SOFTWARE DESIGN DOCUMENT

OF

Academic Portal Project

Group ID – CS31

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1. Introduction

1.1. Purpose

The goal of the software is to provide universities with a fully functional website which helps online interaction between student and teachers.
The SDD is aimed to provide information about structuring of the web application. The SDD is designed in accordance with the SRS.

1.2. Scope

The website is developed to assist the students and teachers by-

- The students have to register by providing specific information and creating username and password.
- This portal will provide a platform to conduct online education efficiently.
- It will help students and teachers to maintain their online education material at one place.
- This portal can maintain the information of students, teachers, classes, their courses with the respective assignments, announcements, resources and grades.
- Teachers will be able to add the announcements, assignments, grades and resources of respective courses and students whereas the students will be able to access the same easily. They are also provided with the facility to submit their assignments on the portal as well.

- The students are provided with a to-do list feature to keep a check on their assignments.
- The users will be able to edit their profile. They can change their passwords and profile picture.
- There will be two types of users: Students and Teachers.

1.3 Acronyms and abbreviations

SDD- Software Design Document

SRS- Software Requirement Specification

E-R Diagram- Entity Relationship Diagram

1.4. References

- Software Engineering by Roger S. Pressman
- Database System Concepts by Henry F. Korth
- https://www.geeksforgeeks.org/introduction-of-er-model/
- https://www.guru99.com/er-diagram-tutorial-dbms.html
- https://www.gatevidyalay.com/cardinality-in-er-diagram/

1.5 Overview of the Document

The SDD has:

1. High-Level design diagram, structural chart, interaction diagram.
2. Description of database.
3. User Interface designs.

2. System Architectural Design

2.1 High level Design Overview

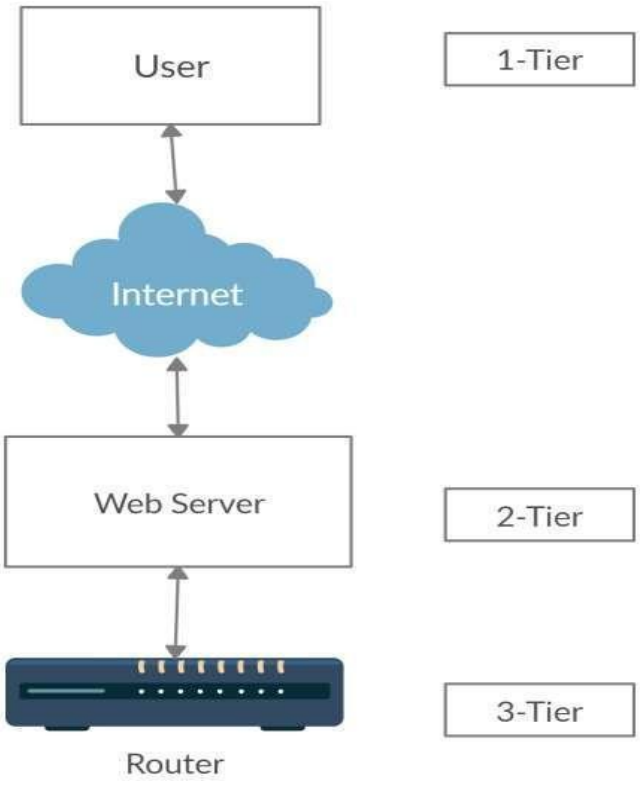

Fig-1 High-Level Design of web application

2.2 Detailed Description of Components

2.2.1. Structure Diagrams

Class Diagram

A class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes and operations (or methods).

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. The classes in a class diagram represent both the main elements, interactions in the application, and the classes to be programmed.

In the diagram, classes are represented with boxes that contain three compartments:

- The top compartment contains the name of the class. It is printed in bold and centered, and the first letter is capitalized
- The middle compartment contains the attributes of the class. They are left-aligned and the first letter is lowercase.
- The bottom compartment contains the operations the class can execute. They are also left-aligned and the first letter is lowercase.

