 Marwadi University Marwad, Chandigarh Group	Marwadi University Faculty of Technology Department of Information and Communication Technology
DBMS + IWT	PROJECT REPORT

Project Title: Programming Tracker

Group members detail: Keval Behera 92100133039

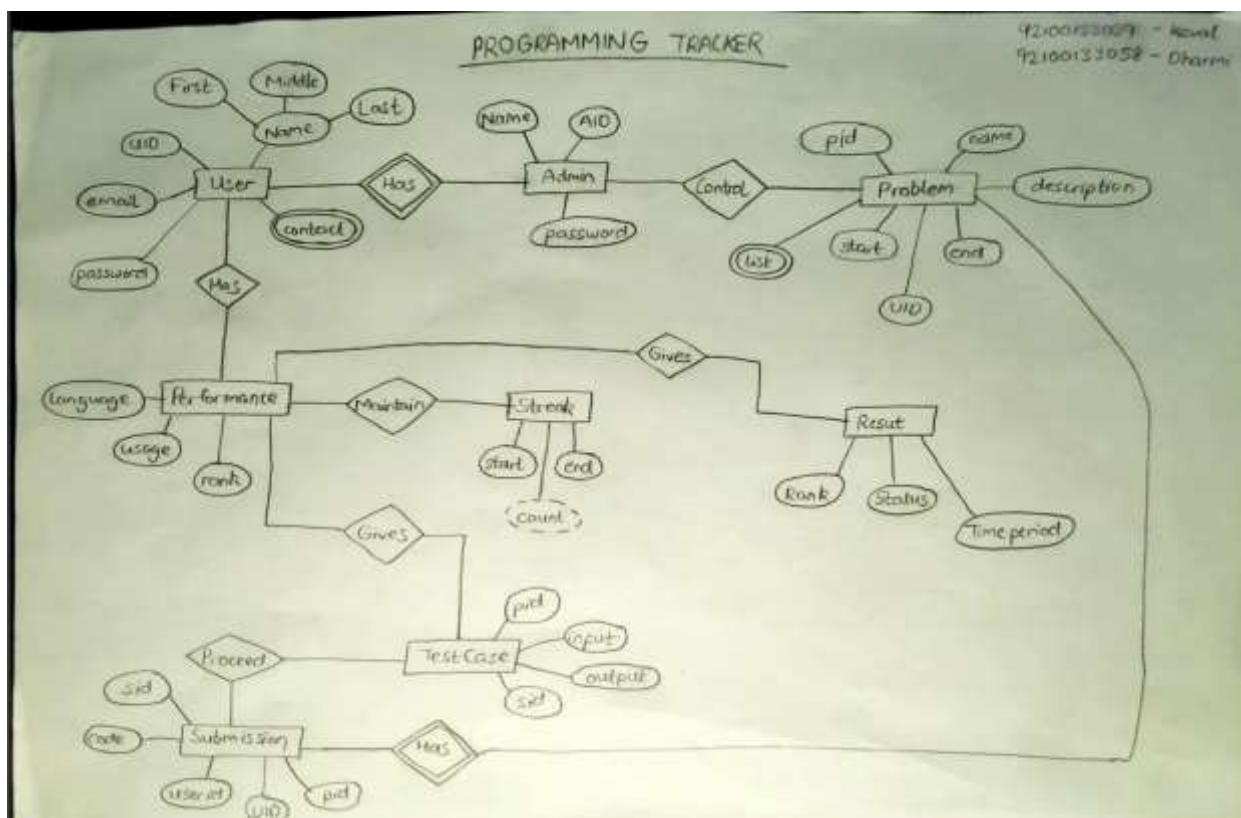
Dharmi Javiya 92100133058

Abstract:

In our project we are applying the logic we learn from DBMS and IWT. Our Problem Statement based on our competitive programming, in that they are giving links every day so on the basis of it we will be making a website in which there are elements like Login/Sign up, Levels such as Easy,Moderate,Difficult. And in that we are planning to add a compiler. From the database, we will fetch the details of the user and record their performance.

There will be extra features like the maintaining of daily programming streak, overall leaderboard across different programming languages. If they continue their programming and maintain their streak for a month then we are going to post their performance chart on linkedIn by using our official account of PROGRAMMING TRACKER.

