A

PROJECT REPORT ON

PRAVINYAM

At

DATA SCIENCE LAB

Submitted By

Mr. Akash Laxman Gaikwad

In Partial fulfilment of the requirement

For The Award of degree in

Master of Computer Science

Savitribai Phule Pune University

PROF. RAMKRISHNA MORE ARTS,

COMMERCE & SCIENCE COLLEGE, AKURDI,

PUNE-411 044

2022-23

CERTIFICATE

This to certify that the project entitled

PRAVINYAM

Has been successfully completed by

Mr. Akash Laxman Gaikwad

As a requirement Semester-IV examination of

M. Sc. (Computer Science) course of

Savitribai Phule Pune University

For the academic year 2022-2023.

Ms. R. J. Katkar   Mrs. R. A. Kale

Project Guide   Head of Department

DATA SCIENCE LAB

Date : 12-May-2023

Subject : Internship of Mr Akash Gaikwad with Data Science Lab

Dear Sir,

We wish to inform you that Mr Akash Gaikwad is pursuing his 6 months internship with Data Science Lan since December 2022.

He is diligently attends office every day and performing software development tasks assigned to him with great care.

Please consider this as his internship certificate and let us know if any additional details are needed.

Thanking you.

Regards,

Javed Inamdar
Co-Founder, Director
Data Science Lab

<u>ACKNOWLEDGEMENT</u>

We take this opportunity to express out heart-full gratitude to all those people without whom this project would not have succeeded. Each of them had in their own special way contributed towards the success of this project.

A special thanks to **Prof. Mrs. Kale R. A., HOD & Prof. Ms. R. J. Katkar Project Guide** who has encouraged and supported us and were always available to help us in spite of their busy schedule. Last but certainly not the least, we gratefully acknowledge the help provided to us by the department at various stages of development of our project. We are thankful to the department of the Computer Science for providing us the opportunity and the facility to carry out our work. Before we present detailed account of our project, we must thank those who help us in completing this project. We are greatly indebted to our guide Thanks to project guide for her bright guidance & enlightened comments throughout course of this project work named **PRAVINYAM.**

 Thanking you,

<div align="right">Mr. Akash Laxman Gaikwad</div>

<u>ACCEPTANCE</u>

This manuscript has been accepted in satisfaction of project requirement for the industrial training for the degree of the Master of Computer Science of Savitribai Phule Pune University for year 2022-2023.

Sr. No   Name of Examiner   Signature

1.

2.

3.

Date:

Place:

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<u>COMPANY PROFILE</u>

Name of the company : Data science lab

- **Company Profile**

Improsys is India based productivity and quality solution provider working in the domain of manufacturing, supply chain management and logistics sector. Improsys is headquartered in city of Pune, Maharashtra state is providing business services in the areas of business consulting, corporate training and software development with special focus on productivity, quality, delivery improvements resulting in bottom line improvement for clients and improvement in client customer satisfaction.

- **What we offer**

We are an agile and passionate team of statisticians, engineers, and data scientists with extensive global experience and expertise in advanced analytics, artificial intelligence, and machine learning. Core team that makes DSL has participated in building billion dollar analytics products as part of their professional experience.

- **Process**

As a boutique data science consulting firm we bring to you a bouquet of services and solutions. Be it data storage, visualization, AI, ML, cloud analytics, forecasting, or optimization; we are proficient with any data, any tool, and any challenge.

INTRODUCTION

Pravinyam aims at identifying key skills needed to be performed in various job roles and provides a platform with innovative content to practice for mastering those skills. We are targeting computer programming as the first skill. Learn computer programming the right way with us.

Practice code reading, debugging and problem solving through graded exercises, which introduce you to language constructs and elements of programming logic. Over 1000 exercises in multiple languages are available for practice.

Each module consists of easy, medium and difficult levels of exercises. Earn Beginner, Challenger and Champion badges as you progress through the modules. Performance dashboard to know your performance in real time. Compare where you stand as compared to other similar platform users. Data of the users acing the skills will be shared with multiple companies as probable hires.

Code debugging is a skill companies look for in their candidates. Often you are given thousands of lines of code to maintain and debug. Exercises in this module are programs with the most commonly occurring errors. You are expected to locate the source of errors and correct them. Consistently practicing these exercises will sharpen your code debugging skills.

SYSTEM ANALYSIS

Motivation :

There have been a lot of career opportunities in the IT industry for developers. The motivation for this application is to help users build their coding skills from scratch in a playful manner.

Problem Statement :

- Now-a-days, if you want to be a developer, understanding the syntax is not
  - sufficient at all and you need to understand the code thoroughly from all the perspectives like from logic building to optimize the code.
- The problem with existing coding platforms is that they do not help users
  - in understanding code and the logic behind that code.

Purpose / Objective and Goals :

- To help users gain in-depth knowledge of programming.
- As we know, debugging is the most crucial part of the programming, soour website's main focus is to improve their debugging skills.
- We are trying to help users to gain maximum coding skills that are requiredas a developer .

Literature Survey :

We have conducted some surveys, after analysing the data we have foundout that many users lack basic understanding of programming.

Project Scope and Limitations :

Currently, we just have a website but in future we are planning to launchthe Pravinyam app for android as well .

Existing Systems :

❖ Now-a-days if you want to be a developer, understanding the syntax is not sufficient at all and you need to understand the code thoroughly from all the perspectives like from logic building to optimize the code.

