C++

CASE STUDY ON :

JobPrep++

GROUP 1 :

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OVERVIEW

JobPrep++ is a C++ based quiz application designed to help students strengthen their technical skills for placement preparation.

Covering five essential subjects—C, C++, Java, Python, and MERN—it offers 300 curated questions across three quizzes per subject, each with 20 questions, to test problem-solving abilities and core concepts.

The application features a secure user authentication system, allowing users to create accounts, log in, and track quiz scores to monitor progress.

02

LIBRARIES USED

Learn Before Attempting....

What are Libraries?

Libraries are collections of precompiled code, functions, and resources that developers can use to perform common tasks without writing everything from scratch. They help save time and effort by providing reusable code for specific functionalities. Popular C++ libraries include STL for data structures and algorithms, Boost for extended functionality, Qt and wxWidgets for GUI development, SFML and SDL for game development, Eigen and Armadillo for numerical computing, dlib for machine learning, and Poco for networking. These libraries enhance C++ capabilities for various applications.

What are Functions?

A function in C++ is a reusable block of code that performs a specific task, improving modularity and reducing redundancy. It consists of a return type, a name, parameters (optional), and a body containing the executable code. Functions can return values using the return statement or be void if no value is returned. C++ supports built-in functions (like sqrt() and abs()) and user-defined functions for custom operations. Functions enhance code readability and allow efficient debugging. They can also be overloaded, meaning multiple functions can have the same name but different parameters.

Libraries Imported

- **#include <iostream> :** Used for standard input and output operations like cin, cout, cerr, and clog.
- **#include <fstream> :** Provides file handling capabilities using ifstream for input and ofstream for output.
- **#include <string> :** Enables working with std::string for efficient text handling and manipulation.
- **#include <vector> :** Provides a dynamic array with std::vector, allowing flexible resizing and element access.
- **#include <cstdlib> :** Contains general-purpose functions including random number generation and memory management.
- **#include <ctime> :** Provides time-related functions such as time(), clock(), and difftime() for timing operations.
- **#include <limits> :** Defines numeric limits for data types through std::numeric_limits<T>.

03

BASIC TERMS

Nothing without these...

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Objects

Objects are instances of classes that encapsulate data and behavior, allowing for modular and reusable code. They form the basis of object-oriented programming.

Abstract

Abstract classes are created using at least one pure virtual function, which must be implemented by derived classes.

Access Modifiers

Access specifiers control the visibility and accessibility of classes, variables, and methods within a program. They include public, private, and protected.

Mutable

Mutabel allows a class member to be modified even if the containing object is declared as const.

Template

template allows defining generic functions and classes that work with any data type.

Virtual

virtual enables runtime polymorphism by allowing derived classes to override base class methods.

and many more…

04

RESULT PREVIEW

Have a look...

```
Rajneesh neesh_1111
Smruti smr_1234
Subhasmita Subha@1111
Rohit 9101@rohit
Aryajeet arya8909
```

```
Subhasmita C++ Quiz 1 2025-3-13 1 19
Smruti C++ Quiz 1 2025-3-13 1 19
Rajneesh C++ Quiz 1 2025-3-13 1 18
Rohit C++ Quiz 1 2025-3-13 1 20
Aryajeet C++ Quiz 1 2025-3-13 1 18
```

Name of Users

Marks of each quiz for all users in Quiz 1 with date and time

05 Conclusion

JobPrep++ is an AI-driven job preparation platform that equips users with essential skills through personalized learning, real-world projects, and interactive assessments.

It offers mentorship, mock interviews, and resume-building tools to bridge the gap between theory and practice. With industry-specific tracks, AI analytics, multilingual support, and cybersecurity training, it ensures adaptive learning for a global audience.

By expanding networking opportunities and employer partnerships, JobPrep++ continuously evolves to keep job seekers competitive, making career preparation more efficient and impactful.

06 Future Work

To enhance JobPrep++, future improvements include AI-powered personalized learning, offering customized study plans based on user strengths and career goals.

Live mentorship with industry experts will provide resume feedback and career guidance, while hands-on project integration will help users gain practical experience.

Expanding content for non-technical roles will cater to diverse career paths. Gamification and rewards will boost engagement through badges and leaderboards.

An AI-powered resume builder will offer instant feedback, and mock interviews with voice analysis will improve communication skills, making JobPrep++ a more comprehensive career preparation platform.

THANK YOU