ER Diagram:



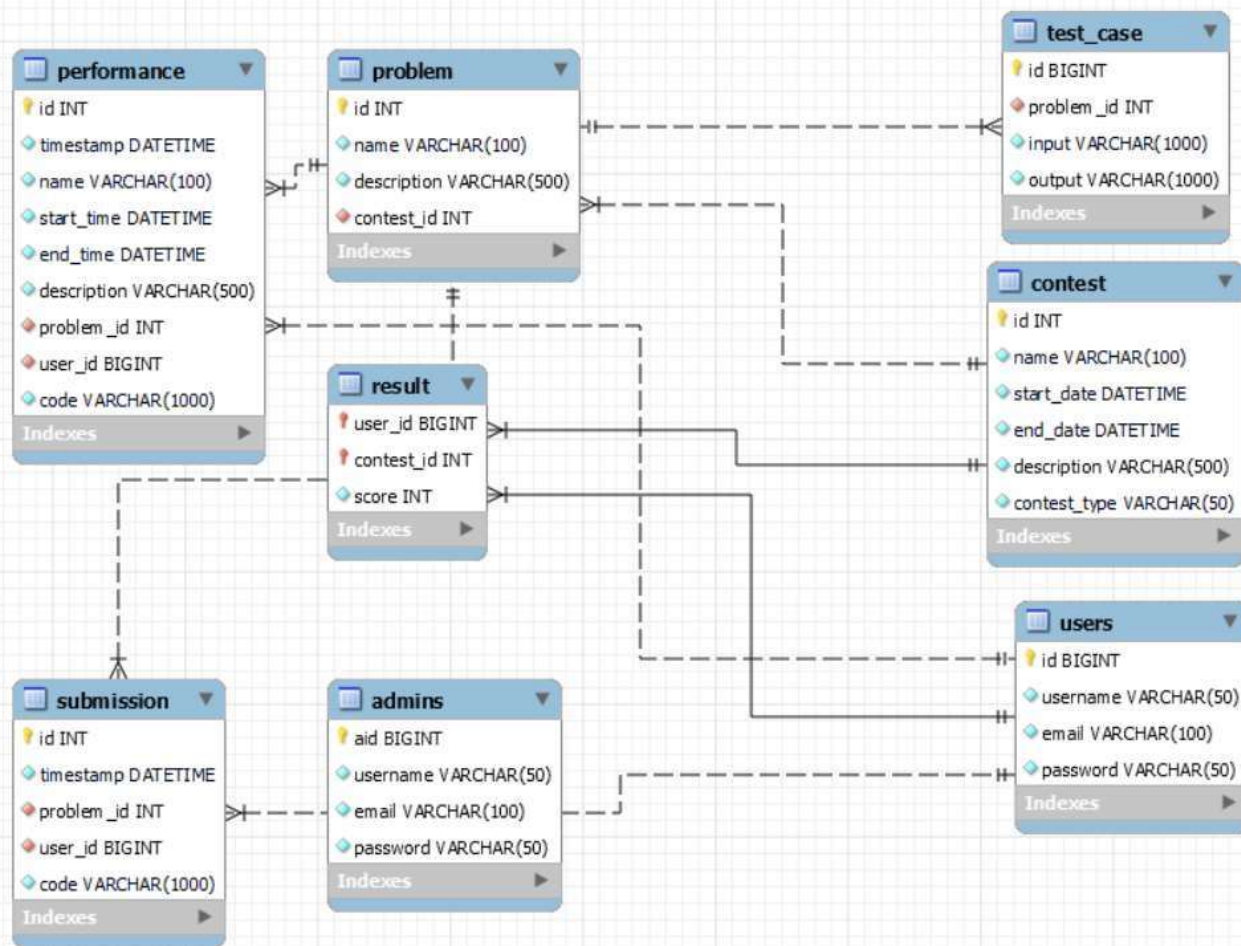



Table schema: User-

id SERIAL PRIMARY KEY,
 username VARCHAR(50) NOT NULL,
 email VARCHAR(100) NOT NULL,
 password VARCHAR(50) NOT NULL ,
 datejoin TIMESTAMP DEFAULT
 NOW();

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Admin - aid SERIAL PRIMARY KEY,
username VARCHAR(50) NOT NULL,
email VARCHAR(100) NOT NULL,
password VARCHAR(50) NOT NULL


Contest- id INT PRIMARY KEY, name
VARCHAR(100) NOT NULL, start_date
DATETIME NOT NULL, end_date
DATETIME NOT NULL, description
VARCHAR(500) NOT NULL,
contest_type VARCHAR(50) NOT NULL

Problem - id INT PRIMARY KEY, name
VARCHAR(100) NOT NULL, description
VARCHAR(500) NOT NULL, contest_id
INT NOT NULL,

FOREIGN KEY (contest_id) REFERENCES Contest(id) Submission - id INT PRIMARY KEY, timestamp
DATETIME NOT NULL, problem_id INT NOT NULL, user_id SERIAL NOT NULL, code VARCHAR(1000)
NOT NULL,

FOREIGN KEY (problem_id) REFERENCES Problem(id),

FOREIGN KEY (user_id) REFERENCES users(id)

