Steps to Execute the Team 9 Exam System

This document contains the step-by-step guide to execute the **Team 9 Exam System** project.

Execution Steps

1. Clone the Repository

- Open a terminal and clone the project repository:

- git clone <repository-url>

- cd <repository-directory>

2. Build the Project

- Use the Makefile to build the project. Run the following command:

- Make

```
tarak@DESKTOP-05CHI8A:/mnt/d/ml_projects/SectionX_OS_LAB_2024_GROUP No.9 Exam_Sys$ make
mkdir -p build
Building server...
g++ -g -Wall -I Templates -o build/server ./server/server_func_implementation.cpp ./server/server.cpp
Building client...
g++ -g -Wall -I Templates -o build/client ./client/client_implementation.cpp ./client/client.cpp
```

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3. Run the Server

- In the terminal, navigate to the build directory and run the server:

- ./build/server The server will start and wait for client connections.

```
tarak@DESKTOP-05CHI8A:/mnt/d/ml_projects/SectionX_OS_LAB_2024_GROUP No.9 Exam_Sys$ ./build/server
--- Server Starting ---
Department indices and question files initialized.
Initializing semaphores...
Semaphores initialized.
Server is listening on port 8080...
```

4. Run the Client

- In a separate terminal, navigate to the build directory and run the client:

- ./build/client

- The client will connect to the server, and the user interface will be displayed for both students and teachers.

-
```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS


Please select your role:
S for Student, T for Teacher
▮
```

-
```
tarak@DESKTOP-05CHI8A:/mnt/d/ml_projects/SectionX_OS_LAB_2024_GROUP No.9 Exam_Sys$ ./build/server
--- Server Starting ---
Department indices and question files initialized.
Initializing semaphores...
Semaphores initialized.
Server is listening on port 8080...

--- New Client Connected ---

--- New Client Connected to Server ---
▯
```

5. Login as Teacher

- Register with your teacher ID and department.

```
Please select your role:
S for Student, T for Teacher
T
Enter your choice:
 1) Register
 2) Login
 3) Exit
1

--- Teacher Registration ---
Please provide the following details:
 1) Username
 2) Password
 3) Teacher ID
 4) Department (abbreviated, e.g., CSE, ECE)
------------------------------
SN
hello
CS501
CSE
Welcome, SN, to Exam-Sys!!
 1) set exam questions
 2) see leaderboard
 3) see question
 4) exit
▮
```

- Login and set or modify exam questions.

```
Welcome, SN, to Exam-Sys!!
 1) set exam questions
 2) see leaderboard
 3) see question
 4) exit
1
Do you want to add Question?
 1) Yes
 2) No
1

--- Set Question ---
Provide the following details for each question:
 1) Question
 2) Option 1
 3) Option 2
 4) Option 3
 5) Option 4
 6) Correct Answer (a\b\c\d)
 7) Marks
------------------------
what is capital of UK?
London
Delhi
England
America
a
100
Do you want to add Question?
 1) Yes
 2) No
2
 1) set exam questions
 2) see leaderboard
 3) see question
 4) exit
```

- View and manage the question bank.

```
 1) set exam questions
 2) see leaderboard
 3) see question
 4) exit
3
Enter which department questions you want to see (department in abbreviated form)
CSE

Q1) what is capital of UK?
a: London
b: Delhi
c: England
d: America
Correct Option: a
Marks: 100

---------End of questions------------
```
  o

- **For Student:**

  o Register with your roll number and department.

```
Please select your role:
S for Student, T for Teacher
S
Enter your choice:
 1) Register
 2) Login
 3) Exit
1

--- Student Registration ---
Please provide the following details:
 1) Username
 2) Password
 3) Roll Number
 4) Department (abbreviated, e.g., CSE, ECE)
-------------------------------
Thanuj
thanos
22CS8077
CSE
Welcome, Thanuj, to Exam-Sys!!
 1) start exam
 2) see leaderboard
 3) exit
1
Enter your roll number:
22CS8077
what is capital of UK?
a: London
b: Delhi
c: England
d: America
Marks: 100
Enter your answer (a/b/c/d) :
a

Thanks for taking the exam

Marks obtained: 100
```
  o

  o Login to take the exam with shuffled questions.

6. Take the Exam (Student Side)

- Students can attempt the MCQs in the exam interface. Once completed, the results will be calculated and displayed.

```
Roll: 22CS8082Marks: 100
Roll: 22CS8077Marks: 100

----------End of Leaderboard------------
```
-

7. View Results and Leaderboard

- After completing the exam, students can view their scores and rankings on the leaderboard.

- Teachers can access the leaderboard for performance tracking.

```
--- User Login ---
Please provide the following details:
 1) User ID
 2) Password
--------------------
CS501
hello
Welcome to Exam-Sys!!
 1) set exam questions
 2) see leaderboard
 3) see question
 4) exit
2

Enter which department leaderboard you want to see (department in abbreviated form)
CSE
Roll: 22CS8082Marks: 100
Roll: 22CS8077Marks: 100

-----------End of Leaderboard-----------

 1) set exam questions
 2) see leaderboard
 3) see question
 4) exit
```

8. Shutdown the Server

- After testing or usage, press CTRL+C in the terminal where the server is running to stop the server.

```
Exam completed and result updated for student: 22CS8082.

--- Received Client Request Code: 129 ---
Fetching leaderboard.
Leaderboard sent for department: CS.

--- Received Client Request Code: 400 ---
Client requested to end the connection.
--- Client Connection Ended ---

--- New Client Connected ---

--- New Client Connected to Server ---

--- Received Client Request Code: 122 ---
Login process started.
login started..
Login completed.

--- Received Client Request Code: 129 ---
Fetching leaderboard.
Leaderboard sent for department: CSE.

--- Received Client Request Code: 400 ---
Client requested to end the connection.
--- Client Connection Ended ---
^C
tarak@DESKTOP-05CHI8A:/mnt/d/ml_projects/SectionX_OS_LAB_2024_GROUP No.9 Exam_Sys$
```

Troubleshooting

- **If you face issues with server-client connection**, ensure that the server is running before starting the client.

- **If the build fails**, verify that all dependencies are correctly set up and the system is properly configured with the necessary tools.

- **For any missing files or incorrect paths**, check the directory structure and ensure all files are correctly located as per the provided structure.