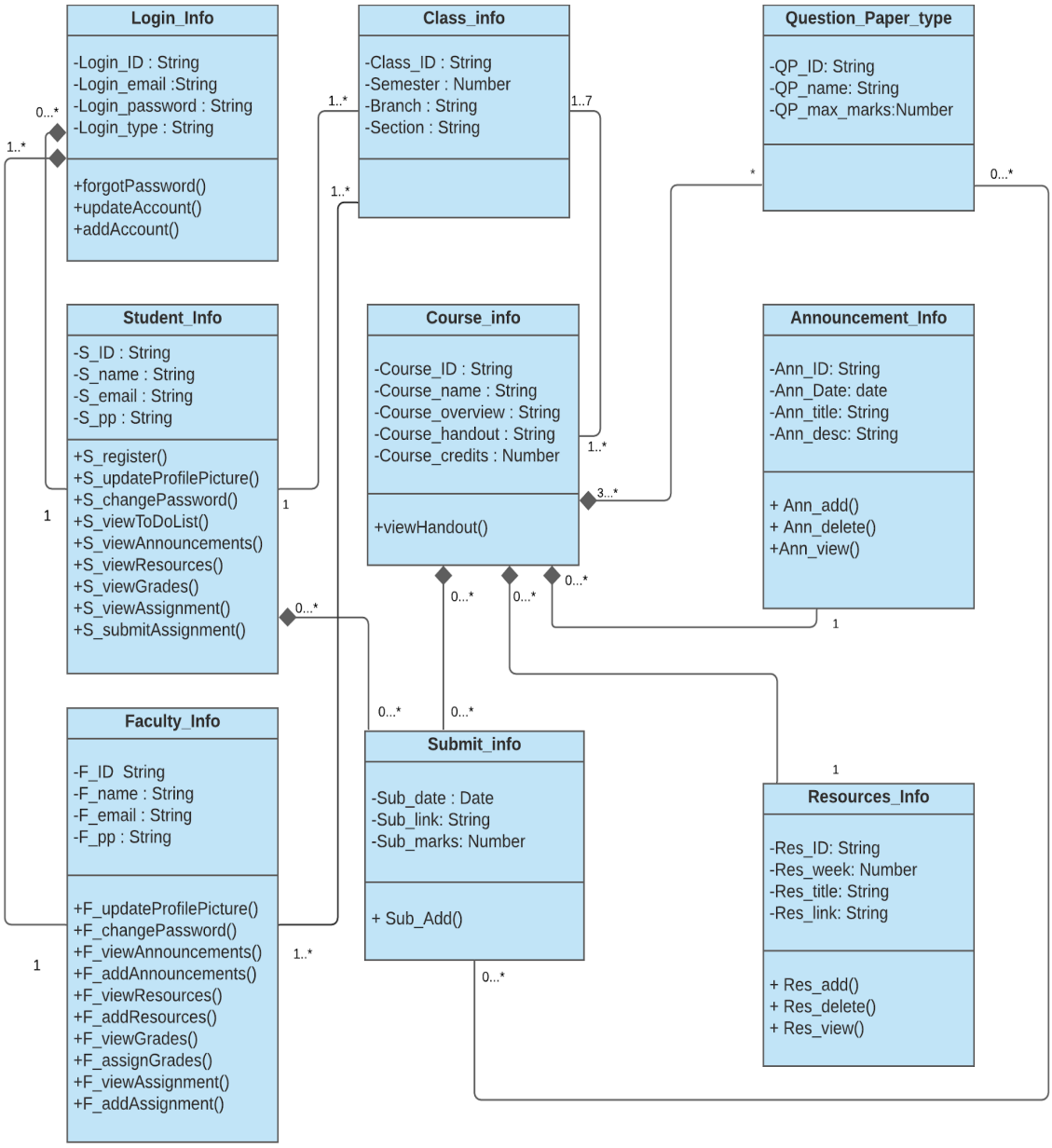

Fig 2: Class Diagram for the Website

2.2.2 Interaction Diagrams

Sequence Diagram

A sequence diagram simply depicts interaction between objects in a sequential order i.e. the order in which these interactions take place. We can also use the terms event diagrams or event scenarios to refer to a sequence diagram. Sequence diagrams describe how and in what order the objects in a system function.