❖ The problem with existing coding platforms is that they do not help students in understanding code and the logic behind that code.

❖ So, we have developed an application called " Pravinyam " which will help students to develop their logic building skills as well as being able to write optimized code.

➢ Scope and limitations of existing systems :

❖ Current system does not help users to understand the logic behind the code.

❖ Hence, users lack logic building as a developer.

➢ Stakeholders :

❖ User
❖ Admin

IMPLEMENTION DETAILS

- ## Database Requirements

  Pgsql Server because it is most recommended for database storage andeasy to handle.

- ## Software Requirements (Platform Choice)

  o Language: Javascript,React js,Node js
  o Professional Environment: Vs code
  o Operating system: Windows OS7,8,10

- ## Hardware Requirements

  o Device: Laptop or computer, micro-controller
  o Memory: 1TP
  o RAM:512MB

FEASIBILITY STUDY

Technical Feasibility: -

The first step is to assess the technical feasibility of the PRAVINYAM. This includes evaluating the availability of technology, tools, and resources required to develop the PRAVINYAM. Additionally, it involves considering the compatibility of the PRAVINYAM with existing systems and infrastructure. Technical feasibility can be determined by consulting with technical experts, reviewing available resources, and conducting a proof-of-concept study

Economic Feasibility: -

The second step is to assess the economic feasibility of the PRAVINYAM. This involves evaluating the cost of developing, implementing, and maintaining the PRAVINYAM, as well as the potential benefits and returns on investment. A cost-benefit analysis can be conducted to determine if the expected benefits of the PRAVINYAM outweigh the costs of development and maintenance.
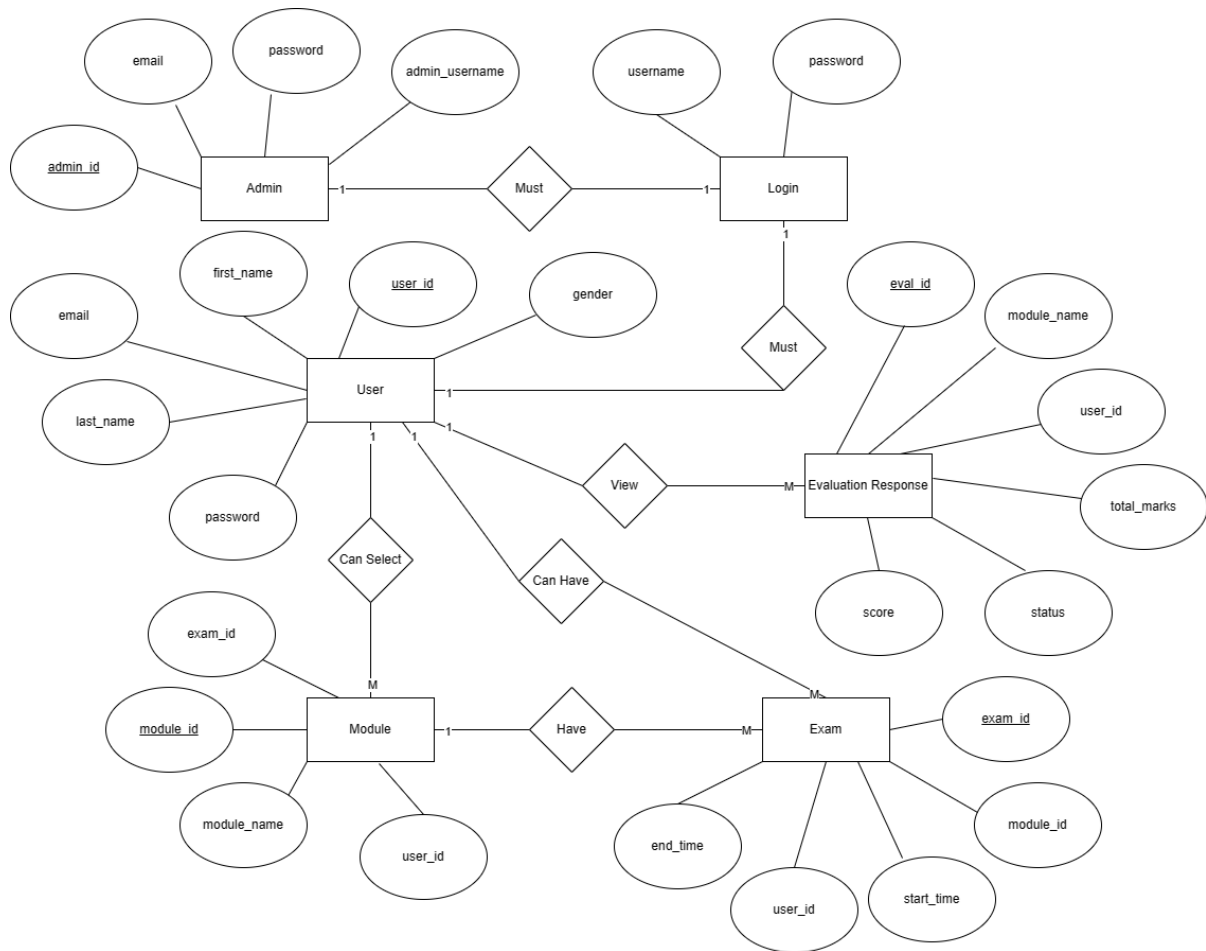
Operational Feasibility: -