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Performance - id INT PRIMARY KEY,
timestamp DATETIME NOT NULL,
name VARCHAR(100) NOT NULL,
start_time DATETIME NOT NULL,
end_time DATETIME NOT NULL,
description VARCHAR(500) NOT NULL,
problem_id INT NOT NULL, user_id
SERIAL NOT NULL, code
VARCHAR(1000) NOT NULL,
FOREIGN KEY (problem_id) REFERENCES Problem(id),
FOREIGN KEY (user_id) REFERENCES users(id)

Test_Case - id SERIAL PRIMARY
KEY, problem_id INT NOT NULL,
input VARCHAR(1000) NOT NULL,
output VARCHAR(1000) NOT NULL,

FOREIGN KEY (problem_id) REFERENCES Problem(id)

Result -
user_id SERIAL NOT NULL,
contest_id INT NOT NULL,
PRIMARY KEY (user_id, contest_id),
FOREIGN KEY (user_id) REFERENCES users(id),
FOREIGN KEY (contest_id) REFERENCES Contest(id)

SQL Queries:

User:

```

2 * CREATE TABLE users(
3     id SERIAL PRIMARY KEY,
4     username VARCHAR(50) NOT NULL,
5     email VARCHAR(100) NOT NULL,
6     password VARCHAR(50) NOT NULL
7 );
8
9 * INSERT INTO users (username, email, password)
10 VALUES
11 ('johndoe', 'johndoe@example.com', 'password123'),
12 ('janedoe', 'janedoe@example.com', 'password456'),
13 ('bobsmith', 'bobsmith@example.com', 'password789'),
14 ('amandajones', 'amandajones@example.com', 'password101'),
15 ('davidsmith', 'davidsmith@example.com', 'password202');
16
17 * SELECT * FROM users;
18

```

id	username	email	password
1	johndoe	johndoe@example.com	password123
2	janedoe	janedoe@example.com	password456
3	bobsmith	bobsmith@example.com	password789
4	amandajones	amandajones@example.com	password101
5	davidsmith	davidsmith@example.com	password202

Admin –

```

20 * CREATE TABLE admins (
21     aid SERIAL PRIMARY KEY,
22     username VARCHAR(50) NOT NULL,
23     email VARCHAR(100) NOT NULL,
24     password VARCHAR(50) NOT NULL
25 );
26
27 * INSERT INTO admins (username, email, password)
28 VALUES
29 ('admin1', 'admin1@example.com', 'password123'),
30 ('admin2', 'admin2@example.com', 'password456'),
31 ('admin3', 'admin3@example.com', 'password789'),
32 ('admin4', 'admin4@example.com', 'password101'),
33 ('admin5', 'admin5@example.com', 'password202');
34
35 * SELECT * FROM admins;
36

```

aid	username	email	password
1	admin1	admin1@example.com	password123
2	admin2	admin2@example.com	password456
3	admin3	admin3@example.com	password789
4	admin4	admin4@example.com	password101
5	admin5	admin5@example.com	password202

Contest-

```

58 * CREATE TABLE Contest (
59     id INT PRIMARY KEY,
60     name VARCHAR(100) NOT NULL,
61     start_date DATETIME NOT NULL,
62     end_date DATETIME NOT NULL,
63     description VARCHAR(500) NOT NULL,
64     contest_type VARCHAR(50) NOT NULL
65 );
66 * INSERT INTO Contest (id, name, start_date, end_date, description, contest_type)
67 VALUES
68 (1, 'CodeMaster 2023', '2023-05-01 09:00:00', '2023-05-02 17:00:00', 'A programming contest for college students', 'Individual'),
69 (2, 'HackTheWorld 2023', '2023-08-10 10:00:00', '2023-08-11 18:00:00', 'A global programming contest for professionals', 'Team'),
70 (3, 'JuniorCoder 2024', '2024-02-15 08:00:00', '2024-02-16 16:00:00', 'A programming contest for high school students', 'Individual'),
71 (4, 'BuildIt 2024', '2024-06-20 11:00:00', '2024-06-21 19:00:00', 'A programming contest for software developers', 'Team'),
72 (5, 'CodeFiesta 2025', '2025-09-05 07:00:00', '2025-09-06 15:00:00', 'A programming contest for beginners', 'Individual');
73 * SELECT * FROM Contest;

```

id	name	start_date	end_date	description	contest_type
1	CodeMaster 2023	2023-05-01 09:00:00	2023-05-02 17:00:00	A programming contest for college students	Individual
2	HackTheWorld 2023	2023-08-10 10:00:00	2023-08-11 18:00:00	A global programming contest for professionals	Team
3	JuniorCoder 2024	2024-02-15 08:00:00	2024-02-16 16:00:00	A programming contest for high school students	Individual
4	BuildIt 2024	2024-06-20 11:00:00	2024-06-21 19:00:00	A programming contest for software developers	Team
5	CodeFiesta 2025	2025-09-05 07:00:00	2025-09-06 15:00:00	A programming contest for beginners	Individual