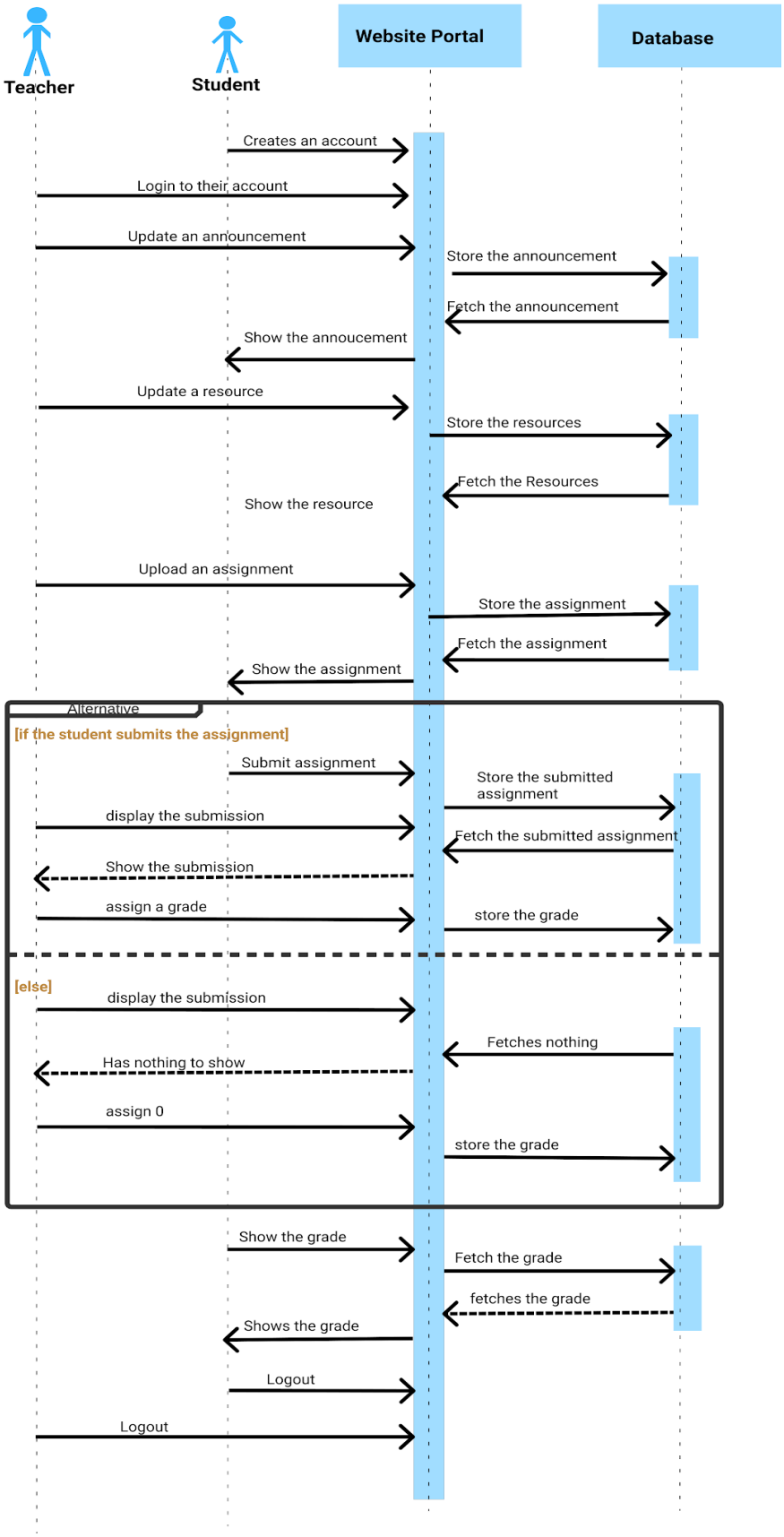

Fig 3. Sequence Diagram of website.

2.2.3 Behavioral Diagram

Activity Diagram

Activity diagram is defined as a UML diagram that focuses on the execution and flow of the behavior of a system instead of implementation. It is also called object-oriented flowchart. Activity diagrams consist of activities that are made up of actions which apply to behavioral modeling technology. Activity diagram allows you to create an event as an activity which contains a collection of nodes joined by edges. An activity can be attached to any modeling element to model its behavior.