The Third step is to assess the operational feasibility of the PRAVINYAM. This includes evaluating the impact of the PRAVINYAM on existing operations, processes, and procedures. Additionally, it involves considering the organizational culture and readiness to adopt new systems and processes
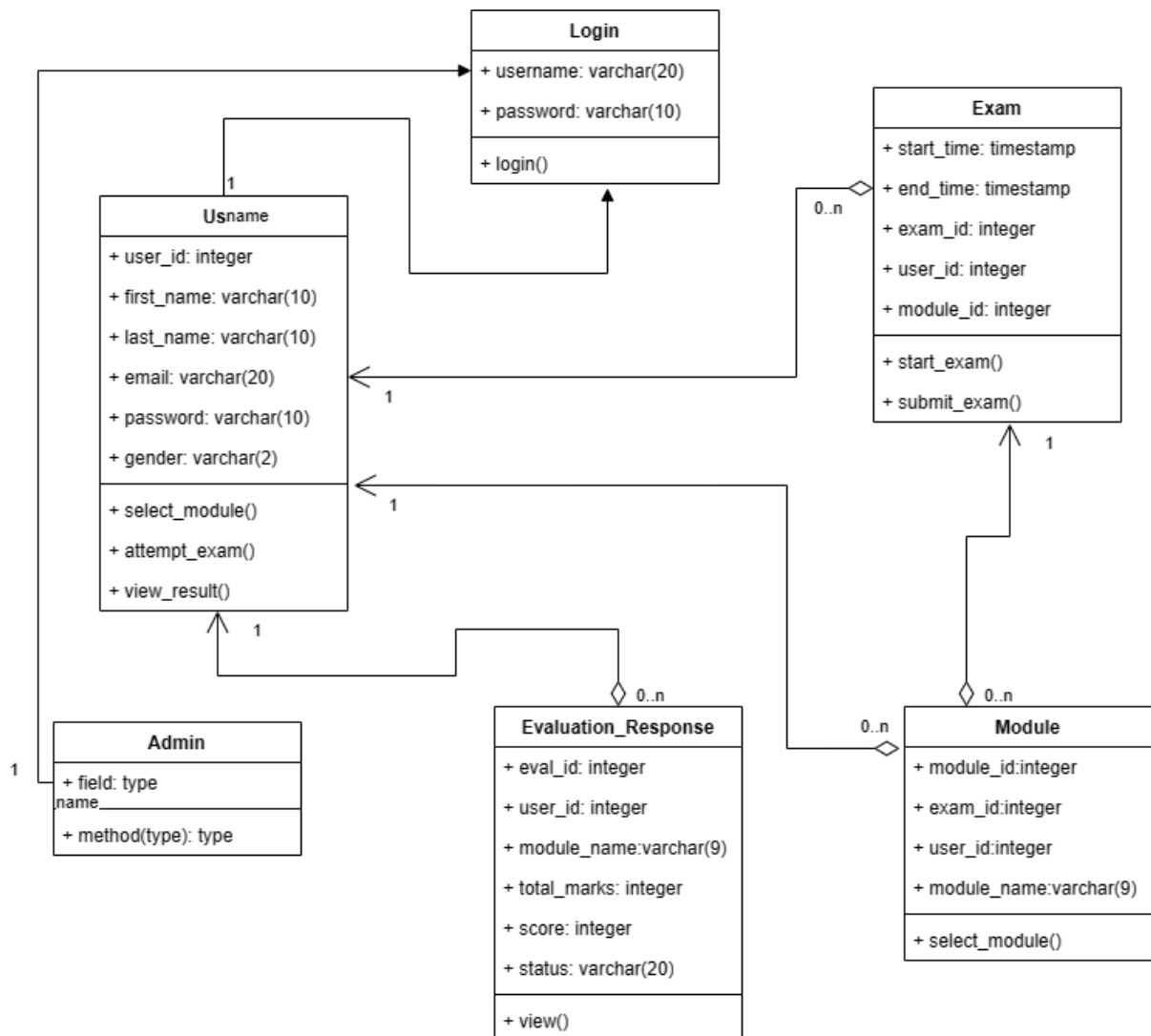
SYSTEM DESIGN

