Software Requirements Specification

For

EduQuest Web Application (Online Examination Application)

 React -node js with PostgreSql

Prepared By : Solanki Krutikxa(21SOEIT11031), Sharma Janshree(21SOECE11097), Patel Mansi (21SOECE11084)

R.K University

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1. INTRODUCTION

1.1. Purpose

This Web Application provides facility to online examination worldwide. It saves time as it allows number of students/candidates to give the exam at same time and display the results at the end of the test, so there is no need to wait for the result. It is evaluated and generated by the server. Administrator has privileges to create, modify and delete the test papers and its particular questions. User can register, login and give the test with his specific id, and can see the results as well. Others can view sample papers to learn the structure of online exams. It eliminates the use of items like pen, paper, etc.

1.2 Document Conventions

This document was prepared using the IEEE recommended practice for Software Requirements Specification.

1.3 Intended Audience and Reading Suggestions

The different types of reader that this document is intended for are developers, project managers, marketing staff, users, testers, and documentation writers. The rest of this SRS contains Overall Description, External Interface Requirements, System Features, Non Functional Requirements and Other Requirements. Suggested sequence for reading the document - begin with the overview sections and proceed through the sections that are most pertinent to each reader type.

1.4 Product Scope

Scope of this project is very broad compared to manually taken exams. They are:-

1.This app can be used in educational institutions as well as in corporate world.

2. Can be used anywhere any time as it is a web based application (user location doesn't matter).

3. No restriction that examiner has to be present when the candidate takes the test.

4. No manual work of preparing and storing the result information.

5. Less time consumption, as the result is calculated immediately after the test and displayed to the student/candidate.

6. For students/candidates, it saves time of going to far away centers to give exams.

1.5 References

This web application has been prepared on the basis of discussion with Team members and also taken information from following website – www.google.com , www.tcyonline.com and the IEEE website.

2. Overall Description

2.1 Product Perspective

EduQuest is an online examination system. It is accessible via the 24 hours a day, 7 days a week. The objective of this app is to reach and connect candidate and examiner in remote communities and conduct exams in a virtual environment online. This app will only allow the

registered users to enter the test module. The various stages in the app are as follows:-

1. *Login*

2. *Register*

3. *System Overview*

4. *Create Group*

5. *Create Exam*

6. *Update Profile*

7. *Test*

8. *Result*

Login:

This window offers the user two choices for logging into the system according to the present privileges - Candidate login and Administrator login. The candidate login will take the user to the user profile. The Administrator Login will take the user to the administrator profile.

Register:

The Register functionality enables new users to create an account within the EduQuest system. Users must provide personal details such as name, email address, and password to complete the registration process. Upon successful registration, users gain access to the system's features based on their designated roles, either as candidates

or administrators. Candidate registration grants access to exam modules, while administrator registration enables control over system management functionalities.

System Overview:

This window can only be accessed by the administrator. It allows the administrator to add and edit exams.

Create Group:

The Create Group feature is designed for administrators, allowing them to organize users into distinct groups based on various criteria such as courses, corporate departments, or any customized classification. Administrators have the authority to create, manage, and modify these groups as needed. Group creation facilitates efficient administration of exams, as administrators can assign exams to specific groups, ensuring targeted distribution and tracking of assessments.

Create Exam:

The Create Exam functionality empowers administrators to design and configure examination content within the EduQuest system. Administrators can define exam parameters including title, description, start date, Time. Additionally, administrators can customize exam settings such as access permissions, scoring criteria, and time limits. Through this feature, administrators can craft tailored assessments aligned with educational objectives or organizational requirements, ensuring the integrity and relevance of examinations conducted through the platform.

Update Profile:

The Update Profile functionality enables users to manage and modify their personal information and preferences within the EduQuest system. Users can access their profiles to update contact details, change passwords, or edit any other relevant information. Additionally, users may have the option to personalize their profiles by adding supplementary details such as educational background, professional qualifications, or areas of interest. This feature enhances user experience by facilitating seamless account management and ensuring that user profiles remain accurate and up-to-date.

Test:

This window contains all the exams candidate can give. All these exams are organized according to the categories they fall in. The test window will be different for students and corporate employees.

Result:

This window displays the result of exams the candidate has just appeared. This data will be saved and displayed in the user profile.

