimedia aspect. Hence the project is technically feasible.

2.1.2 Economic feasibility

Being a web application, it will have an associated hosting cost. However, free web hosting spaces can be utilized. The system will follow the freeware software standards. No cost will be charged from the potential customers. Bug fixes and maintaining tasks will have an associated cost. Hence the project is economically feasible.

2.1.3 Operational feasibility

The flashcard application being highly personalized gives the user the rights to manage his logins. Interactive and interesting presentation of data makes the project meet the proposed purpose of engaging the users and boosting their interests.

Teacher – student perspective makes the teaching- learning process interesting for students.

3. DESIGN

3.1 Database table design

(Normalized database)

Relationships in the system

Sr. No.	TABLE 1	RELATIONSHIP	TABLE 2
1	Login	One to many	Section
2	Section	One to many	Decks
3	Decks	Many to many	Flashcards
4	Teacher	One to one	Class
5	Class	One to many	Students
6	Student_teacher	One to many	sections

TABLE NAME: **LOGIN**

Sr. No.	Field Name	Field Type	Description
1	login_id	INTEGER	Primary key
2	user_name	TEXT	Unique
3	Password	TEXT	Not null
4	Name	TEXT	Not null
5	Phone	TEXT	Not null
6	Gender	TEXT	Not null
7	Type	TEXT	Not null

TABLE NAME: **SECTION**

Sr. No.	Field Name	Field Type	Description
1	Section_id	INTEGER	Primary key
2	Section_name	TEXT	Not null
3	Login_id	INTEGER	Foreign key (login)

TABLE NAME: **DECKS**

Sr. No.	Field Name	Field Type	Description
1	Deck_id	INTEGER	Primary key
2	Deck_name	TEXT	Not null
3	Score	INTEGER	Default 0
4	Section_id	INTEGER	Foreign key (section)

TABLE NAME: **FLASHCARD**

Sr. No.	Field Name	Field Type	Description
1	Card_id	INTEGER	Primary key
2	Question	TEXT	Not null
3	Answer	TEXT	Not null
4	Marks	INTEGER	Default 0
5	Deck_id	INTEGER	Foreign key (decks)

TABLE NAME: **TEACHER**

Sr. No.	Field Name	Field Type	Description
1	Teacher_id	INTEGER	Primary key

TABLE NAME: **CLASS**

Sr. No.	Field Name	Field Type	Description
1	Class_id	INTEGER	Primary key
2	Class_name	TEXT	Not null

3	Teacher_id	INTEGER	Foreign key (teacher)

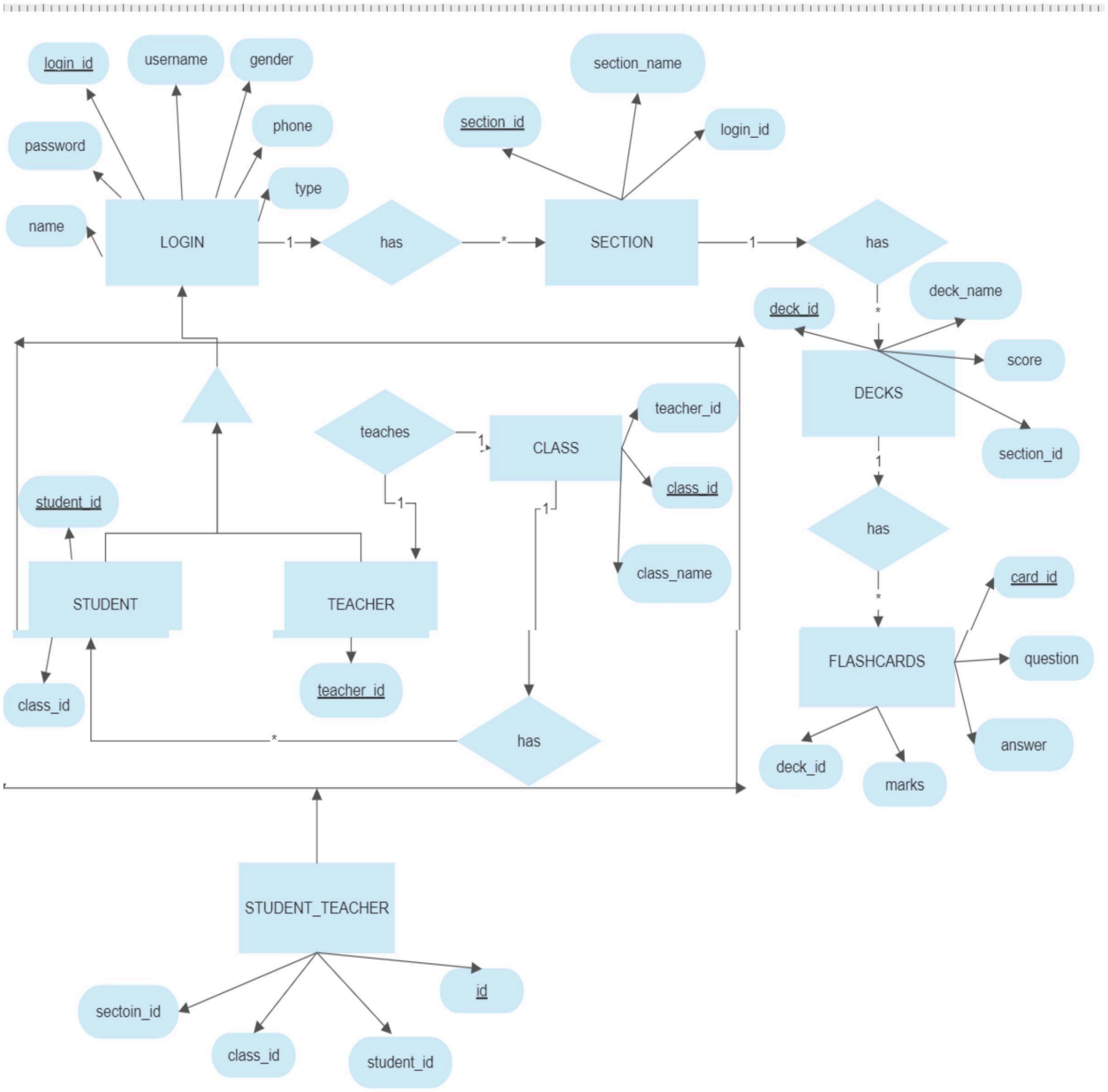
TABLE NAME: **STUDENT**

Sr. No.	Field Name	Field Type	Description
1	Student_id	INTEGER	Primary key
2	Class_id	INTEGER	Foreign key (class)