Entity Relationship Diagram

An ER diagram shows the relationship among entity sets. An entity set is a group of similar entities and these entities can have attributes. In terms of DBMS, an entity is atable or attribute of a table in database, so by showing
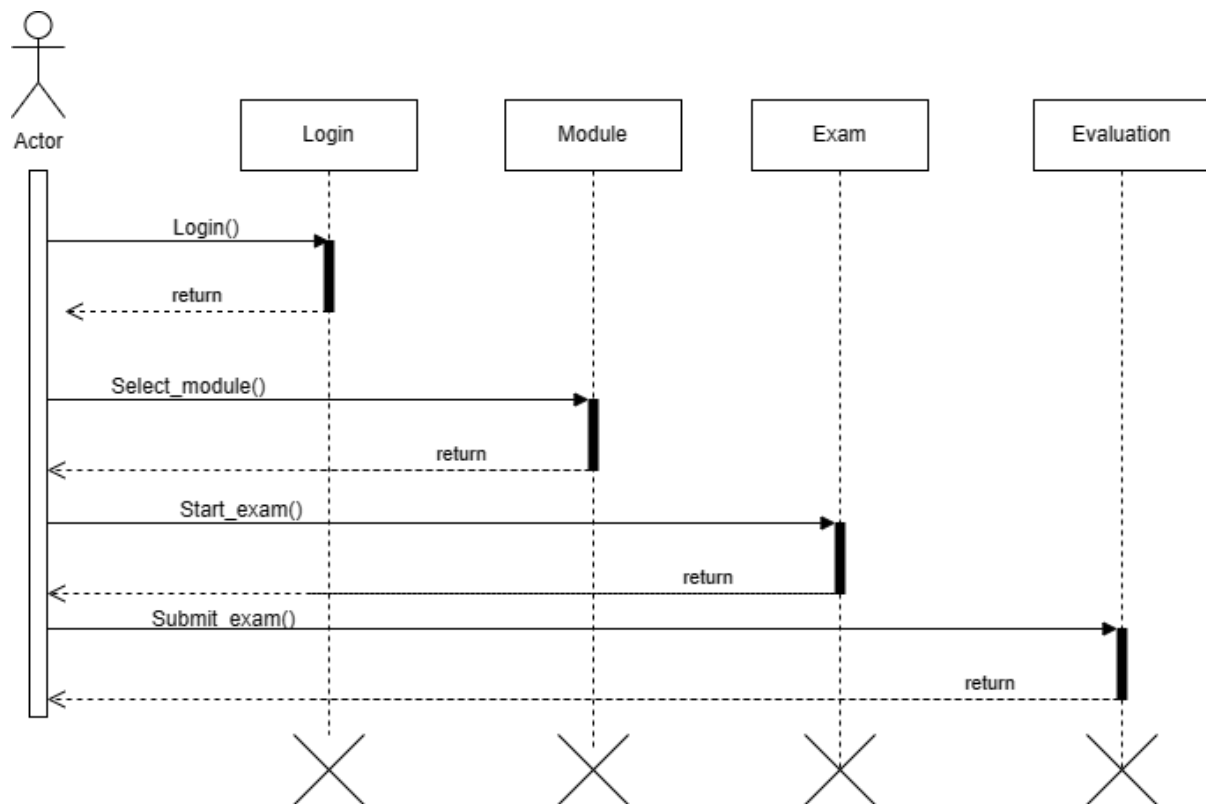
Class Diagram

Class diagram is a type of structure diagram that shows the structure of the classes, attributes, operations and relationship among them. Given below is the class diagram of the proposed system which shows classes such as Users and System.

Login

+ username: varchar(20)

+ password: varchar(10)

+ login()

Usname

+ user_id: integer

+ first_name: varchar(10)

+ last_name: varchar(10)

+ email: varchar(20)

+ password: varchar(10)

+ gender: varchar(2)

+ select_module()

+ attempt_exam()

+ view_result()

Exam

+ start_time: timestamp

+ end_time: timestamp

+ exam_id: integer

+ user_id: integer

+ module_id: integer

+ start_exam()

+ submit_exam()

Admin

+ field: type
name

+ method(type): type

Evaluation_Response

+ eval_id: integer

+ user_id: integer

+ module_name:varchar(9)

+ total_marks: integer

+ score: integer

+ status: varchar(20)

+ view()