Problems-

```

57 * CREATE TABLE Problem (
58     id INT PRIMARY KEY,
59     name VARCHAR(100) NOT NULL,
60     description VARCHAR(500) NOT NULL,
61     contest_id INT NOT NULL,
62     FOREIGN KEY (contest_id) REFERENCES Contest(id)
63 );
64 * INSERT INTO Problem (id, name, description, contest_id)
65 VALUES
66 (1, 'Problem A', 'Write a program to find the maximum element in an array.', 1),
67 (2, 'Problem B', 'Write a program to count the number of vowels in a string.', 1),
68 (3, 'Problem C', 'Write a program to calculate the factorial of a number.', 1),
69 (4, 'Problem D', 'Write a program to find the shortest path between two nodes in a graph.', 2),
70 (5, 'Problem E', 'Write a program to find the sum of all prime numbers up to a given limit.', 3),
71 (6, 'Problem F', 'Write a program to find the GCD of two numbers.', 3),
72 (7, 'Problem G', 'Write a program to implement a bubble sort algorithm.', 3);
73 * SELECT * FROM Problem;

```







id	name	description	contest_id
1	Problem A	Write a program to find the maximum element in...	1
2	Problem B	Write a program to count the number of vowels...	1
3	Problem C	Write a program to calculate the factorial of a n...	1
4	Problem D	Write a program to find the shortest path betw...	2
5	Problem E	Write a program to find the sum of all prime nu...	3
6	Problem F	Write a program to find the GCD of two numbers.	3

Submission -

```

46 • CREATE TABLE submission (
47     id INT PRIMARY KEY,
48     timestamp DATETIME NOT NULL,
49     problem_id INT NOT NULL,
50     users_id SERIAL NOT NULL,
51     code VARCHAR(1000) NOT NULL,
52     FOREIGN KEY (problem_id) REFERENCES problem(id),
53     FOREIGN KEY (users_id) REFERENCES users(id)
54 );
55
56 • INSERT INTO submission (id, timestamp, problem_id, users_id, code)
57     VALUES (1, '2023-04-20 10:30:00', 1, 1, 'Example code for problem 1 by user 1');

```

Result Grid					
Filter Rows: <input type="text"/>					
Edit:    					
Export/Import:  					
	id	timestamp	problem_id	users_id	code
▶	1	2023-04-20 10:30:00	1	1	Example code for problem 1 by user 1

Performance:

```

62 • CREATE TABLE performance (
63     timestamp DATETIME NOT NULL,
64     name VARCHAR(100) NOT NULL,
65     start_time TIME NOT NULL,
66     end_time TIME NOT NULL,
67     description VARCHAR(500) NOT NULL,
68     problem_id INT NOT NULL,
69     user_id SERIAL NOT NULL,
70     code VARCHAR(1000) NOT NULL,
71     FOREIGN KEY (problem_id) REFERENCES problem(id),
72     FOREIGN KEY (user_id) REFERENCES users(id)
73 );
74 • INSERT INTO performance (timestamp, name, start_time, end_time, description, problem_id, user_id, code)
75     VALUES ('2023-04-20 13:30:00', 'Good', '2023-04-20 14:00:00', '2023-04-20 15:30:00', 'Description of Performance 1', 1, 1, 'Example code for Performance 1 by User 1');

```

Result Grid								Filter Rows:		Edit:		Export/Import:		Wrap Cell Contents:	
	timestamp	name	start_time	end_time	description	problem_id	user_id	code							
▶	2023-04-20 13:30:00	Good	2023-04-20 14:00:00	2023-04-20 15:30:00	Description of Performance 1	1	1	Example code for Performance 1 by User 1							

Test Case:

```

77 • CREATE TABLE test_case (
78     id INT PRIMARY KEY,
79     problem_id INT NOT NULL,
80     input VARCHAR(1000) NOT NULL,
81     output VARCHAR(1000) NOT NULL,
82     FOREIGN KEY (problem_id) REFERENCES problem(id)
83 );
84 • INSERT INTO test_case (id, problem_id, input, output)
85 VALUES (1, 1, 'Input for test case 1 of problem 1', 'Output for test case 1 of problem 1');
86 • SELECT * FROM test_case;
87

```

Result Grid				
Filter Rows:		Edit:		
	id	problem_id	input	output
▶	1	1	Input for test case 1 of problem 1	Output for test case 1 of problem 1
•	NULL	NULL	NULL	NULL

Result:

```

112 • CREATE TABLE Result (
113     user_id SERIAL NOT NULL,
114     contest_id INT NOT NULL,
115     score INT NOT NULL,
116     PRIMARY KEY (user_id, contest_id),
117     FOREIGN KEY (user_id) REFERENCES users(id),
118     FOREIGN KEY (contest_id) REFERENCES Contest(id)
119 );
120 • INSERT INTO Result (user_id, contest_id, score) VALUES (2, 1, 75);
121 • SELECT * FROM Result;
122