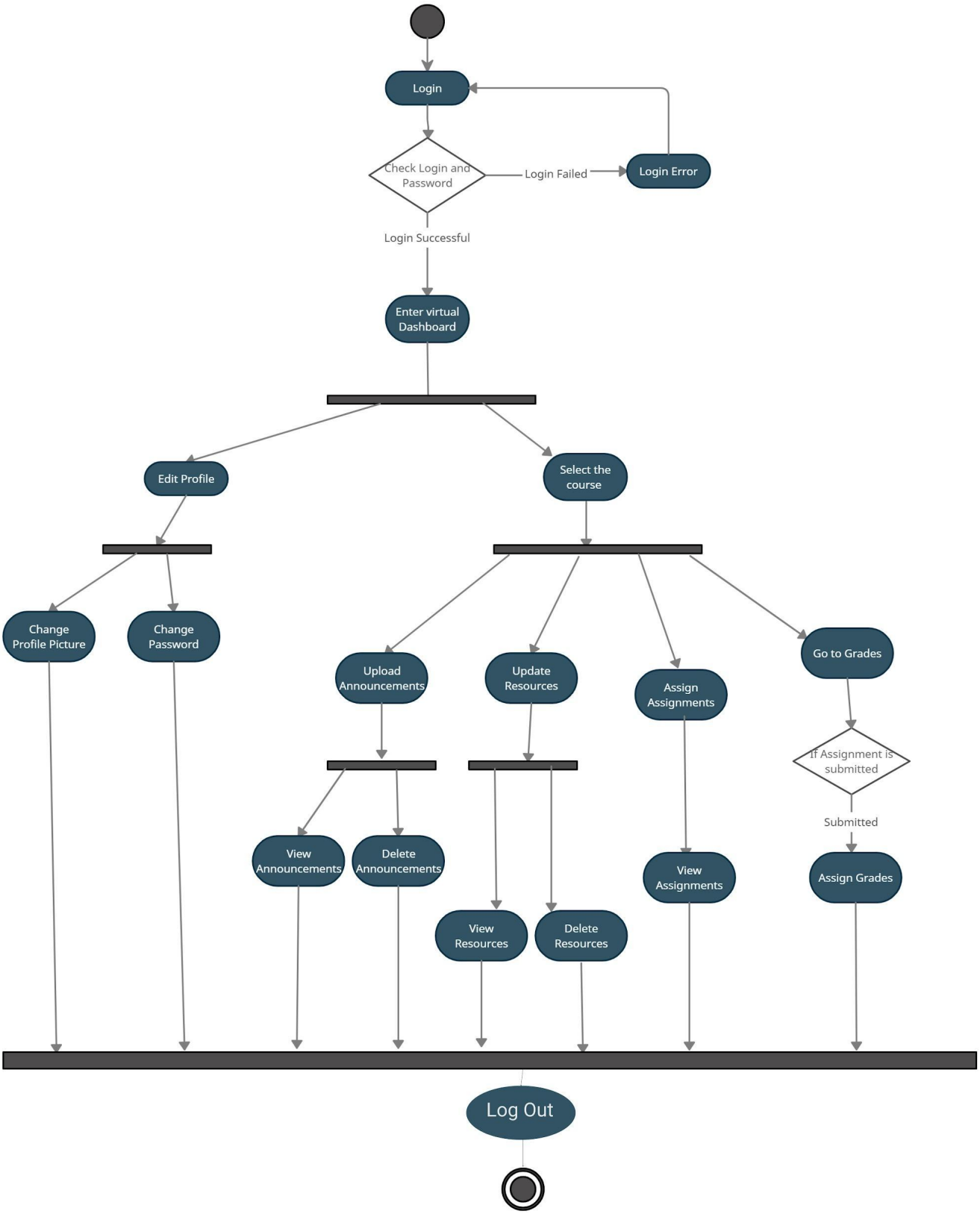

Fig 4. Activity Diagram of the teacher

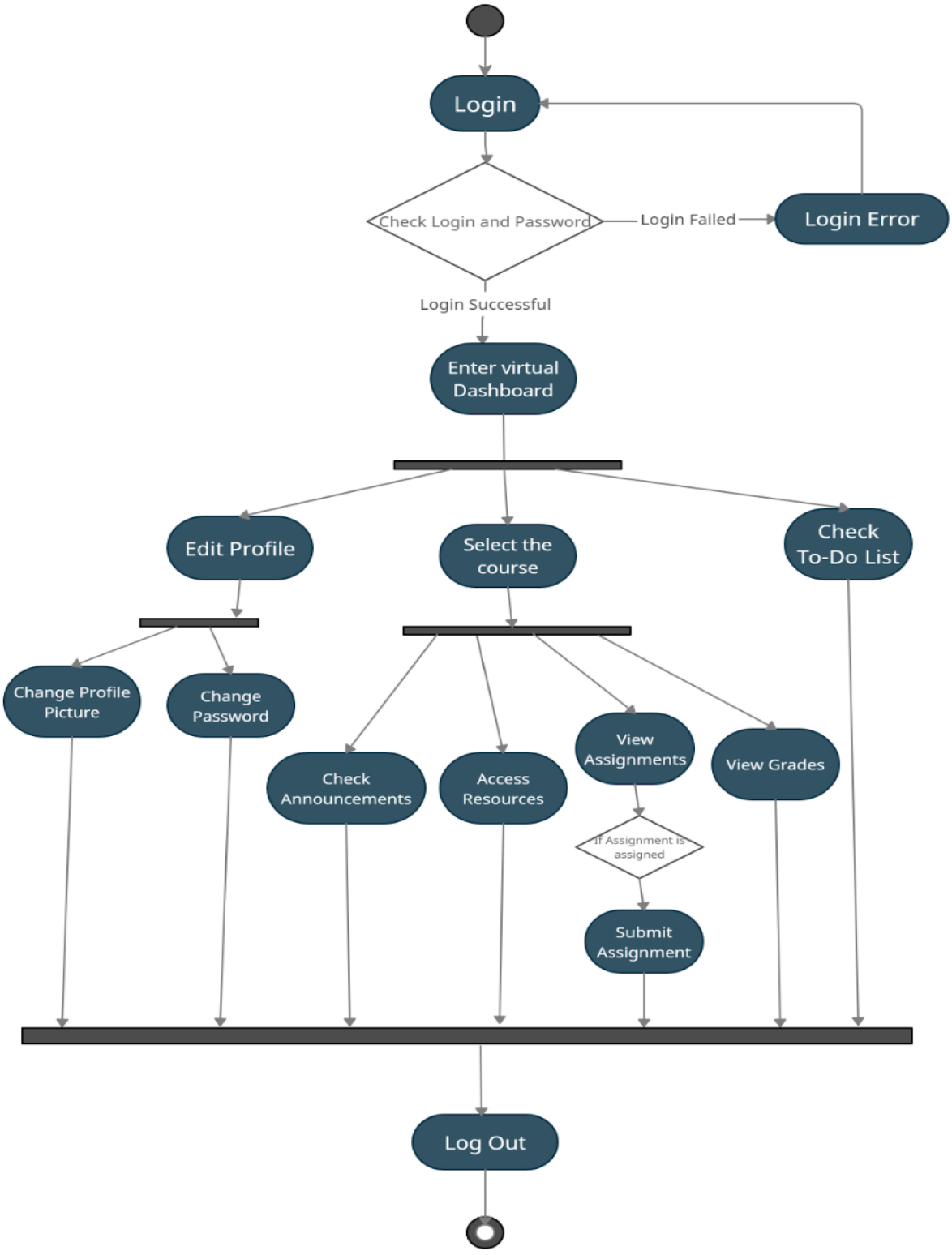

Fig 5. Activity Diagram of Student

3. Data Design

3.1 Database Description

Login_info			
Field	**Type**	**Constraints**	**Description**
Login_ID	Varchar (10)	PRIMARY KEY	Login ID of student/teacher
Login_email	Varchar (50)	NOT NULL	Email of student/teacher
Login_password	Varchar (50)	NOT NULL	Password of student/teacher
Login_type	Varchar (1)	NOT NULL	Student(S)/Teacher(T)

3.2 E-R Diagram

Fig-8 E-R diagram of the database

4. User Interface Design

4.1.1 Description of the user interface

Student Module

Description of component: This module contains all the details of the students such as name, address, course, marks

Processing details

1. Students can create their account by entering their details.
2. Students can login into the website by entering username and password.
3. Students can update their profiles by changing their password and profile pictures.
4. They can view announcements and resources posted by the teachers in order to stay in check.
5. Students can also submit assignments and view their grades allotted to them by their teachers on the basis of their performance in the assignments.

Teacher Module

Description of component: This module will contain all the details of teacher, for eg. the classes she/he teaches, profile details, etc.

Interface description

Processing Details

1. They can login into the website by giving the correct username/email and password.
2. In case of forgotten password, a new password can be assigned after the correct answer to the security question is given.
3. They can update their details i.e profile page and password respectively.
4. Teachers can also post announcements and resources for a particular week.