Module

+ module_id:integer

+ exam_id:integer

+ user_id:integer

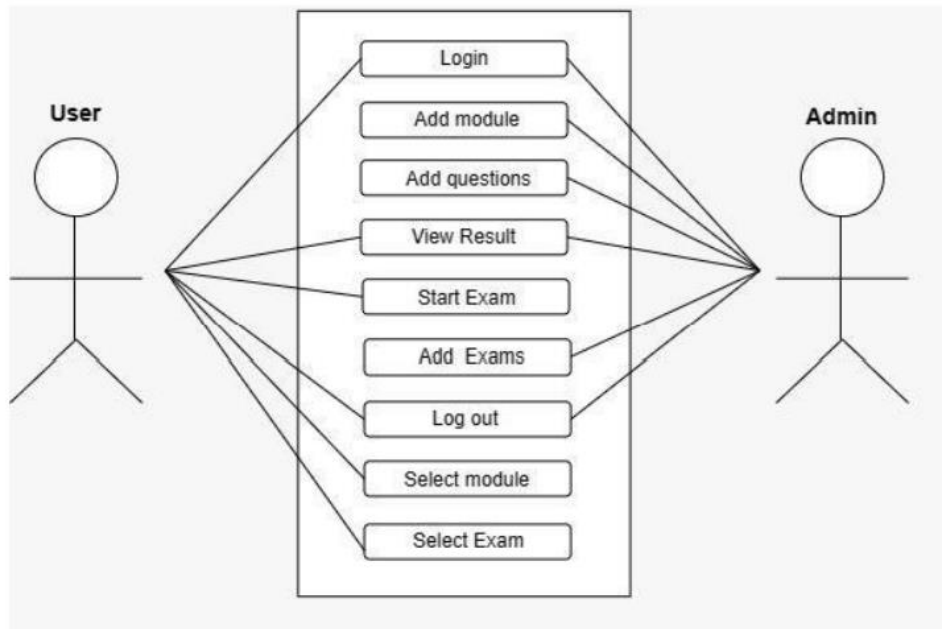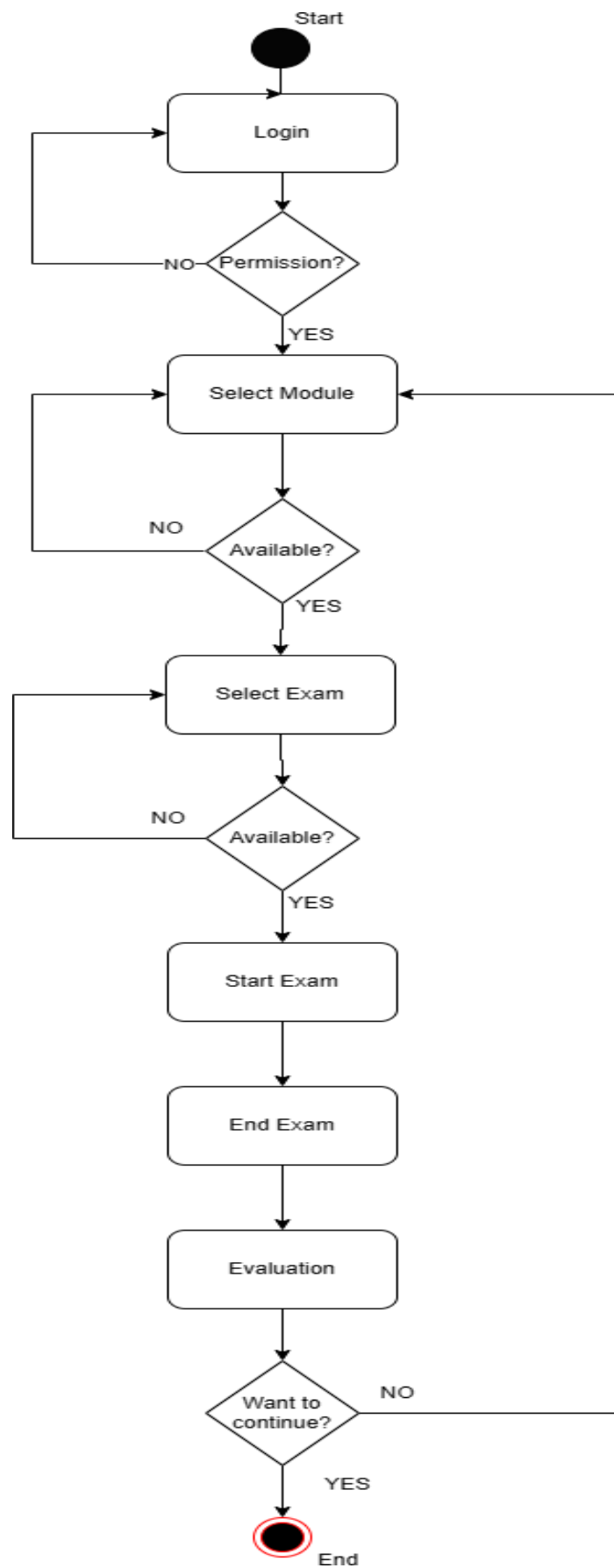+ module_name:varchar(9)

+ select_module()

Sequence Diagram

A Sequence diagram is an interaction diagram that shows how processes operate with one another and in what order. Sequence diagrams are sometimes called event diagrams or event scenarios. The sequence diagram for the proposed system shows the interaction in between Users, Primary servers and secondary servers.
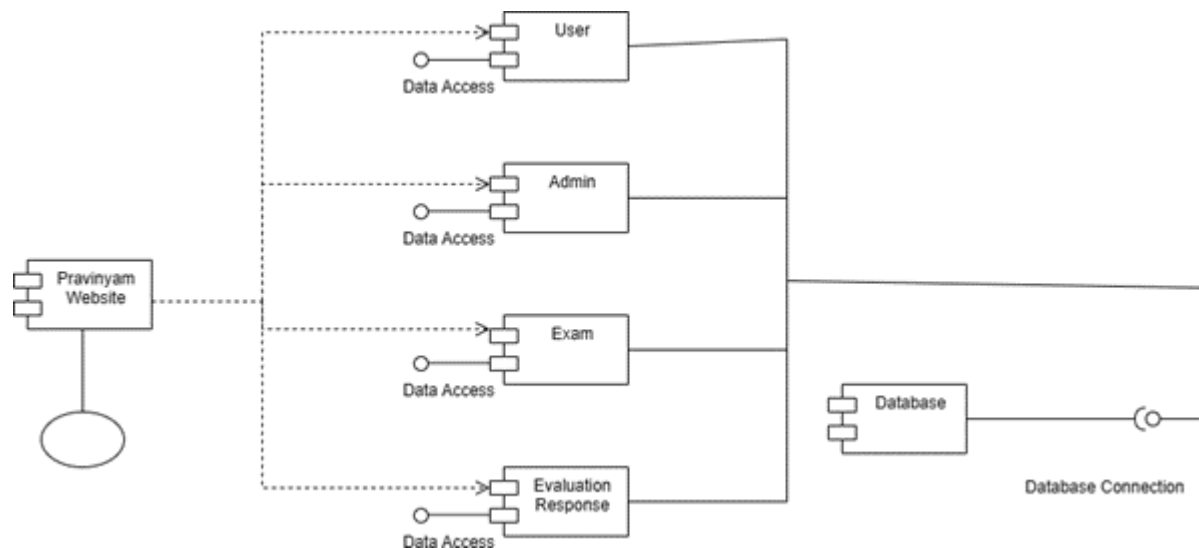
Use Case Digram