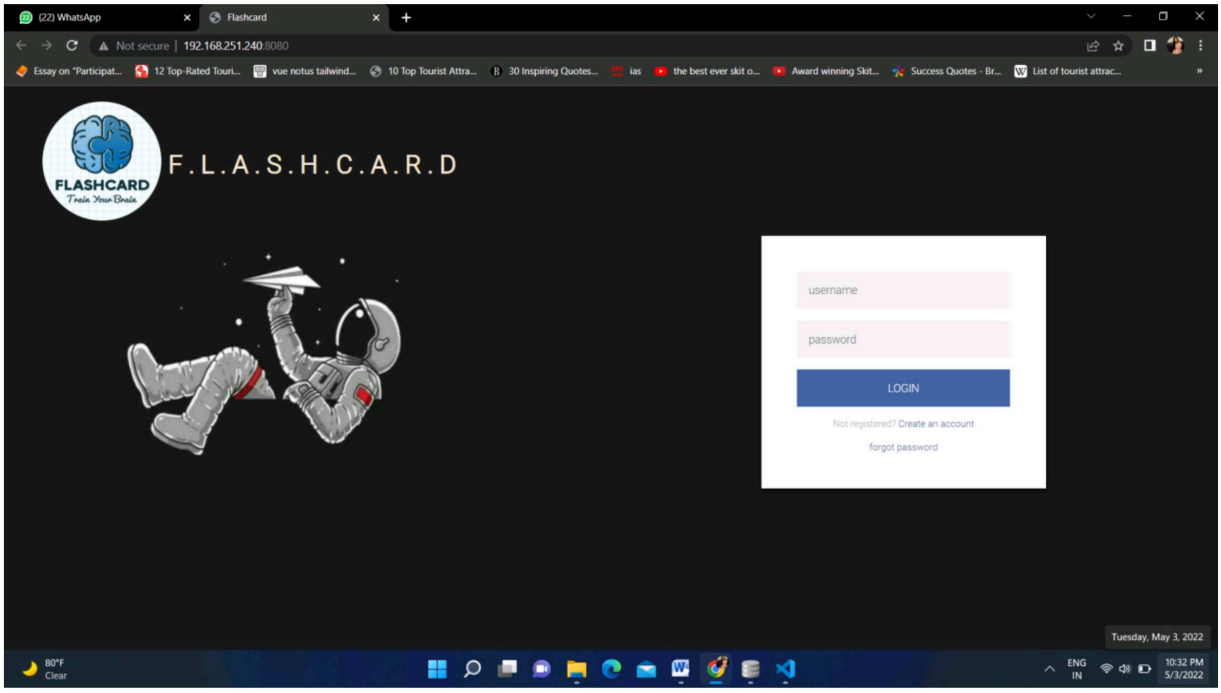
TABLE NAME: **STUDENT_TEACHER**

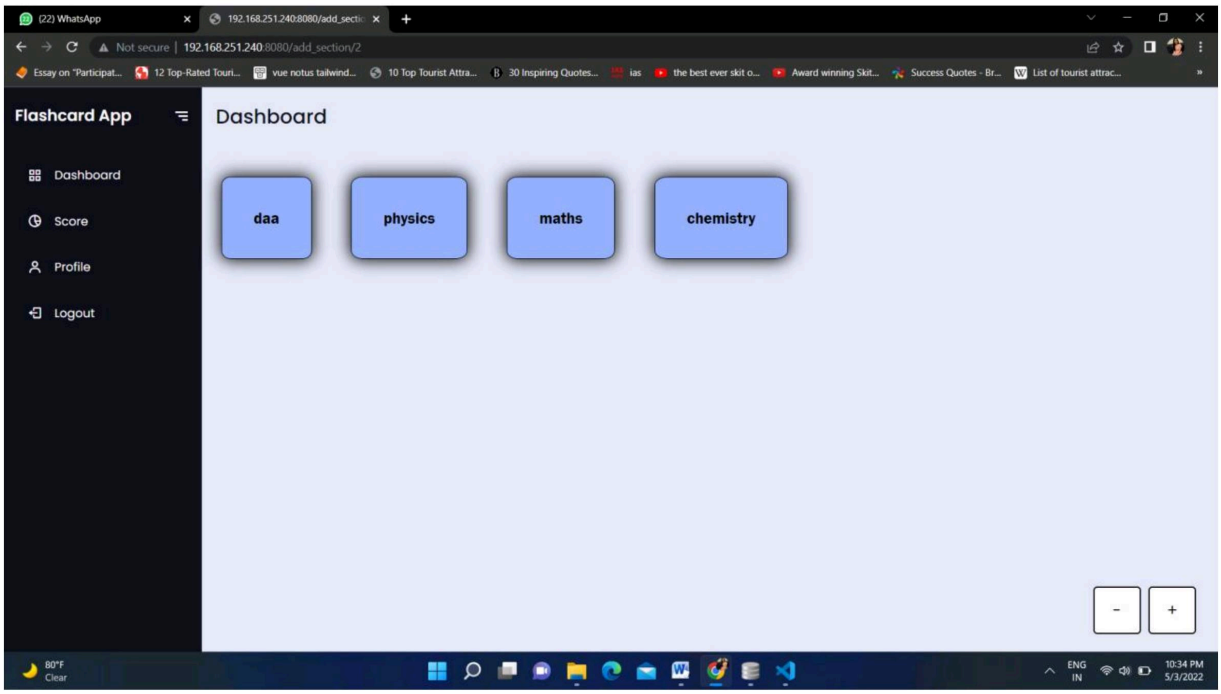
Sr. No.	Field Name	Field Type	Description
1	section_id	INTEGER	Foreign key (section)
2	Class_id	INTEGER	Foreign key (class)
3	Teacher_id	INTEGER	Foreign key (teacher)
4	Id	INTEGER	Primary key