2.2 Product Functions

The functions are divided according to the user types such as:-
Administrator:- *The function of the administrator is to add/edit exams in the test module.*

User(Teacher):- *The function of the teacher is to create exam for students and allocate them according to group.*

User(Student):- *The function of the student is to update his/her profile and give various exams.*

2.3 User Classes and Characteristics

The various users of this app are classified into two types:-

1. *Administrator*

2. *Candidate*

   a)*Student*

   b)Teacher

This app requires the user to have characteristics such as the user should be able to communicate and write in English and should have previous experience of giving an online exam. If not, the candidate should be instructed about the basics usage of the app by authorized personnel.

2.4 Operating Environment

This app is internet based so it will run in any operating system with internet access through a web browser.

2.5 Design and Implementation Constraints

The student is allowed to give the exams any number of times, until specified otherwise by the teacher while building the test. While giving the exam the student is given only a set amount of time and the remaining time should be displayed, after which the exam should close and display the result.

2.6 User Documentation

The product will include a user manual. The user manual will include product overview, complete configuration of the required software and hardware, technical details and contact information which will include email address.

2.7 Assumptions and Dependencies

Proper working of this app is dependent on the internet connectivity of the users' computer

Assumptions and dependencies:

- It is assumed that the user has basic knowledge of the system (i.e. he/she is not a first time user) as any action by the user is considered valid during an examination.

- It is assumed that the data entered by the user while registering is true.

- It is assumed that the candidate does not cheat during the exam as there are no supervisors around to monitor.

3.System Features

3.1.Database – Storage

3.1.1 Description And Priority

Proposed Database is intended to store, retrieve, update, and manipulate information related to university which include:

☐

a. *Profile of both users*
b. *Student details*
c. *User details*
d. *My profile*
e. *Test results*

3.1.2 Stimulus / Response

Responses for Administrator:

The administrator can Login and Logout. When the Administrator Logs into the Online Exam system. The system will check for validity of login .If the Login and password are valid, the response to this action is the administrator will be able to modify, view, add, deleting and all other functions that can be performed on the database.

Examination:

First of all the user/examinee gets a valid identification number (same as the roll no for a normal examination).The user can log on with this identification no. and can take up the examination. After logging in the user can see various options and can choose the option from the menu.

3.2. Functional Requirements

This section gives the list of Functional and non functional requirements which are applicable to the Online Exam System. Functional requirements are nothing but the services provided by the system to its end users. There are three sub modules in this phase:
Candidate module.
Examiner module.
Administrator module.

The functionality of each module is as follows.

Candidate module*: The candidate will log on to the software and take his examination. He can also check his previous examinations marks and his details. The candidate will get result immediately after the completion of the examination.*

Examiner module:*The teacher login on to the software and can create exam and allocate them to student group and edit,update and delete the questions.*

Administrator module: *The administrator collects all the user details after successful registration and sends to the headquarters as and when required.*

4. External Interface Requirements

4.1 User Interfaces

• ***Registration Screen:*** *Various fields available on this screen will be:*

-Login Name

-Email Id

-Password

• ***Login Screen:*** *Fields available on this screen are:*

-Login Name

-Password

• ***Entering Questions:*** *Various Fields are:*

-Questions

-Options (4)

-Correct Answer

• ***Exam Details Screen:*** *Various Fields are:*

-Exam Name

-No. Of Questions

-Time Limit

-Passing Marks

• ***Result Displaying Screen:*** *Various Fields are:*

-No. Of Correct Questions

-No. Of Incorrect Questions

-Total Marks

-Result(Pass/Fail)

4.2 Hardware Interfaces

Server Side:
Operating System: Windows 9x/xp ,Windows ME
Processor: Pentium 3.0 GHz or higher
RAM: 256 Mb or more
Hard Drive: 10 GB or more

Client side:
Operating System: Windows 11, MAC or UNIX.
Processor: Pentium III or 2.0 GHz or higher.
RAM: 256 Mb or more

4.3 Software Interfaces

-Any windows based operating system.

-MySql Server Database

-.Net Core Web Application

4.4 Communications Interfaces

The Customer must connect to the Internet to access the Website:
Dialup Modem of 52 kbps
Broadband Internet
Dialup or Broadband Connection with a Internet Provider.

5. Other Non functional Requirements

5.1. Performance Requirements

Some Performance requirements identified is listed below:
The database shall be able to accommodate a minimum of 10,000 records of students.
The software shall support use of multiple users at a time. There are no other specific performance requirements that will affect development.