```

</

Nested Query - Retrieve all submissions for a specific problem by a specific user:

```

112 • SELECT *
113 FROM submission
114 WHERE problem_id = (
115     SELECT id
116     FROM problem
117     WHERE name = 'Problem 1'
118 ) AND users_id = (
119     SELECT id
120     FROM users
121     WHERE username = 'Rahul Sharma'
122 );
123

```

Result Grid | Filter Rows: | Edit: | Export/Import:

	id	timestamp	problem_id	users_id	code
▶	1	2023-04-20 10:30:00	1	1	Example code for problem 1 by user 1
*	NULL	NULL	NULL	NULL	NULL

Nested Query - Retrieve all submissions for a specific contest:


```

136 • SELECT *
137 FROM submission
138 WHERE problem_id IN (
139     SELECT id
140     FROM problem
141     WHERE contest_id = (
142         SELECT id
143         FROM contest
144         WHERE id = 1
145     )
146 );

```

Result Grid | Filter Rows: | Edit: | Export/Import:

	id	timestamp	problem_id	users_id	code
▶	1	2023-04-20 10:30:00	1	1	Example code for problem 1 by user 1
*	NULL	NULL	NULL	NULL	NULL

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Nested Query - Retrieve all submissions for a specific contest along with the corresponding problem and user information:

```

185 • SELECT s.*, p.name AS problem_name, u.username AS user_username
186 FROM submission s
187 JOIN problem p ON s.problem_id = p.id
188 JOIN users u ON s.users_id = u.id
189 WHERE p.contest_id = (
190     SELECT id
191     FROM contest
192     WHERE id = 1
193 );
194

```

id	timestamp	problem_id	users_id	code	problem_name	user_username
1	2023-04-20 10:30:00	1	1	Example code for problem 1 by user 1	Problem 1	Rahul Sharma


Aggregated Query - Retrieve the average score of all users in a specific contest:

```

107
108 • SELECT AVG(score) AS avg_score
109 FROM result
110 WHERE contest_id = 1;
111

```

avg_score
85.0000

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Aggregated Query - Retrieve the count of submissions made by each user:

```

131
132 • SELECT users_id, COUNT(*) AS submission_count
133     FROM submission
134     GROUP BY users_id;
135

```

Result Grid

users_id	submission_count
1	1

Join Query - fetches the usernames and scores of all users who participated in the Contest:

```

123 • SELECT u.username, r.score
124     FROM users u
125     JOIN Result r ON u.id = r.user_id
126     WHERE r.contest_id = 1
127
128