Activity Diagram:

Start

Login

Permission?
- NO
- YES

Select Module

Available?
- NO
- YES

Select Exam

Available?
- NO
- YES

Start Exam

End Exam

Evaluation

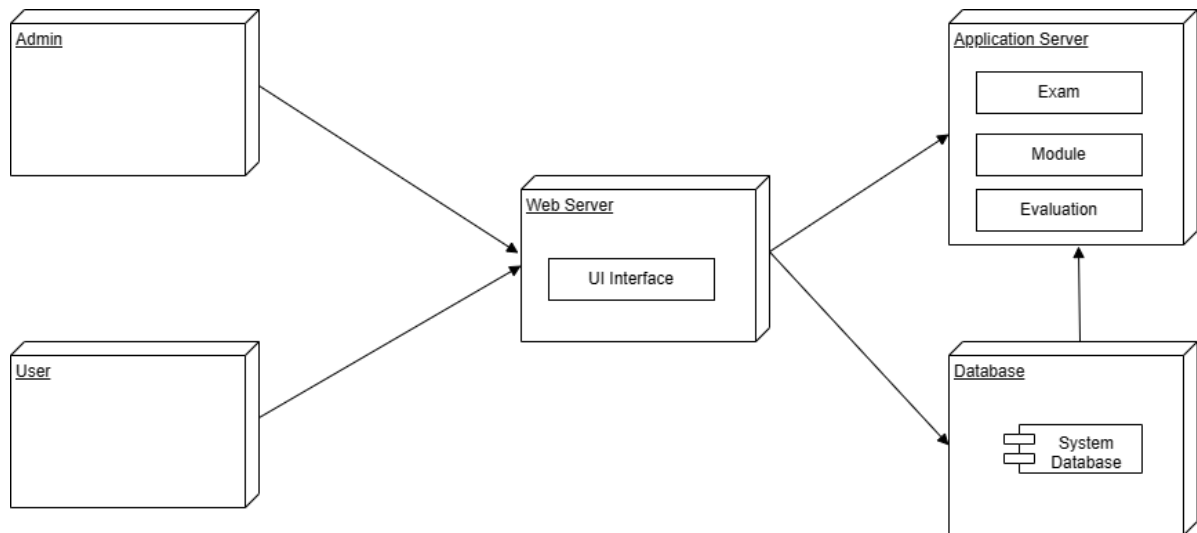**Want to continue?**
- NO
- YES

End

Component Diagram

A component diagram, also known as a UML component diagram, describes the organization and wiring of the physical components in a system. Component diagramsare often drawn to help model implementation details and double-check that every aspect of the system's required functions is covered by planned development.

Deployment Diagram

A deployment diagram is a UML diagram type that shows the execution architecture of a system, including nodes such as hardware or software execution environments, and the middleware connecting them. Deployment diagrams are typically used to visualize the physical hardware and software of a system.

User Interface: -

Pravinyam | Practice the right way

about us   contact us

Magic Ingredient to Master Any Skill
Consistent and Deliberate Practice

Pravinyam aims at identifying key skills needed to be performed in various job roles and provides a platform with innovative content to practice for mastering those skills. We are targeting computer programming as the first skill. Learn computer programming the right way with us.

Sign In   Register

Master computer programming

Practice code reading, debugging and problem solving through graded exercises, which introduce you to language constructs and elements of programming logic. Over 1000 exercises in multiple languages are available for practice.

Pravinyam

Practice makes progress

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Sign in to **Pravinyam**

gaikwadak172@gmail.com

••••••••••

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Home > Exercises > Editor

MODULES   EVALUATIONS   MY JOURNEY

CDCS2-C | Switch case – 2

‹ Previous   Next ›

Code Viewer

```
1    #include <stdio.h>
2
3    int main() {
4        char operation;
5        double n1, n2;
6
7        printf("Enter an operator (+, -, *, /): ");
8        scanf("%c", &operation);
9        printf("Enter two operands: ");
10       scanf("%lf %lf",&n1, &n2);
11
12       switch(operation)
13       {
14           case '+':
15               printf("%.1lf",n1+n2);
16               break;
17
18           case '-':
19               printf("%.1lf",n1-n2);
20               break;
21
22           case '*':
23               printf("%.1lf",n1*n2);
24               break;
```

Answer The Following

1) For inputs + 20 10, what will be the output?

2) For inputs - 20 10, what will be the output?

3) For inputs * 20 10, what will be the output?

4) For inputs / 20 10, what will be the output?

5) For inputs & 20 10, what will be the output?