5.2 Safety Requirements

The database may get crashed at any certain time due to virus or operating system failure. Therefore, it is required to take the database backup.

5.3. Security Requirements

Some of the factors that are identified to protect the software from accidental or malicious access, use, modification, destruction, or disclosure are described below:-
1. Assign certain functions to different modules.
2. Restrict communications between some areas of the program.
3. Check data integrity for critical variables.
4. Later version of the software will incorporate encryption techniques in the user/license authentication process.
5. Communication needs to be restricted when the application is validating the user or license. (i.e., using HTTP).

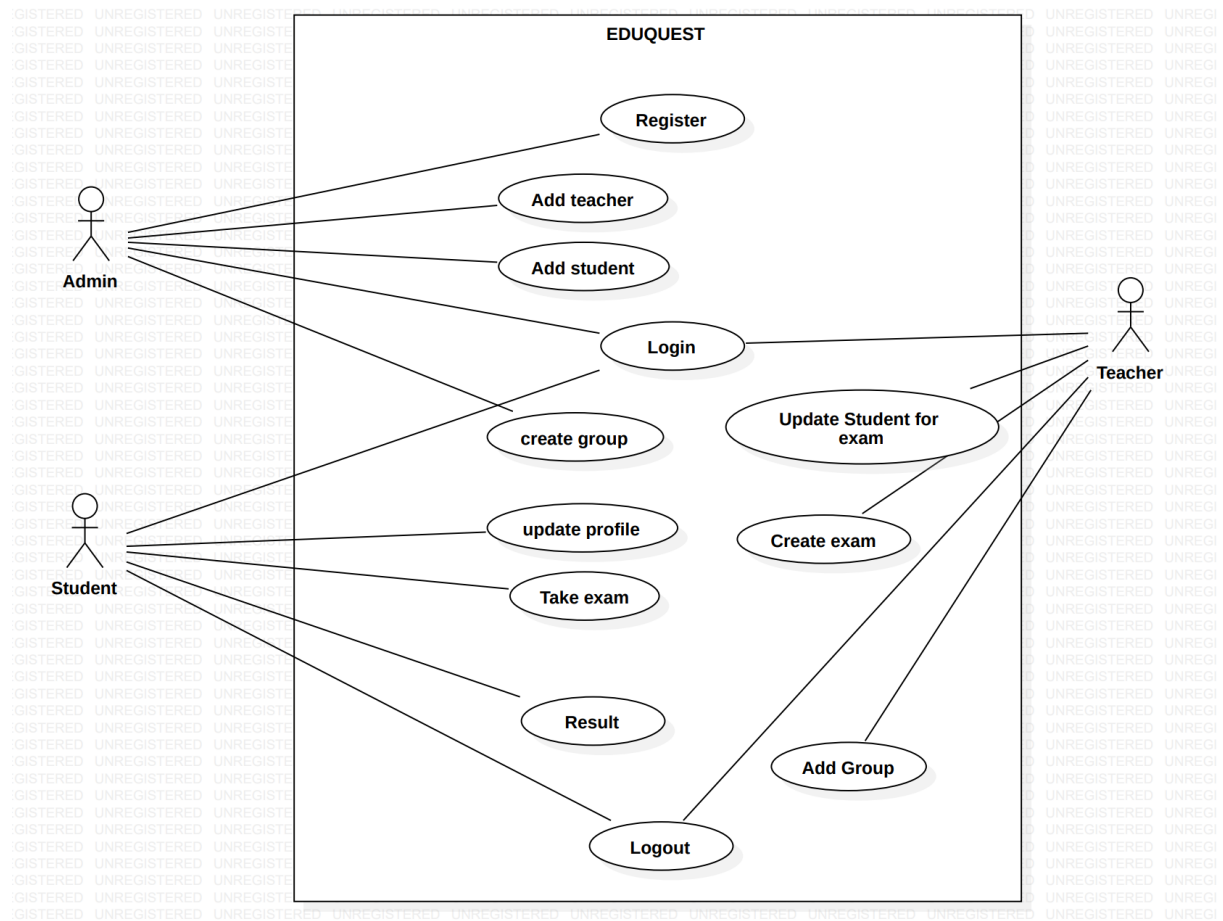## *5.4 Software Quality Attributes*

The Quality of the System is maintained in such a way so that it can be very user friendly to all the users.