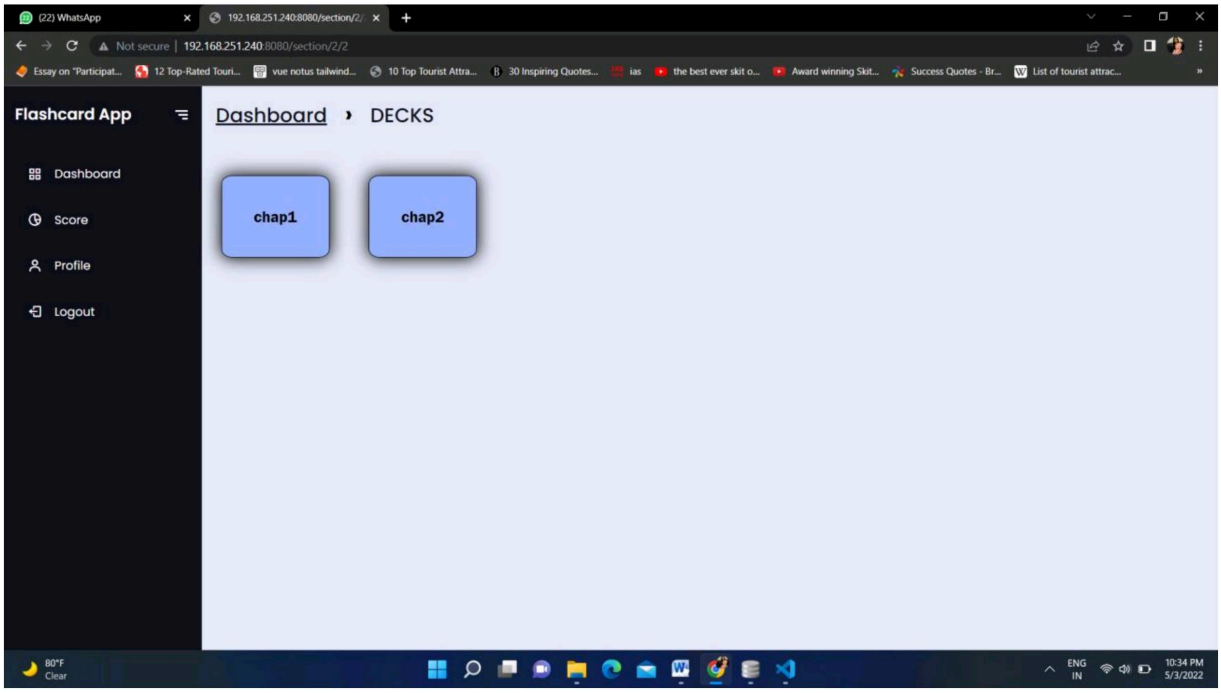
3.2 Entity Relationship Diagram

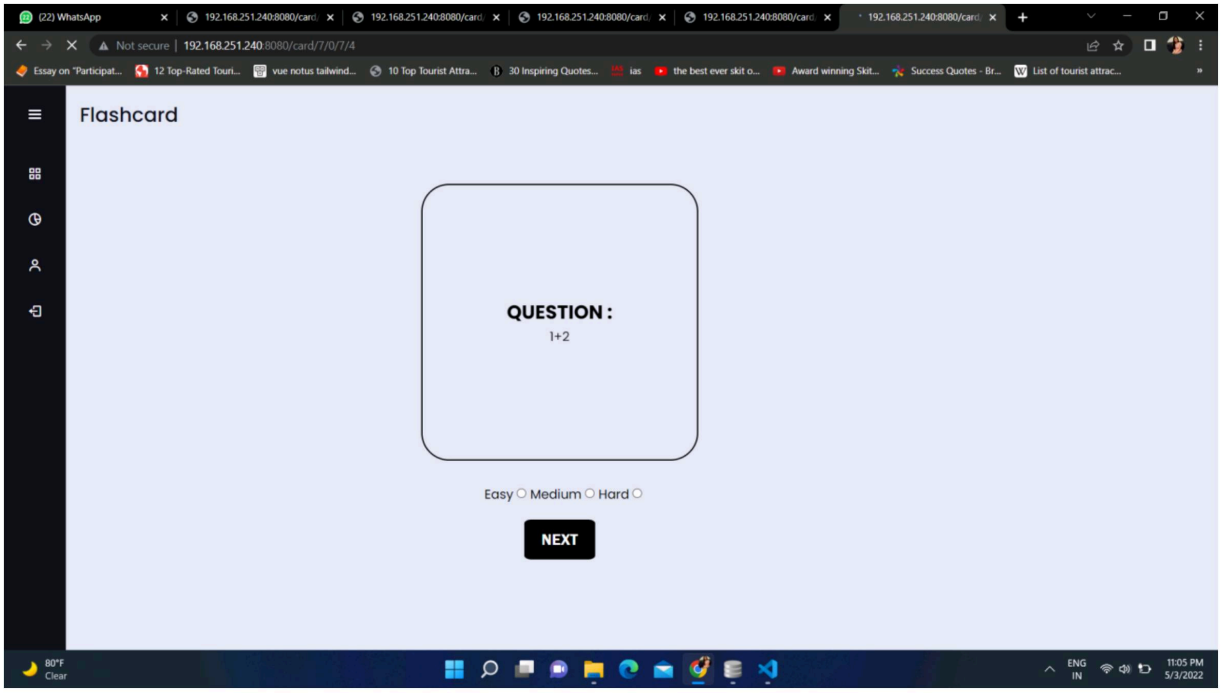


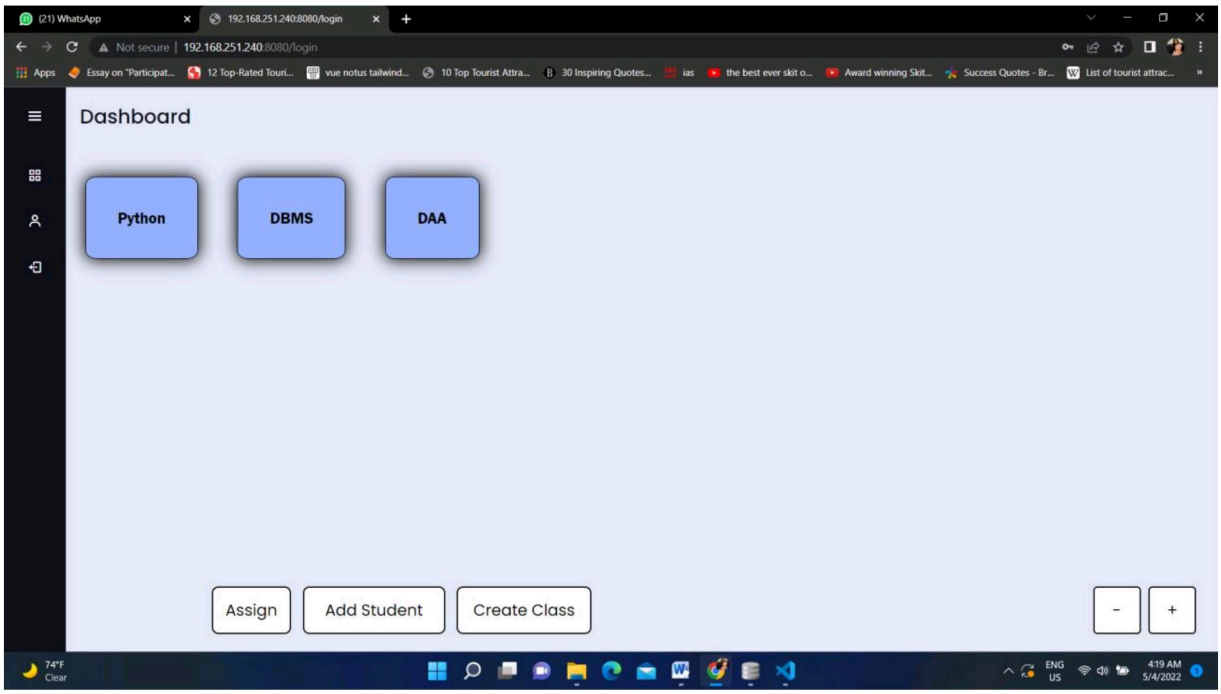
3.3 Input and Output Screens

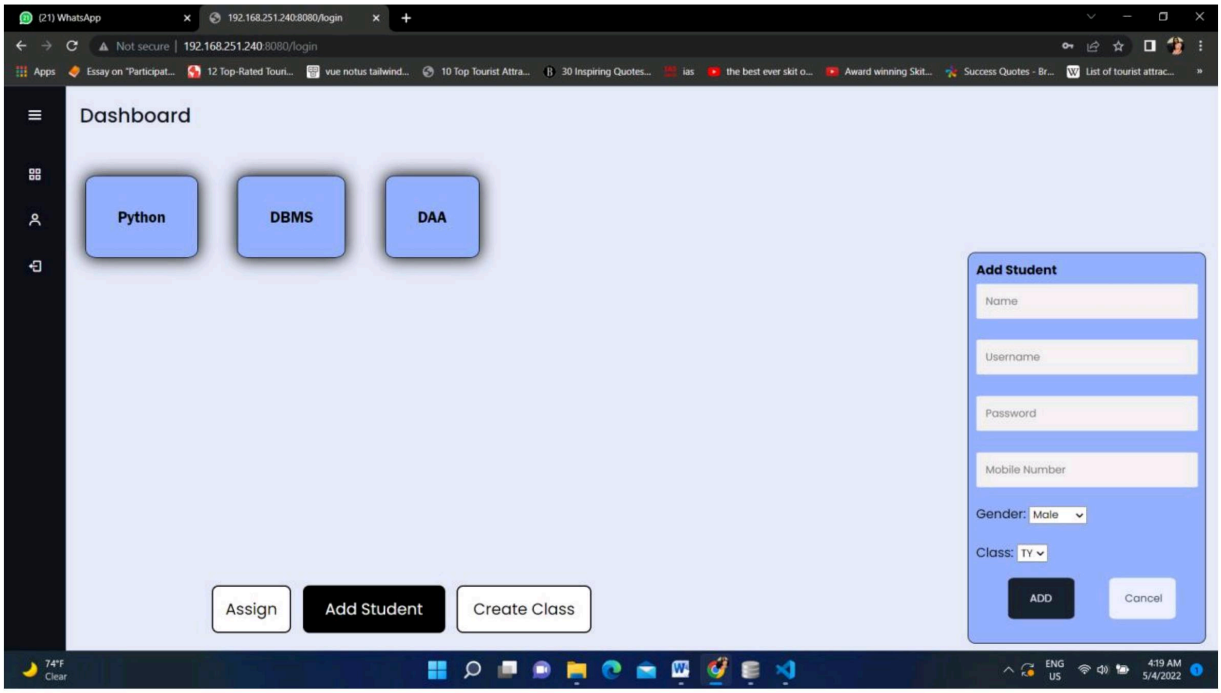