Check Answers

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Welcome, Amit.Scholar
You are at the right place

Select a track   C

Weekly quiz
Earn coins   ›

Home > Evaluations

MODULES   EVALUATIONS   MY JOURNEY

| ● Available | 7 |
| ⊘ Completed | 1 |

test8

test10

test12

test13

Evaluation_1

test4

MixedEvaluation1

DATA DICTIONARY

❖ **Admin Table**

Field Name	Type	Constraint	Description
admin_id	Integer	Primary key	Admin Id
admin_username	varchar(20)	Not Null	Admin Username
email	varchar(20)	Not Null	Admin Email
password	varchar(20)	Not Null	Admin password

❖ **User table**

Field Name	Type	Constraint	Description
user_id	Integer	Primary key	User Id
first_name	varchar(20)	Not Null	User First Name
last_name	varchar(20)	Not Null	User Last Name
password	varchar(20)	Not Null	User Password
email	varchar(20)	Not Null	User Email ID
gender	varchar(5)	Not Null	User Gender

❖ **Module Table**

Field Name	Type	Constraint	Description
module_id	Integer	Primary key	Module Id
module_name	varchar(20)	Not Null	Module Name
user_id	Integer	Foreign Key	User ID

❖ **Exam Table**

Field Name	Type	Constraint	Description
exam_id	Integer	Primary key	Exam ID
module_id	Integer	Foreign Key	Module ID
start_time	timestamp	Not Null	Starting time
end_time	timestamp	Not Null	Ending time

user_id	Integer	Foreign Key	UserID

❖ **Evaluation Response Table**

Field Name	Type	Constraint	Description
eval_id	Integer	Primary key	Eval ID
module_name	varchar(20)	Not Null	Module Name
user_id	Integer	Foreign Key	UserID
total_marks	Integer	Not Null	User Total marks
status	Varchar(10)	Not Null	User's Status
score	Integer	Not Null	User's score

FACT FINDING METHODS

To gather information for the design and development of a complaint management system, the following fact-finding methods can be used:

- Interviews: Interviews can be conducted with customers, employees, and other stakeholders to gather information on their needs, expectations, and experiences with the current complaint management process

- Questionnaires: Questionnaires are also one of useful fact-finding technique to collect information from large number of users. Users fill up the questions which are given by the system analyst and then give the answers back to the system analyst.

- Observation: Another fact-finding technique is observation. In this technique, system analyst participates in the organization, studies the flow of documents, applies the existing system, and interacts with the users. Observation can be a useful technique when the system analyst has user point of view.

- Document analysis: Reviewing existing documents such as complaint logs, customer feedback, and service level agreements can provide insights into the current complaint management process.

- Prototyping: Creating a prototype of the complaint management system and testing it with customers and employees can provide valuable feedback on its usability and effectiveness.

- Surveys: Surveys can be conducted to gather quantitative data on customer satisfaction, complaint resolution time, and other metrics that can be used to improve the complaint management process.

<u>TESTING</u>

<u>Introduction: -</u>

Testing in web design is a crucial process to ensure a high-quality website. It involves various types of testing, such as functionality, compatibility, usability, performance, security, accessibility, cross-device, and content testing.

Functionality testing ensures that all features and functionalities of the website work correctly. Compatibility testing checks the website's consistency across different browsers and operating systems. Usability testing focuses on user-friendliness and intuitive navigation.

Performance testing assesses speed, responsiveness, and stability. Security testing identifies vulnerabilities and ensures data protection. Accessibility testing ensures website accessibility for people with disabilities. Cross-device testing ensures consistency across different devices.

Content testing reviews accuracy, relevancy, and consistency of website content. It is important to conduct testing at various stages of development.
Testing helps improve user experience, enhances performance, and prevents potential issues. It ensures that links, forms, navigation menus, and interactive elements function correctly.It also checks for responsiveness on different devices and ensures the website works on various browsers.

Usability testing involves observing users and gathering feedback. Performance testing assesses loading time and server response.
Security testing checks for vulnerabilities and ensures secure data transmission.

Type of Testing

1. Unit Testing

Unit testing involves the design of test cases that validate that the internal program logic is functioning properly, and that program inputs produce valid outputs. All decision branches and internal code flow should be validated. It is the testing of individual software units of the application. it is done after the completion of an individual unit before integration. This is a structural testing, that relies on knowledge of its construction and is invasive. Unit tests perform basic tests at component level and test a specific business process, application, and/or system configuration. Unit tests ensure that each unique path of a business process performs accurately to the documented specifications and contains clearly defined inputs and expected results.

•A unit is the smallest testable part of an application like functions, classes, procedures, interfaces. Unit testing is a method by which individual units of source code are tested to determine if they are fit for use.

•Unit tests are basically written and executed by software developers to make sure that code meet sits design and requirements and behaves as expected.

•The goal of unit testing is to segregate each part of the program and test that the individual parts are working correctly.

•This means that for any function or procedure when a set of inputs are given then it should return the proper values. It should handle the failures gracefully during the course of execution when any invalid input is given.

•A unit test provides a written contract that the piece of code must assure. Hence it has several benefits.

•Unit testing is basically done before integration as shown in the image below.

2. Integration Testing

Integration tests are designed to test integrated software components to determine if they actually run as one program. Testing is event driven and is more concerned with the basicoutcome of screens or fields. Integration tests demonstrate that although the components were individually satisfaction, as shown by successfully unit testing, the combination of components is correct and consistent. Integration testing is specifically aimed at exposing the problems that arise from the combination of components.

•Integration testing tests integration or interfaces between components, interactions to different parts of the system such as an operating system, file system and hardware or interfaces between systems.

•Also after integrating two different components together we do the integration testing. As displayed in the image below when two different modules Module A and Module B are integrated then the integration testing is done.