```

Result Grid

username	score
janedoe	75

Join Query – fetches users and respective scores for contest_id 1 and rest null are shown:


```

134 • SELECT u.username, r.score
135     FROM users u
136     LEFT JOIN Result r ON u.id = r.user_id
137     WHERE r.contest_id = 1 OR r.contest_id IS NULL;
138
139

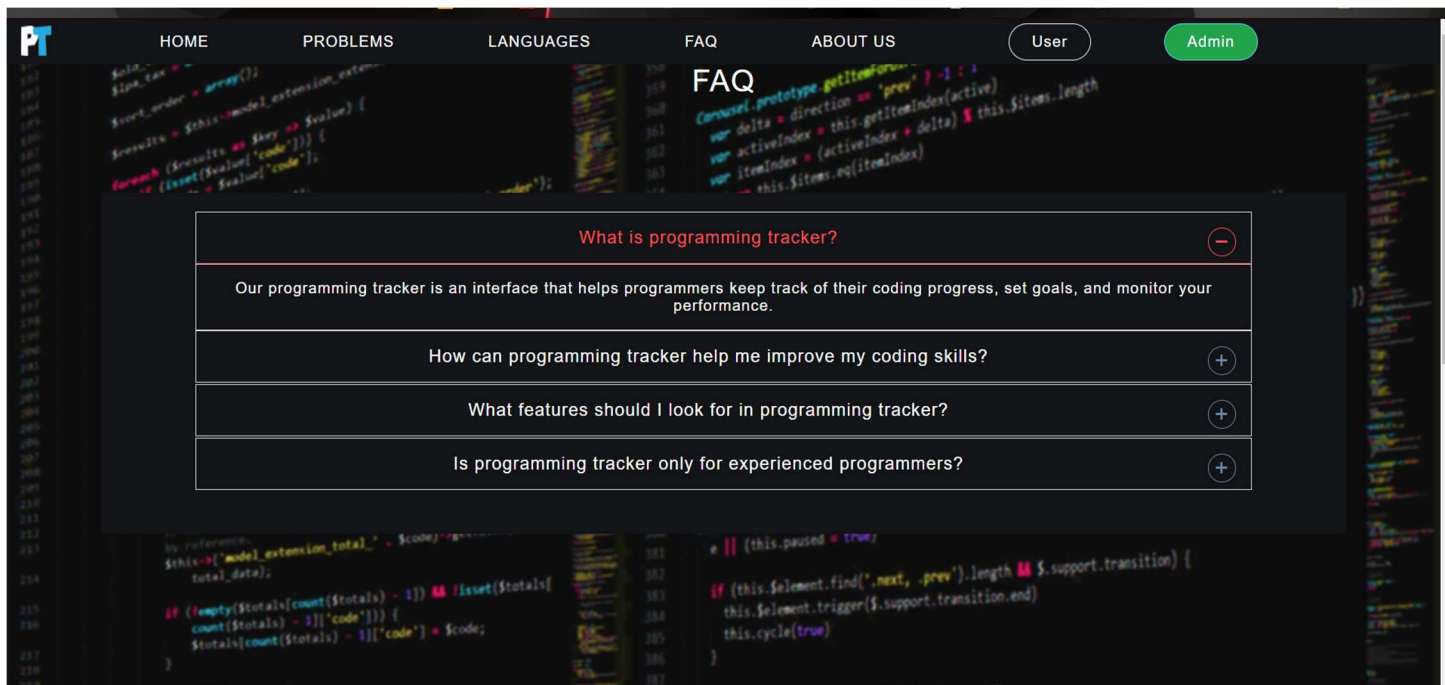
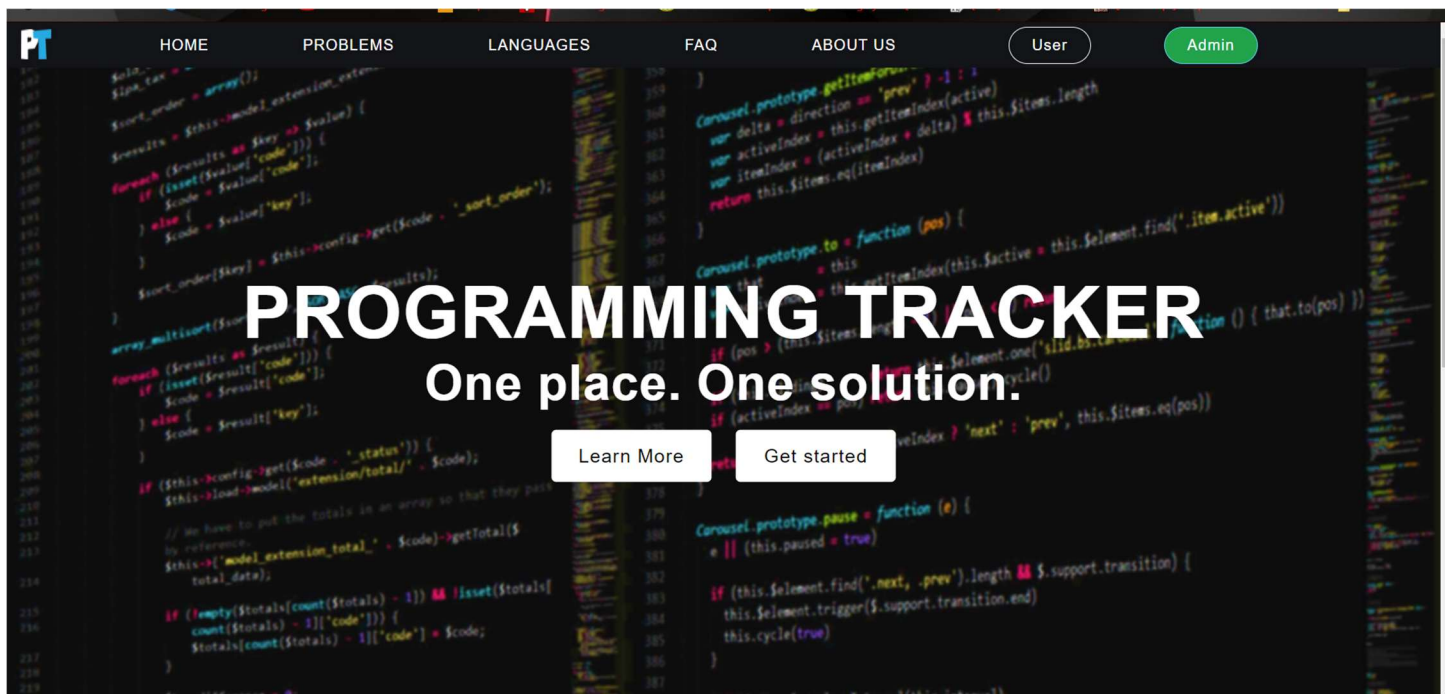
```