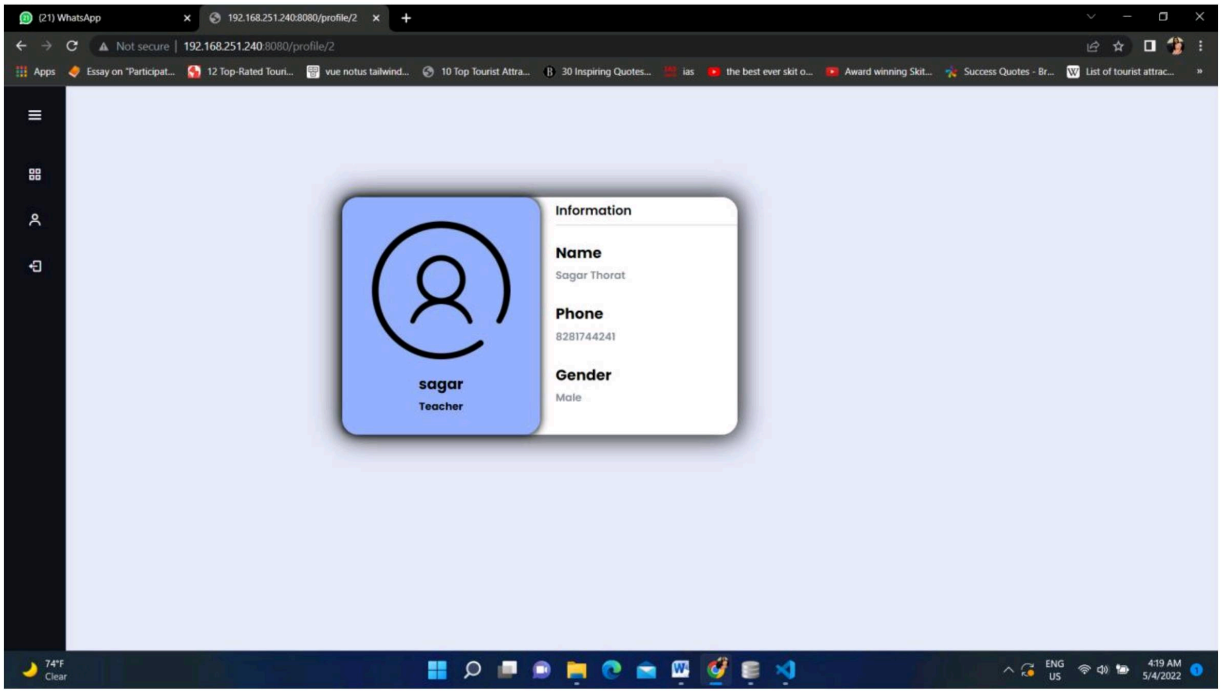


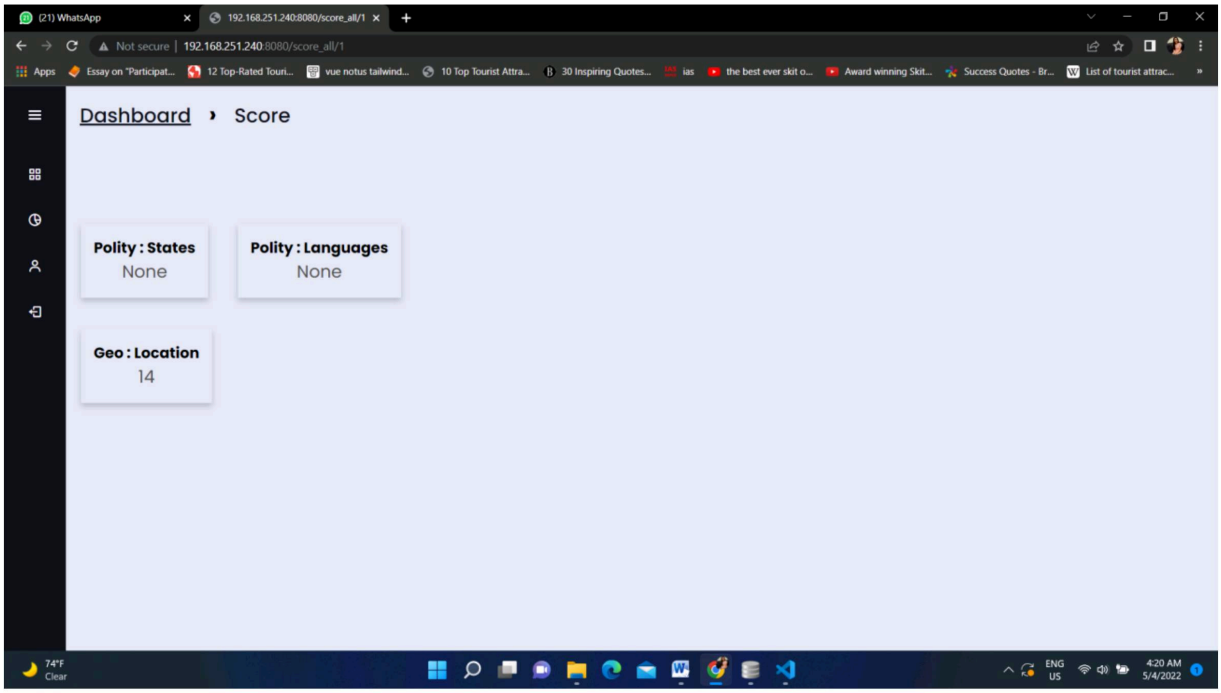

Flashcard App
Dashboard
Score
Profile
Logout
Dashboard › DECKS
chap1
chap2

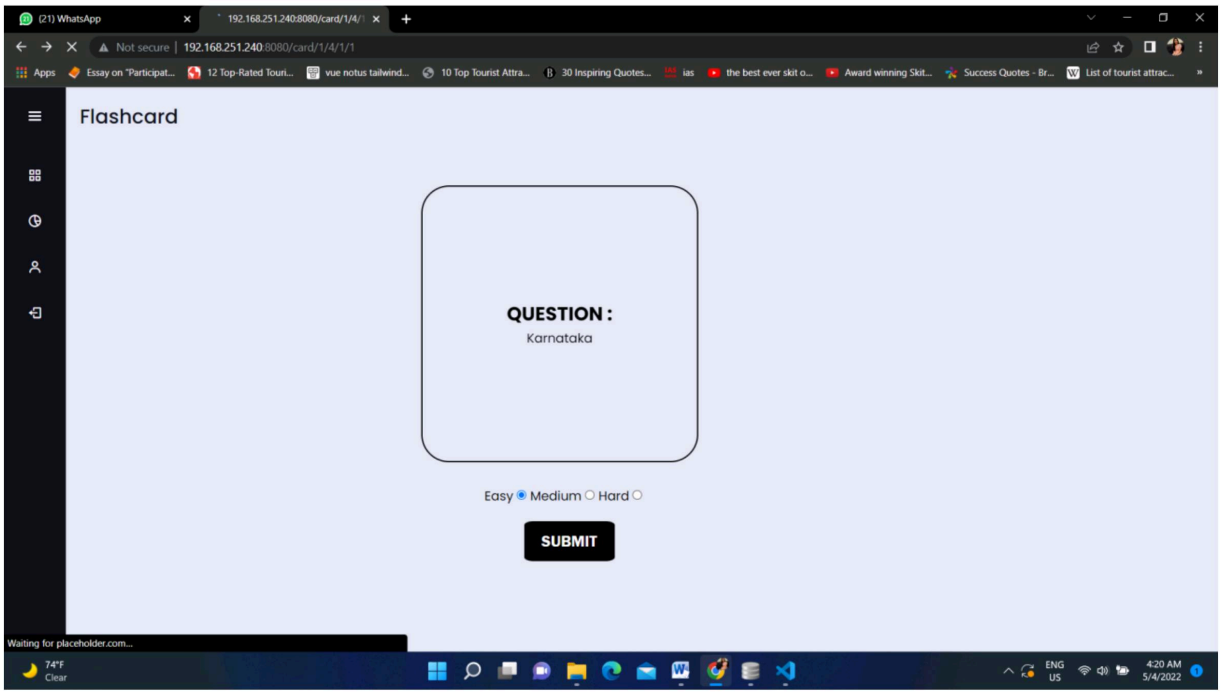

Flashcard
QUESTION :
1+2
Easy Medium Hard
NEXT