Test Case Id	Title	Expected Result	Actual Result
Pravinyam_01	Verify that the Register button is working on the home-page	1. The Register button is working	1. The Register button is working
Pravinyam_02	Create an account with the valid information	The user has signed up successfully.	The user has signed up successfully.
Pravinyam_03	Give a valid Email	1.The OTP is sent on the right Email 2.Enter the OTP to verify Email on the alert message	1.The OTP is sent on the right Email 2.Enter the OTP to verify Email on the alert message
Pravinyam_04	Enter an existing email ID	It should be display "User already exists"	1. It displays "User already exist"
Pravinyam_05	Enter an OTP after 15 minutes to check if its valid	Email Not Verified	Email Not Verified
Pravinyam_06	Enter an email without the (.com)	This email is invalid	OTP sent to email
Pravinyam_07	Enter an email with spaces	Please enter a valid email	Please enter a valid email
	Enter an		

Pravinyam_08	email without the (gmail) after the @ symbol	This email is invalid	OTP sent to email
Pravinyam_09	Enter an OTP with Spaces	Spaces are not allowed in the OTP column	Spaces are not allowed in the OTP column
Pravinyam_10	Check the Email text field with an Email address without @ symbol	1. should show message as "Invalid Email"	2. OTP sent to email
Pravinyam_11	Enter a string for an input	1. Please enter a valid email.	1. OTP Sent successfully
Pravinyam_12	Check with different OTP inputs	1 Incorrect OTP 2 Resend OTP	1. Incorrect OTP
Pravinyam_14	Enter correct OTP	1. OTP verified successfully	1. OTP verified successfully
Pravinyam_15	Enter the same password & confirm password	1. The password and the confirm password is correct so the system accepts the input	1.The password and the confirm password is correct so the system accepts the input
Pravinyam_16	Enter Different Password & confirm password	enter password and confirm password mismatch	enter password and confirm password mismatch

Pravinyam_17	Grammatical error in password & confirm password alert message	1. Enter your password and confirm the password mismatch.	1. enter password and confirm password mismatch
Pravinyam_18	Enter Password and confirm password with spaces	1. Space can be used after entering even 1 digit in both Password & Confirm password	1. Space can be used after entering even 1 digit in both Password & Confirm password
Pravinyam_19	Enter space before entering any digit or alphabet in Password & Confirm password	The password & confirm password does not allow spaces at the beginning of the box	The password & confirm password does not allow spaces at the beginning of the box
Pravinyam_20	Check if First name & Last name can accept any random inputs	1. Username can contain any input	1. Username can contain any input
Pravinyam_21	Check if last name can be left blank	1. Please enter the last name	1. please enter the last name
Pravinyam_22	check if the username can be repeated	1. No alert , so the same username can be used by multiple accounts	1. No alert , so the same username can be used by multiple

			accounts
Pravinyam_23	Enter a random Captcha	1. Invalid Captcha	1. Invalid Captcha
Pravinyam_24	Check if the Refresh Captcha button is working	1. A new Captcha is displayed everytime	1. A new Captcha is displayed everytime
Pravinyam_25	Enter the Right Captcha which is displayed	1. Next Registration Page	1. Next Registration Page
Pravinyam_26	Check if spaces are allowed in the captcha	1. Invalid Captcha	1. Invalid captcha
Pravinyam_27	Check if a space before entering the right captcha affect the verification	1. Invalid Captcha	1. Invalid Captcha
Pravinyam_28	Check if a space at the end of right captcha affect the verification	1. Invalid Captcha	1. Invalid Captcha
Pravinyam_29	Testing on Different OS(Ubuntu)	1. The User has signed up successfully	1. The user has signed up successfully

Pravinyam_30	Different toggle devices	1. The Application is compatible with different devices and landscapes	1. Application is compatible with different devices and landscapes.
Pravinyam_31	Email verification on Different OS (Ubuntu)	1. The OTP will be sent to the email	1. The OTP will be sent to email
Pravinyam_32	Test on Different Browsers	Working the same way it is working on chrome	Working the same way it is working on chrome
Pravinyam_33	Verify that all the Fields are clickable	1. All of the fields are clickable	1. All of the fields are clickable
Pravinyam_34	Verify that tab functionality is working properly	1. While pressing the tab button every field should be selected	1. While pressing the tab button every field should be selected
Pravinyam_35	Verify that all the fields such as username, email,	1. every field has a placeholder	1. Every field should have a placeholder

	Password , Confirm Password, captcha have a valid placeholder		

CONCLUSION & RECOMMENDATIONS

Pravinyamis is a online platform that offers a wide range of coding challenges, coding competitions, and interview preparation materials for Students and programmers. It provides a platform for individuals to practice and improve their coding skills in various programming languages.

In conclusion, Pravinyamis a valuable resource for Students who want to enhance their coding abilities, prepare for coding interviews, or participate in coding competitions. It offers a diverse collection of coding challenges and provides a supportive community of programmers. By solving problems on Pravinyam , Students can improve their problem-solving skills, learn new programming concepts, and track their progress over time. Whether you are a beginner or an experienced programmer, Pravinyam can be a useful tool for sharpening your coding skills.

- Faster Performance

- Build on Native Platform.

- Less Cost.

- Easy to use.

- Easy to learn.

- Better understanding of code.

<u>FUTURE SCOPE</u>

There are many things for future enhancement of this project. The future enhancements that are possible in the project are as follows.

- We are planning to launch the Pravinyam app for android as well

- We are planning to start one-on-one interaction with experts.