5. Teachers will be able to post assignments and grade students on the basis of their responses.

4.2 Screen Images

Fig 6. Home page of website

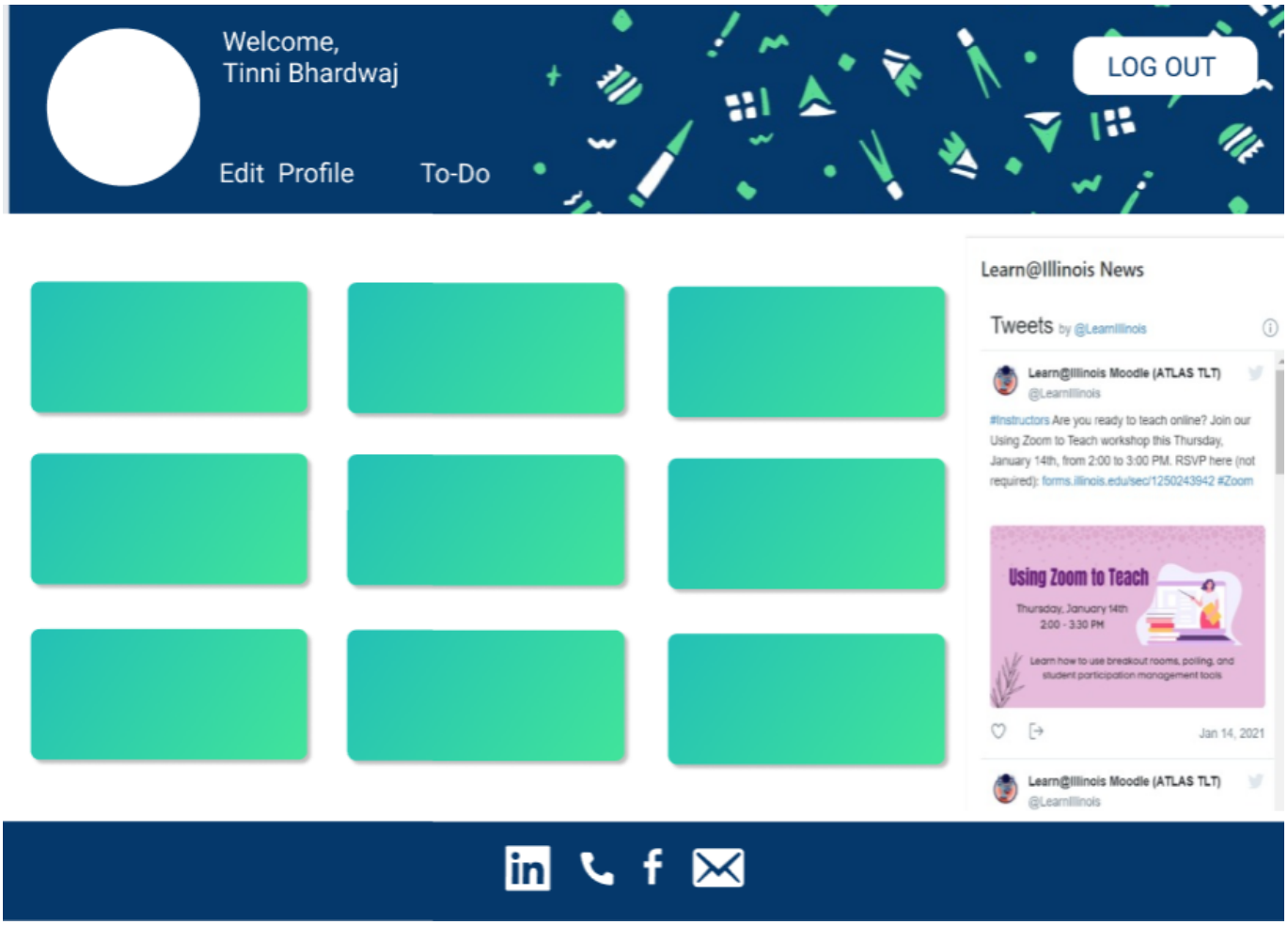

Fig7. Webpage for teacher/student's profile

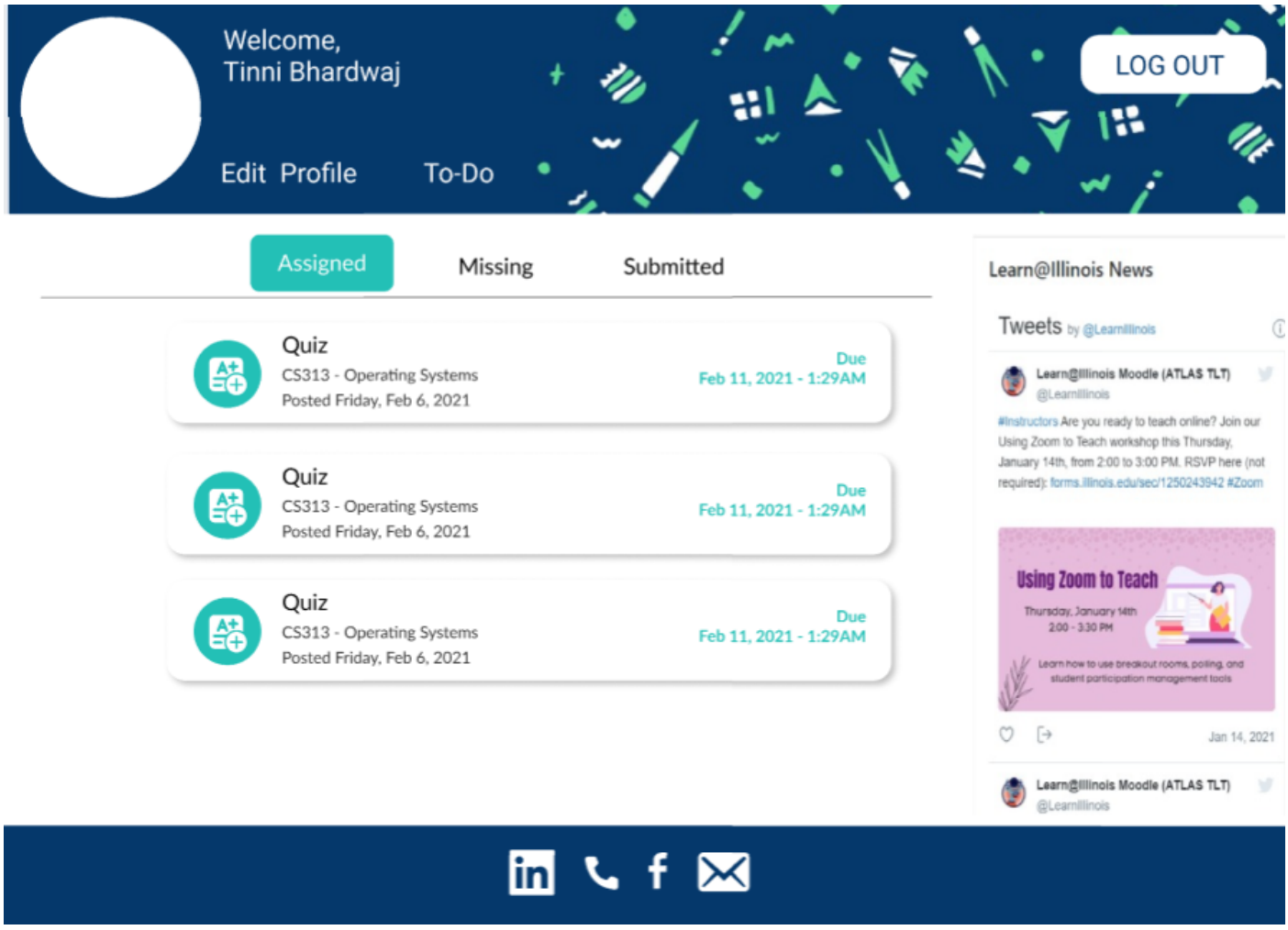

Fig 8. WebPage for to-do lists

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2. Software Engineering: a practitioner's approach, Tata McGraw Hill, RogerS. Pressman, 7th Edition.
3. Object-Oriented Analysis and Design, Prentice Hall, Englewood Cliffs, N.J., 1992 by James Martin and James Odell.
4. Unified Modeling Language Specification. Object Management Group, Framingham, Mass., 1998.
5. SQL, PL/SQL, BPB Publication, Bayross Ivan, BPB Publications.