Quiz Application

Purpose

The purpose of this project is to develop a simple, console-based quiz application using the C++ programming language. This project serves both educational and practical goals. On the educational front, it provides a platform for users—particularly students—to test and reinforce their knowledge in a specific subject area, in this case, basic biology. From a programming perspective, the project offers an opportunity to apply fundamental concepts such as functions, arrays, conditionals, loops, and string handling. It emphasizes the importance of user interaction, logical flow control, and modular programming through clearly defined functions like askQuestion(), quiz(), and showSummary(). Additionally, the use of randomization to select quiz questions introduces students to pseudo-random number generation in C++. By simulating a real-world scenario with structured logic and feedback, the project also lays the groundwork for future enhancements, such as integrating graphical interfaces, file-based question banks, or performance tracking systems. Overall, this project not only strengthens core programming skills but also demonstrates how basic C++ features can be combined to build a functional, interactive application.
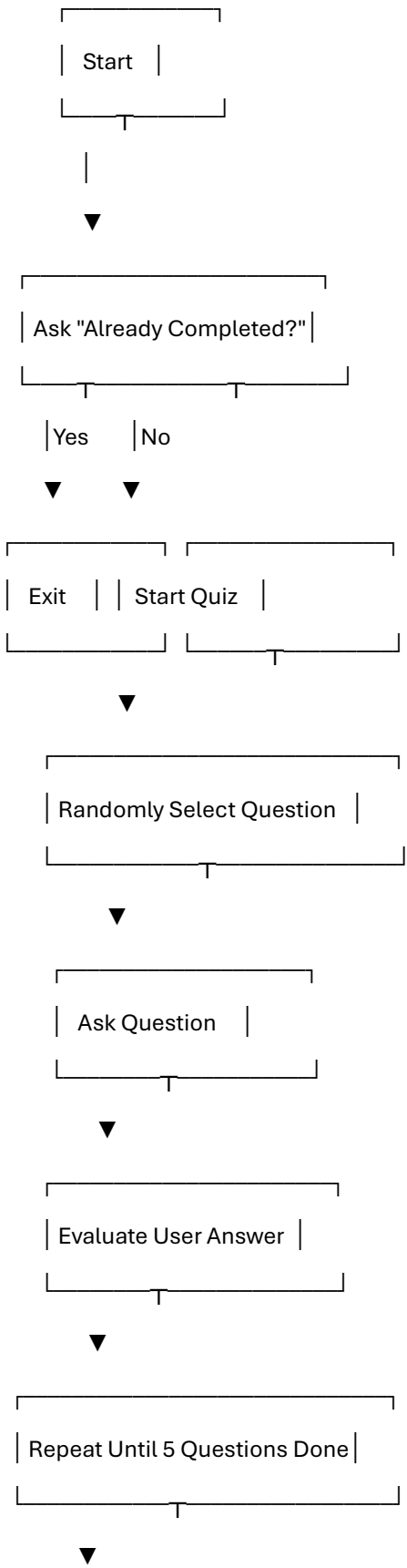
GOAL

The **goal** of this project is to:

- Implement a simple quiz system with multiple questions.

- Randomize question selection without repetition.

- Record and display a summary of correct answers.

- Encourage practice and testing in a specific subject area

Description

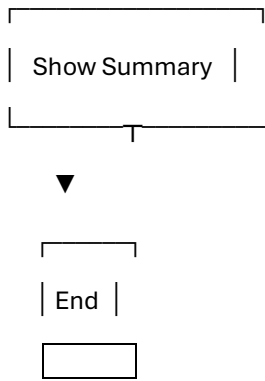This C++ quiz application is a console-based educational tool that:

- Prompts the user to confirm if they've already completed the quiz.

- If not, presents **five random questions** from a pre-defined question bank (biology-themed).

- Evaluates each answer for correctness.

- Keeps track of how many questions the user answers correctly.

- Displays a **quiz summary** at the end with total questions and correct answers.

BLOCK DIAGRAM

```
        ┌──────────┐
        │  Start   │
        └────┬─────┘
             │
             ▼
   ┌──────────────────────┐
   │ Ask "Already Completed?" │
   └────┬──────────┬──────┘
        │Yes       │No
        ▼          ▼
   ┌──────────┐ ┌──────────────┐
   │  Exit    │ │  Start Quiz  │
   └──────────┘ └──────┬───────┘
        ▼
   ┌──────────────────────┐
   │ Randomly Select Question │
   └──────────┬───────────┘
              ▼
   ┌──────────────────┐
   │   Ask Question   │
   └────────┬─────────┘
            ▼
   ┌──────────────────┐
   │ Evaluate User Answer │
   └────────┬─────────┘
            ▼
   ┌──────────────────────────┐
   │ Repeat Until 5 Questions Done │
   └────────────┬─────────────┘
                ▼
```

```
┌────────────────┐
│  Show Summary  │
└───────┬────────┘
        │
        ▼
┌──────────┐
│   End    │
└──────────┘
[          ]
```

- **Start**: Entry point of the program.
- **Check if Quiz Completed**: Prompts the user to check if the quiz has already been taken.
- **If Yes → Exit**: If the quiz is completed, the program exits.
- **If No → Start Quiz**: If not completed, the quiz begins.
- **Randomly Select a Question**: Randomly selects one of the five questions.
- **Ask Question**: Displays the selected question to the user.
- **Evaluate Answer**: Compares the user's answer to the correct one.
- **Repeat Until 5 Questions**: Repeats the process until all five questions are answered.
- **Show Summary**: Displays the number of correct answers and the total.
- **End**: Program ends after showing the summary.