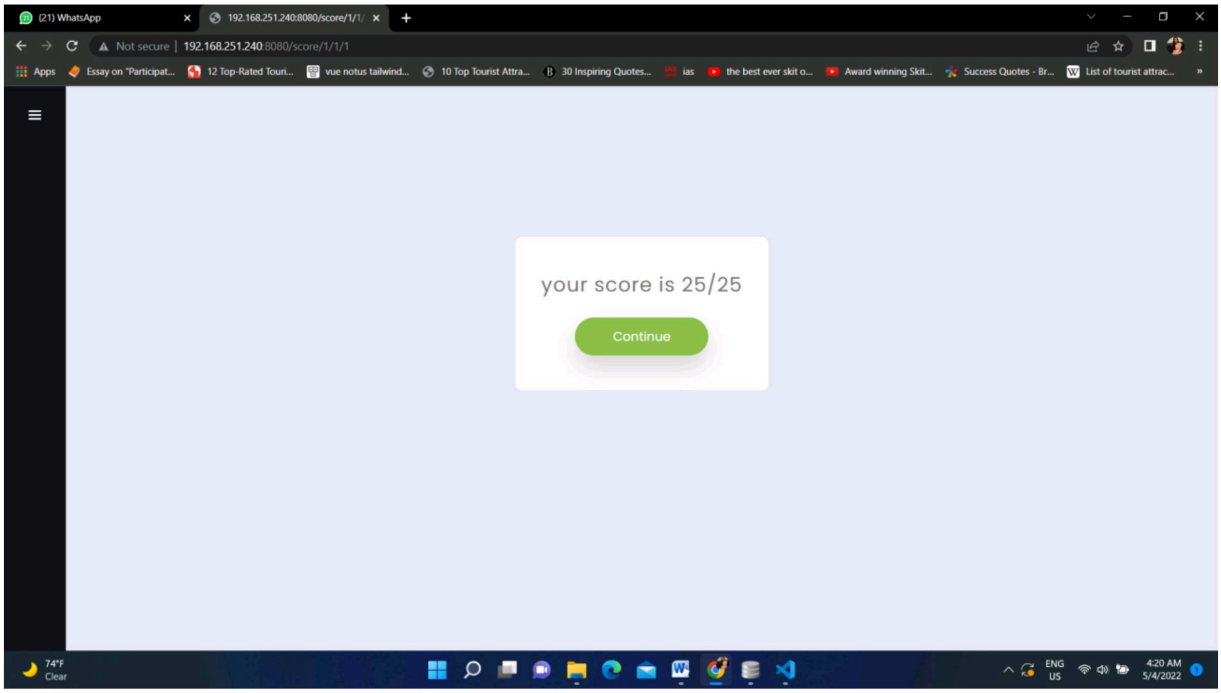

Dashboard
Python
DBMS
DAA
Assign
Add Student
Create Class
-
+


Dashboard
Python
DBMS
DAA
Assign
Add Student
Create Class
Add Student
Name
Username
Password
Mobile Number
Gender: Male
Class: TY
ADD
Cancel