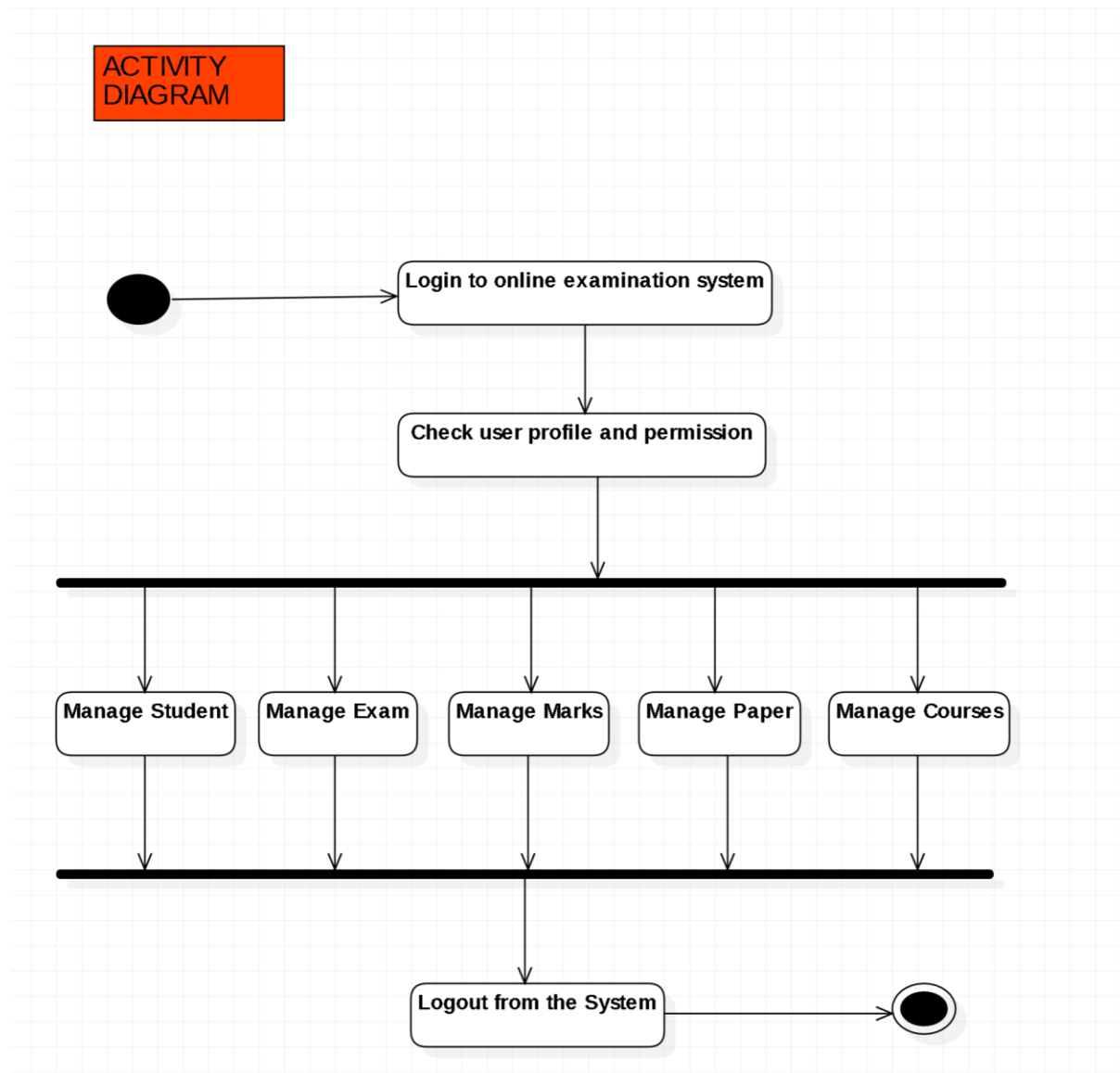*The software quality attributes are assumed as under:*