Result Grid

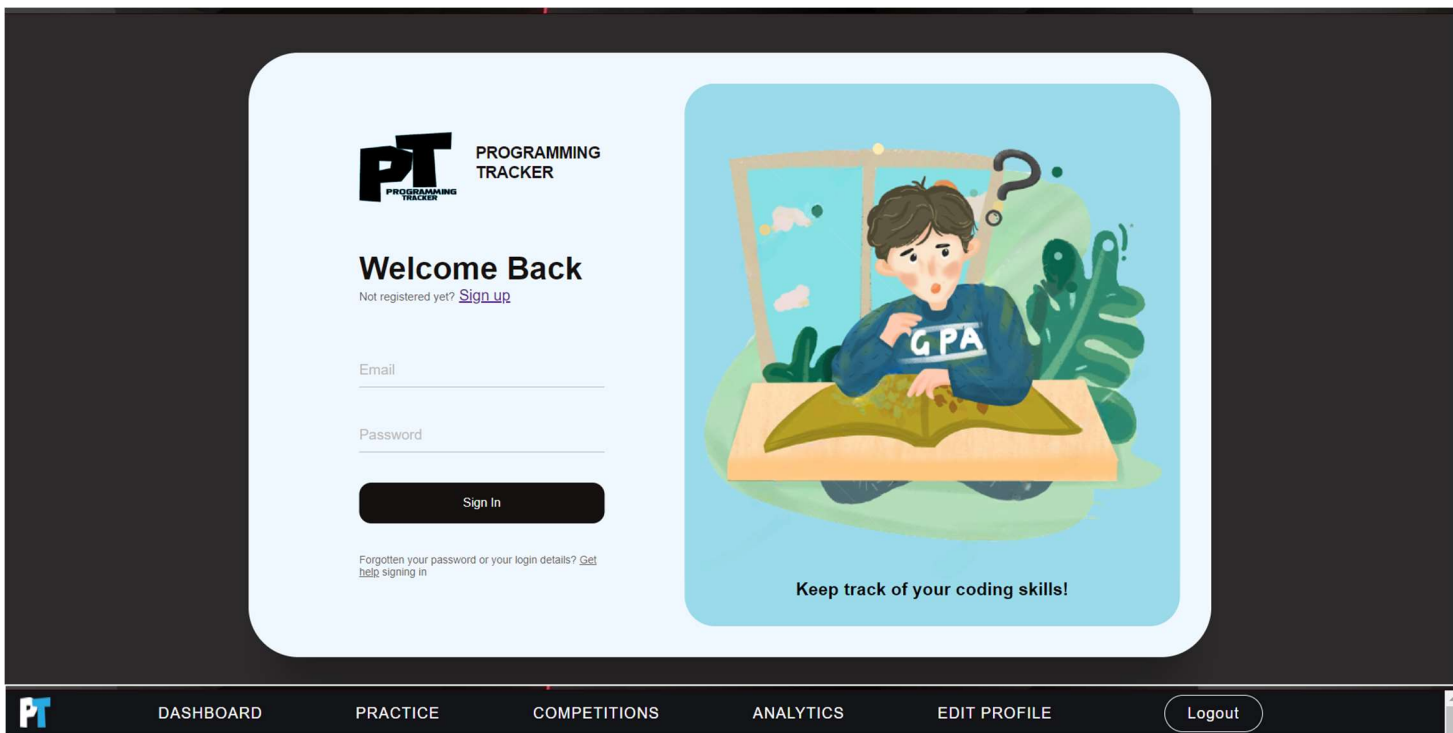
username	score
johnndoe	NULL
janedoe	75
bobsmith	NULL
amandajones	NULL
davidsmith	NULL

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Screenshots:



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Username:	Keval
Email:	kevalbehera@gmail.com
Joined:	2023-05-09 16:24:53



Marwadi University
Faculty of Technology
Department of Information and Communication Technology

DBMS + IWT

PROJECT REPORT



DASHBOARD

PRACTICE

COMPETITIONS

ANALYTICS

EDIT PROFILE

Logout

Code here

```
1 #include <iostream>
2
3 using namespace std;
4
5 int main() {
6     cout<<"Welcome to Geeks For Geeks";
7 }
```

☐ Interactive Mode
Stdin Inputs

Execute

Result

CPU Time: 0.00 sec(s), Memory: 3204 kilobyte(s)

compiled and executed in 1.344 sec(s)

Welcome to Geeks For Geeks

[Edit this program in JDoodle.com](#)

