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Programming with C++

1.A C++ file reader, that processes text files and extracts useful information from them. E.g. a system designed to read student grades from a .txt file and calculate average scores. The program begins by opening the file using the library, ensuring it checks if the file exists and can be accessed. Once opened, the program reads each line, extracts student names and their marks, and stores them in variables or ranges. Using loops and conditional systems, it processes the data and computes averages, maximum, and minimum scores. The results are then displayed on the console or written back to another file. This type of program is practical in real-world applications where bulk data is stored in text files and needs to be analyzed quickly. It demonstrates how C++ can handle input/output operations efficiently, making it ideal for data processing scenarios.

2.One key feature of C++ is the Standard Template Library (STL). The STL provides a collection of pre-built classes and functions that make programming more efficient. It includes data structures such as vectors, lists, stacks, and queues. As well as algorithms like sorting, searching, and manipulation of collections. The library also supports iterators, which allow developers to traverse through data easily. STL's importance lies in saving time, improving code reusability, and ensuring reliability since the implementations are tested and optimized. Instead of writing data structures from scratch, programmers can use STL to develop faster, cleaner, and more efficient programs.

3, Writing and running a "Hello World" program in code blocks was an easy first step in learning C++. The process began with installing the code blocks files and running the set up. After creating the .cpp folder, the system already, automatically wrote the code. I proceeded to click on the "run" button to test it. Immediately, it displayed a "Hello World" message. The experience gave me a slight understanding of how to set up the environment and work flow, from writing code, to compiling it, and executing it.

4.The C++ build pipeline turns human-readable source into a runnable program. You start by writing .cpp files in an editor. The preprocessor runs first, expanding #include directives and macros, Next, the compiler translates each file into machine-specific object code, checking

syntax and applying optimizations. After compilation, the linker resolves external symbols and combines your objects with static or dynamic libraries