a. *Accurate and hence reliable.*

b. *Secured.*

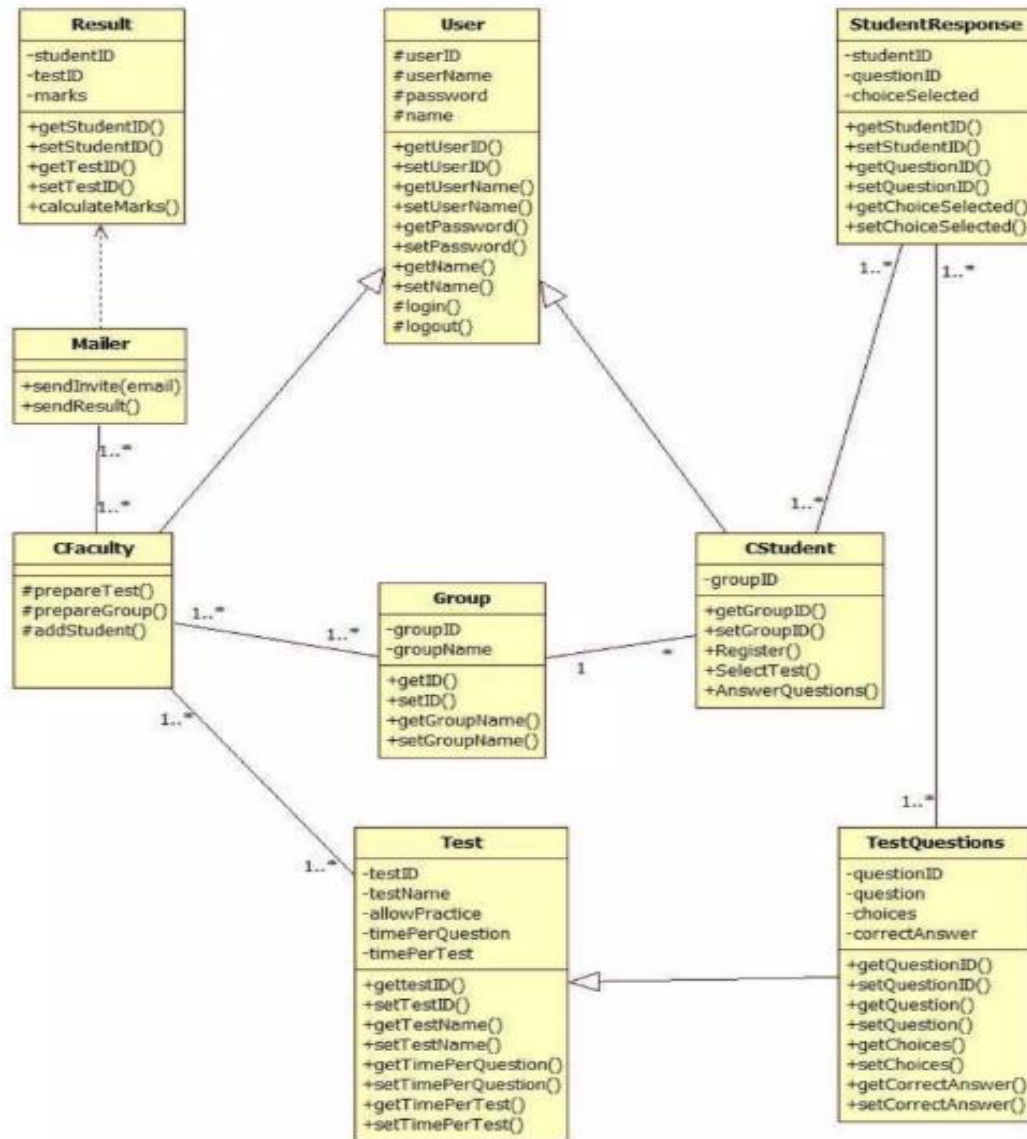c. *Fast speed.*

d. *Compatibility.*

6. List Of Diagrams
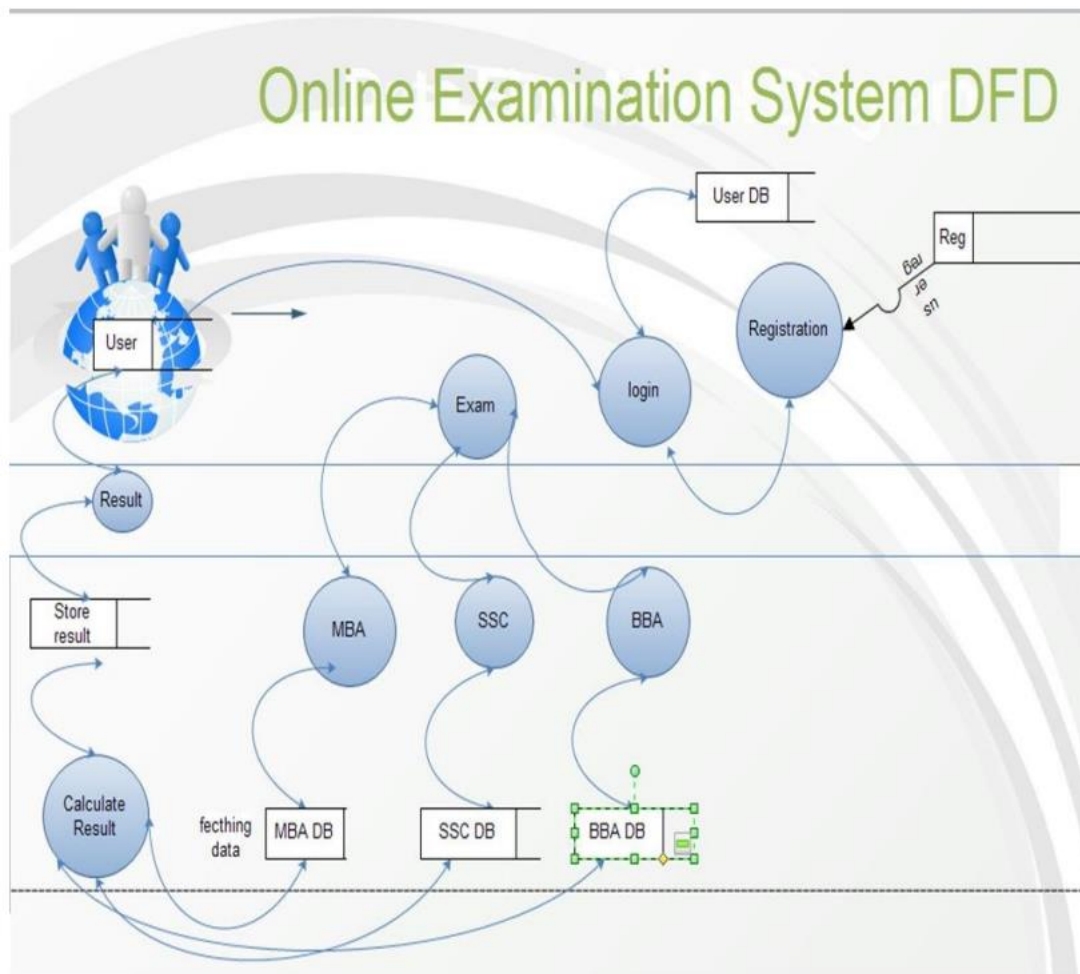
6.1 Use Case Diagram

6.2 Activity Diagram

6.3 Class Diagram

6.4 DFD

Online Examination System DFD

7. Database Tables

7.1 Admin

Data Output   Messages   Notifications

	id [PK] integer	username character varying (255)	password character varying (255)
1	1	janshree	$2b$10$fpdAa1ORwpURGvFqSfC3a.cp1.fWOeigoamH6dpORc3ot9EoBnQna
2	2	achal	$2b$10$tC9zp37MwNhX8UNnuOJ2O.YhdqG5Bpt1ZDy3CbVp3G0TnB7pheU...
3	4	kuki	10

7.2 Teacher

Data Output   Messages   Notifications

	id [PK] integer	name character varying (255)	username character varying (255)	password character varying (255)
1	1	sunita	sunita	456
2	3	sweta	sweta	123

7.3 Student

Data Output   Messages   Notifications

	id [PK] integer	name character varying (255)	username character varying (255)	password character varying (255)	group_id integer
1	1	janshree sharma	janshree	123	1
2	3	sweta sharma	sweta	123	1
3	8	Achal	achal	123	1

7.4 QnAns

Data Output Messages Notifications

	id [PK] integer	question_text text	options text[]	correct_answer text	examname character varying (100)
1	1	qqqq	{1,2,3,4}	4	asp.net
2	2	qqq	{1,2,3,4}	3	asp.net

7.5 Group

	group_id [PK] integer	group_name character varying (50)	group_description character varying (255)
1	1	Frist year	Exam Group
2	2	Second year	exam group

7.6 Exams

Data Output Messages Notifications

	exam_id [PK] integer	exam_name character varying (100)	description text	start_date date	start_time time without time zone	group_id integer
1	1	asp.net	asp.net core mvc	2024-03-24	01:00:00	1
2	2	react	react api	2024-04-10	01:00:00	2
3	3	qq	qq	2024-04-01	09:34:00	1

Databases > db > Schemas > public > Tables > exam