Information
Name
Sagar Thorat
Phone
8281744241
Gender
Male
sagar
Teacher

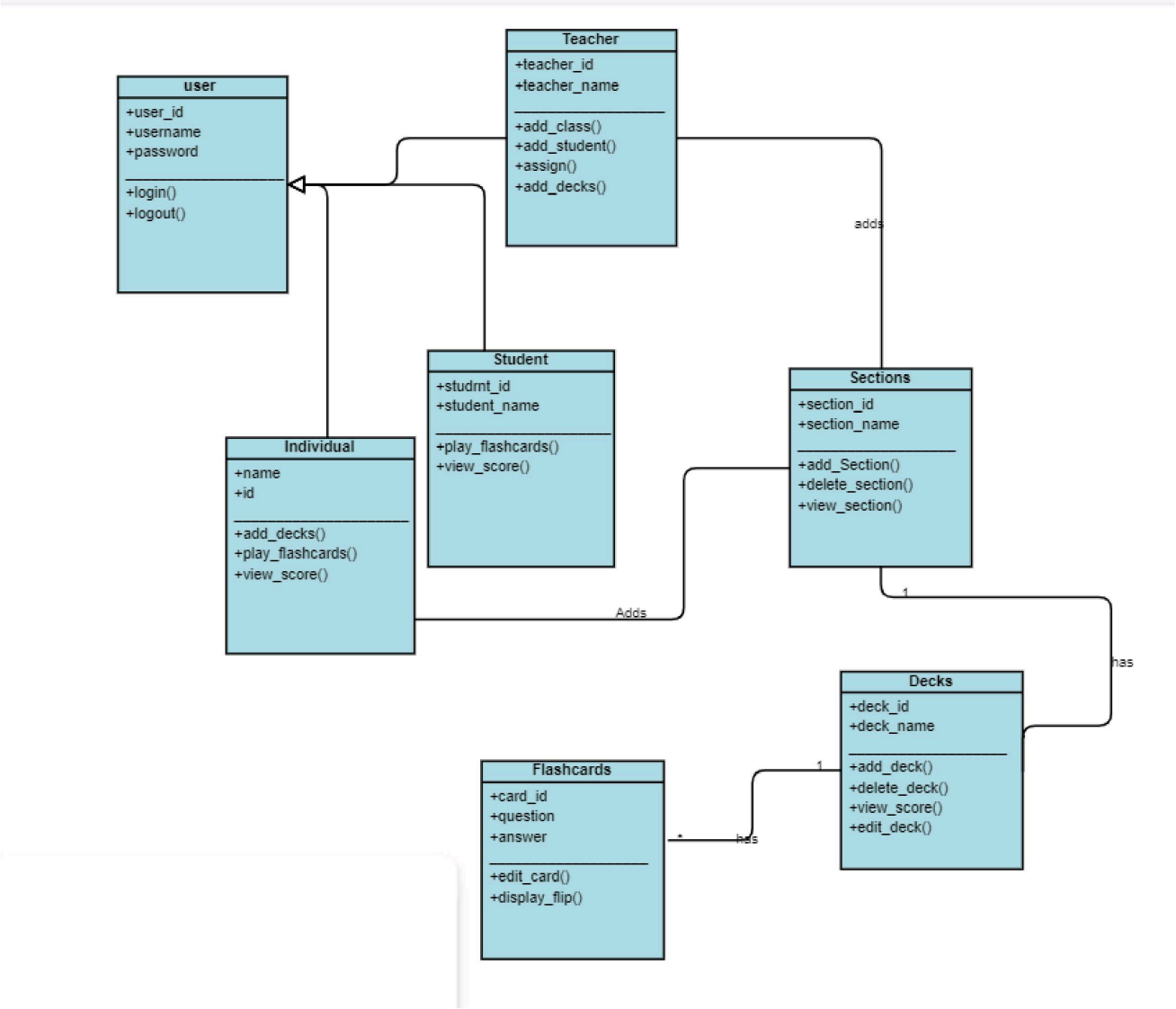

Dashboard › Score
Polity : States
None
Polity : Languages
None
Geo : Location
14


Flashcard
QUESTION :
Karnataka
Easy Medium Hard
SUBMIT

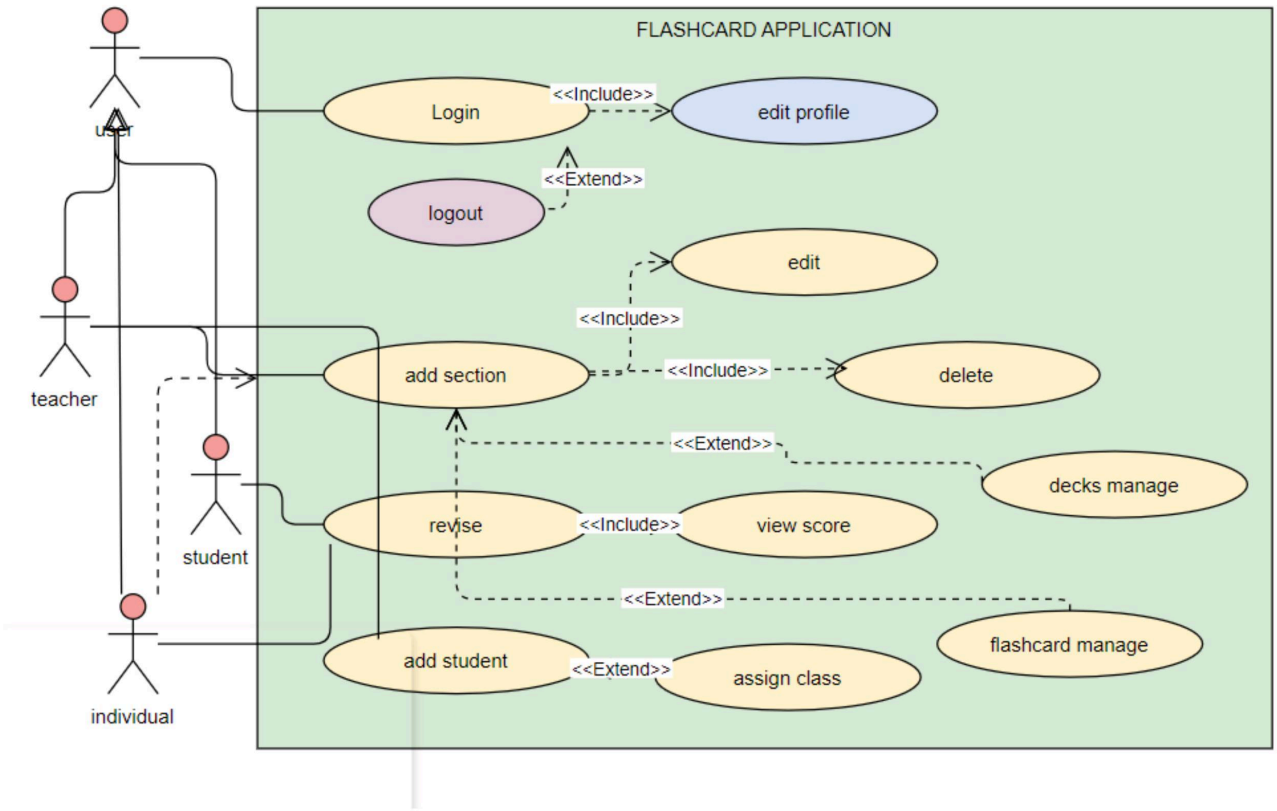

your score is 25/25
Continue

4. UML DIAGRAMS

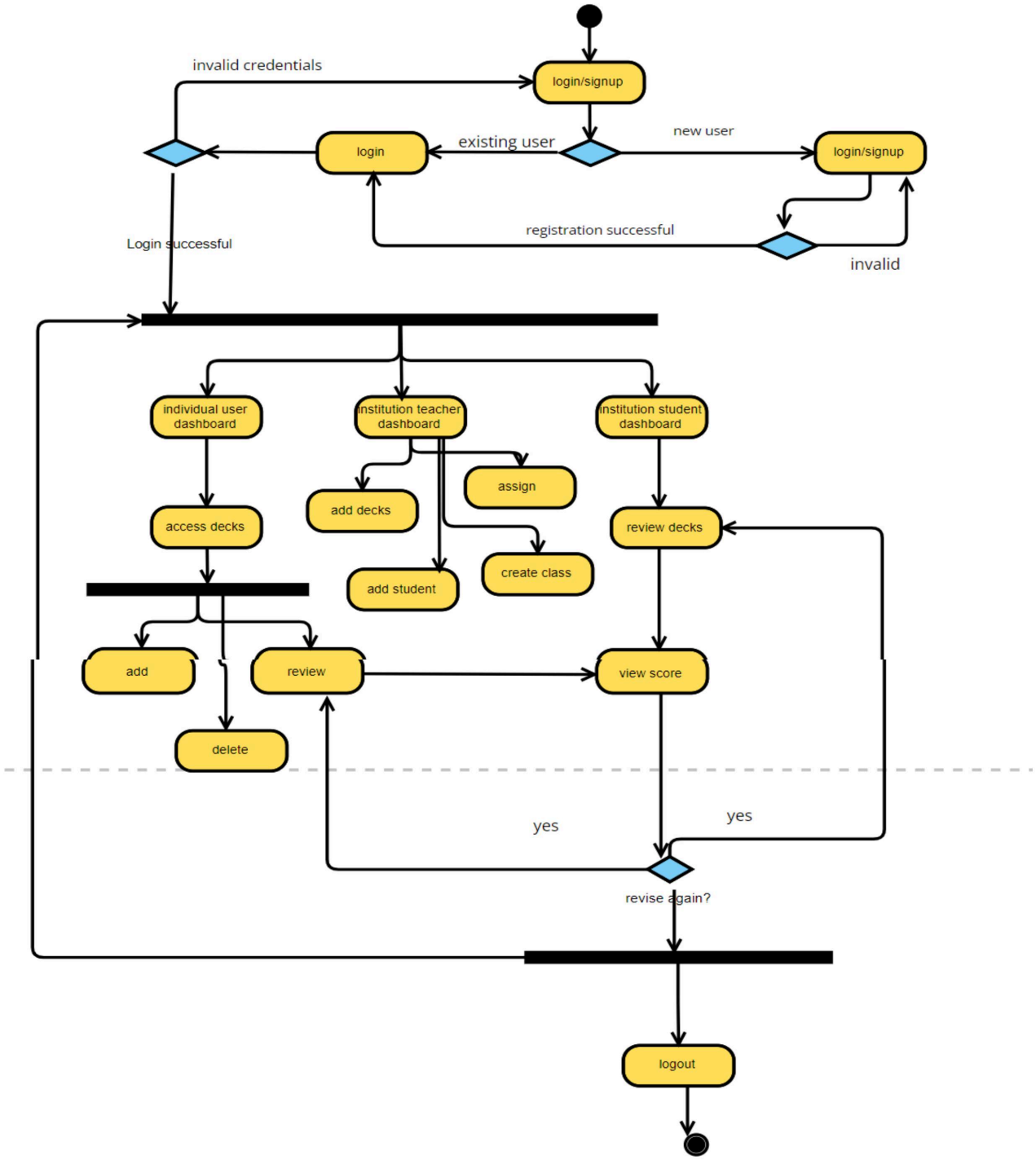
4.1 Class diagram



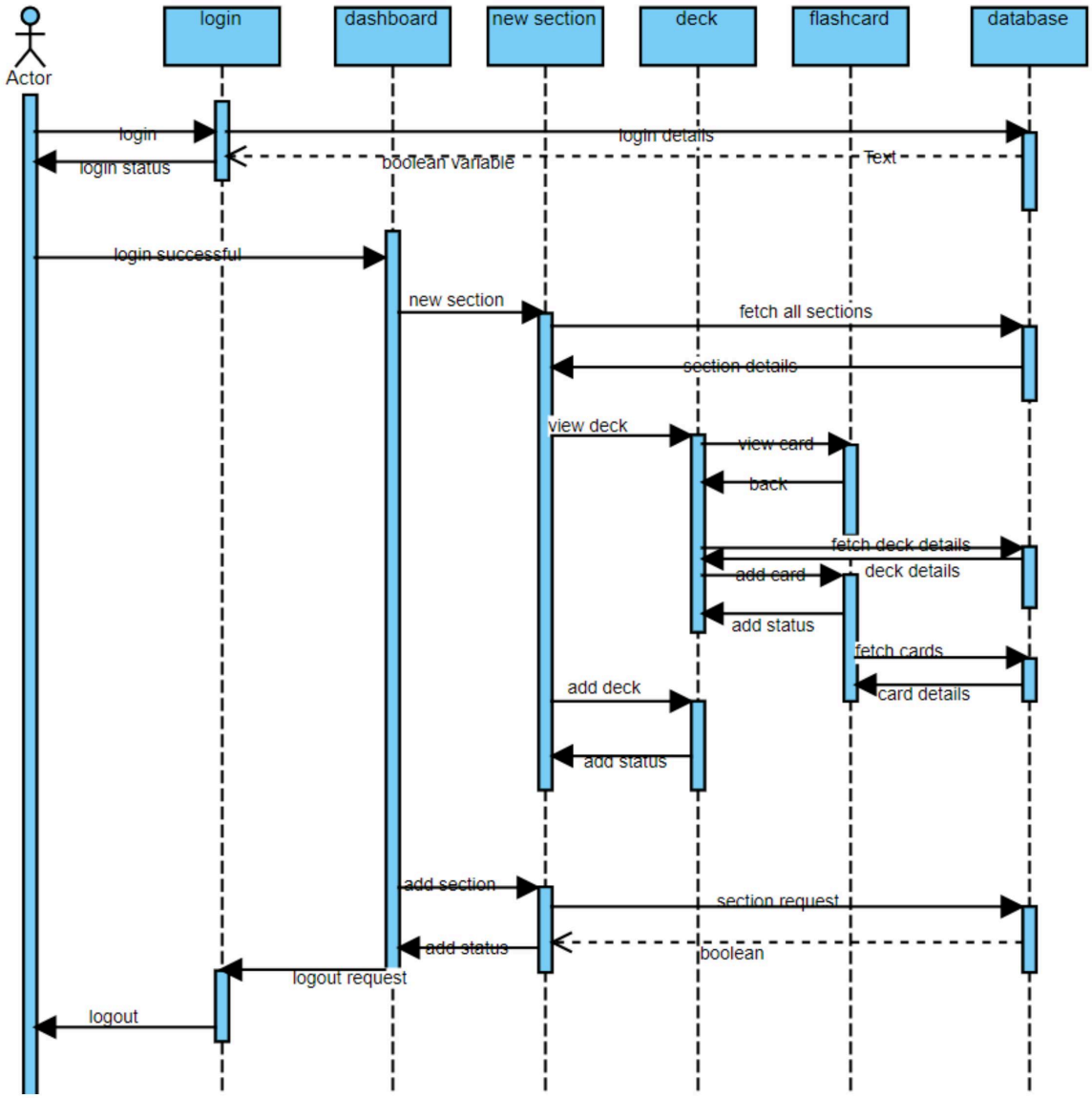
4.2 Use case Diagram



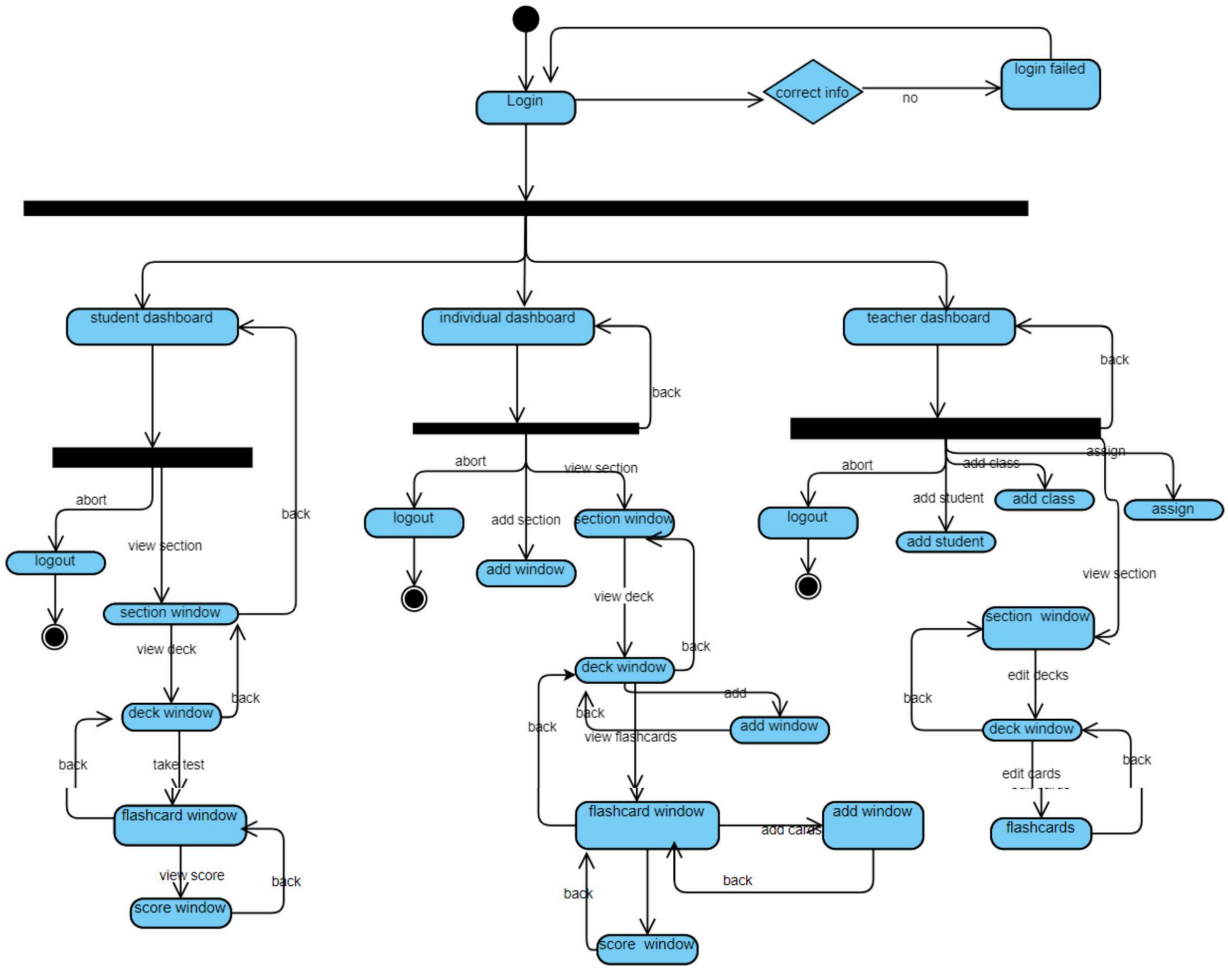
4.3Activity Diagram



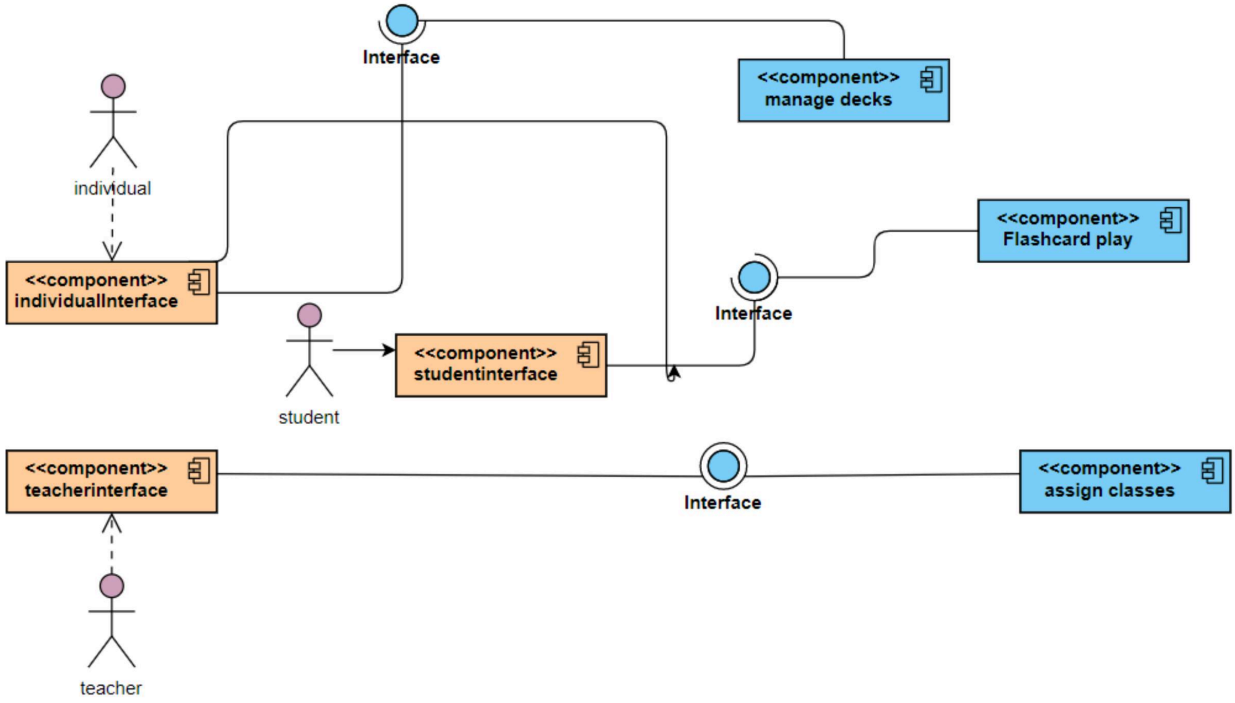
4.4 Sequence Diagram



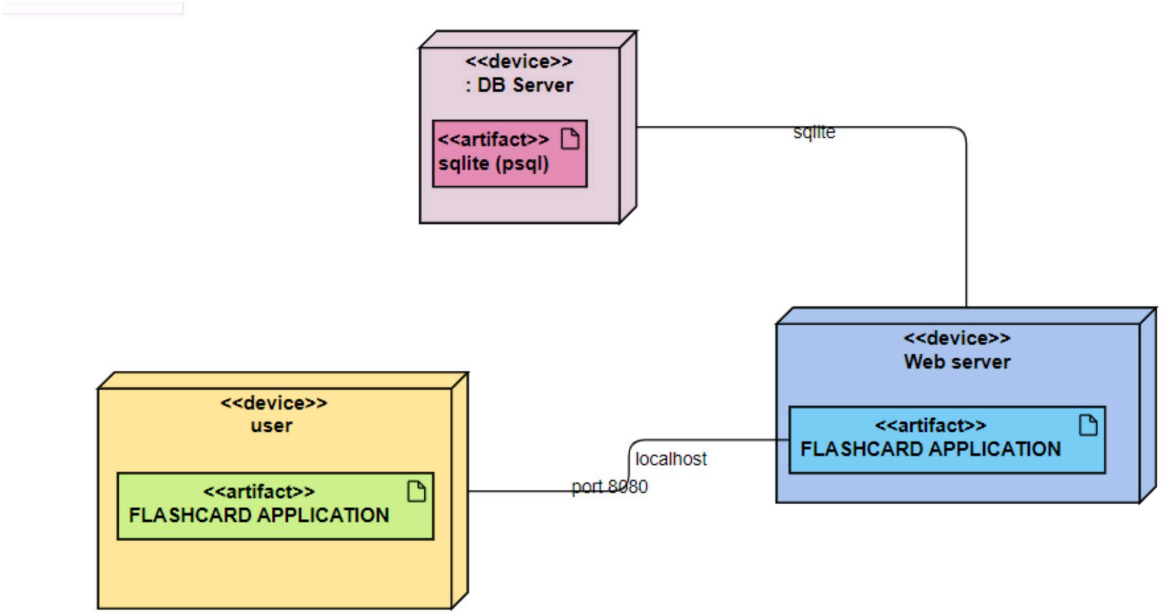
4.5 State diagram



4.7 Component Diagram



4.8 Deployment diagram



5 CODING

5.1 Hardware Specifications

1. Pentium IV (Processor)
2. 256 MB RAM
3. 512KB Cache memory
4. Hard disk 10GB
5. Microsoft compatible 101 or more keyboard

5.2 Platform

Coding and implementation of the project was completely done using **Visual Code Studio.** Since it provides support for almost all the required languages and packages, it was advantageous in using the platform for the coding purposes.

5.3 Programming languages used

Database : PostgreSQL (sqlite , flaskSQLAlchemy)
Backend : Python (flask)
Frontend : HTML, JS, CSS, Jinja

The entire application is build using the flask framework provided by python, inculcating the database facilities of flask_sqlalchemy, along with the templates of webpages written usig Jinja.

5.4 Coding style followed