Online compiler powered by JDoodle



DASHBOARD

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EDIT PROFILE

Logout

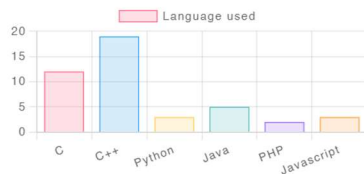
Progress

25%

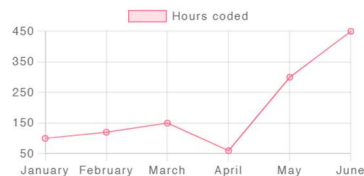
50%

75%

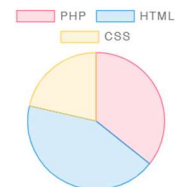
Languages used per minutes





Hours coded per month



Languages used today



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DASHBOARD
PRACTICE
COMPETITIONS
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EDIT PROFILE
Logout

Username:

Old password:

Email:

New password:

Confirm password:

Update

Dashboard

Welcome Back

Are you an admin?
Then you're at the right place.


Login

Email Address *

Password *

Sign in

[Forgot Password?](#)



Programming Tracker

Dashboard

Data

Analytics

+ Add problem

+ Add contest

Manage users

Logout

Dark Mode

Search here...

Dashboard

Users

3

Contests


5

Problems

7

Recent Activity

Name	Email	Joined	Type	Status
Keval	kevalbehera@gmail.com	2023-05-09 16:24:53	New	User



Programming Tracker

Dashboard

Data

Analytics

+ Add problem

+ Add contest


Manage users

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Search here...

Problems

Name	Description	Contest id.	Action
Problem B	Write a program to count the number of vowels in a string.	1	Delete
Problem C	Write a program to calculate the factorial of a number.	1	Delete
Problem D	Write a program to find the shortest path between two nodes in a graph.	2	Delete
Problem G	Write a program to find the sum of all prime numbers up to a given limit.	3	Delete
Problem H	Write a program to find the GCD of two numbers.	3	Delete
Problem I	Write a program to implement a bubble sort algorithm.	3	Delete
Problem J	Write a program for Binary Search Tree	1	Delete



Programming Tracker

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Analytics

+ Add problem

+ Add contest

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Problem J


Write a program for Binary Search Tree

1

Delete

Contests

Name	Start date	End date	Description	Contest type	Action
CodeMaster 2023	2023-05-01 09:00:00	2023-05-02 17:00:00	A programming contest for college students	Individual	Delete
HackTheWorld 2023	2023-08-10 10:00:00	2023-08-11 18:00:00	A global programming contest for professionals	Individual	Delete
JuniorCoder 2024	2024-02-15 08:00:00	2024-02-16 16:00:00	A programming contest for high school students	Individual	Delete
BuildIt 2024	2024-06-20 11:00:00	2024-06-21 19:00:00	A programming contest for software developers	Individual	Delete
CodeFiesta 2025	2025-09-05 07:00:00	2025-09-06 15:00:00	A programming contest for beginners	Individual	Delete



Programming Tracker

Dashboard

Data

Analytics

+ Add problem

+ Add contest


Manage users

Logout

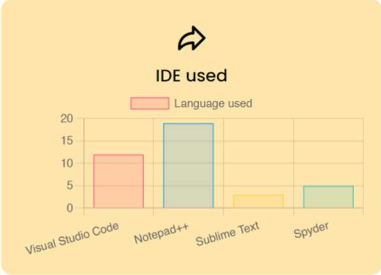
Dark Mode

Analytics

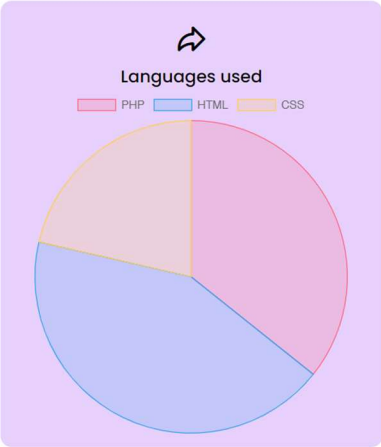
Problems




IDE used



Languages used





Programming Tracker

Dashboard

Data

Analytics

+ Add problem

+ Add contest

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Dark Mode

Search here...

Add problem

Current Problems


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Problem name

Description

Contest ID

Add Problem



Programming Tracker

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+ Add problem

+ Add contest

Manage users

Logout

Dark Mode

Search here...

Add contest

Current Contests

5

Contest name


Start Date: dd-mm-yyyy --:--


End Date: dd-mm-yyyy --:--


Description


Contest Type


Add Contest


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**Programming Tracker**


 Dashboard

 Data

 Analytics

 Add problem


 Add contest


 Manage users

Logout

☰

Search here...



 Manage users

ID	Name	Email	Joined	Action
2	Keval	kevalbehera@gmail.com	2023-05-08 00:35:46	<div>Update</div> <div>Delete</div>
4	Dharmi	dharmijaviya@gmail.com	2023-05-08 10:17:46	<div>Update</div> <div>Delete</div>