main.py file contains the basic running program including the controllers and the models used along with the specific routing functions for each action in the webpage.
Templates folder includes all the html pages used for the frontend design written in jinja formats.
Static folder further contains two folders css(for styling webpages) and the images folder (which contains all the images used) . Also static folder has the javascript files .

6 TESTING

6.1 Test cases and test results

Sr.No.	Name of test case	Input	Output	Status
1	Login	Correct user_id and password	Redirected to dashboard	PASS
		Incorrect user_id and password	Redirected to loginerror page	PASS
2	Register	Successful registration	Redirected to login page	PASS
		Already existing credentials	Redirected to registration error page	PASS
3	Section	No sections fetched from database	No sections available popup	PASS
		Add section (name already exists)	Pop up (Already exists)	PASS
		Delete non existing section	Pop up (do not exist)	PASS
4	Decks	No decks fetched from database	No decks available popup	PASS
		Add deck (name already exists)	Pop up (Already exists)	PASS
		Delete non existing deck	Pop up (do not exist)	PASS
		Edit deck (not available)	Pop up(do not exist)	PASS
5	Flashcard	Next button	Go to next card	PASS
		After last card	Show score	PASS
		After submit	Show score	PASS
6	Student	After login	No add/delete options	PASS
7	Teacher	After login	Add student / assign options	PASS
		View decks	Cannot play cards	PASS
8	Logout	Logout button	Render to login page	PASS

7 LIMITATIONS AND FUTURE ENCHANCEMENTS

The final project has some functional ambiguities and lack of more options for the users. Moreover, it takes a lot of steps to perform a particular task. The project has been kept simple for the purpose of understanding and accurate implementation of the concepts.

We would like to extend the project by making it more users friendly and presentable. Furthermore, functionalities like activity status, monthly reports and timestamps can be included in the application. Also special packages for different age groups can be by default included in the home page for ready references.

8 CONCLUSION

Flashcard application in its name itself suggests a sense of game and enjoyment; same is the aim of this project – the flashcard application project aims to make studying and memorizing of facts simpler and interesting. Focusing more on the students, who are preparing for competitive exams, we extend a helping hand in memorizing the nuances of their subjects in an easy manner with the help of flashcards.

The application is highly user-centric and allows the user manage his own logins and data.

Moreover the application is being extended for the teacher-student purposes, where the teacher can use the application in providing the students with study materials in the form of flashcards and on the other hand the students can use them to study the subjects.

In this busy world of technology, flashcard application will engage the students more effectively with the technology.

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