**Project Proposal: Quiz Application**

# **Overview:**

The Quiz Application is a platform designed to allow users to test their knowledge in various subject areas.

The application consists of two parts which are Student perspective and Admin or Teacher perspective.

Firstly, students can take quizzes, view their own results and top 20 students in a specific quiz. Also, each student can personalize their personal information such as username and password.

As for teacher personnel, they can add, modify, remove subjects or quizzes and even questions. Not to mention the answers and correct answers as well, teachers have the authority to set which are the correct answers for a specific question.

**Technical Details:**

* Tool and Languages: The application will be developed in MAUI using C# and XAML.
* Database: store student information, quiz data, and results using Json.
* User Interface: Design a user-friendly interface with appropriate controls for navigation and interaction.
* Flexibility: Design the application to handle many users and quizzes efficiently.

**Milestones:**

* Setup and Authentication: Implement user registration, login/logout functionality.
* Quiz Taking and Results: Develop the core features for quiz taking, displaying results, and leaderboard.
* Settings Management: Enable users to change their settings, including password.
* Admin or Teacher: Consists of one account only.

**Model:**

* Student List:
  + ObservableCollection<Student> student
  + SaveToFile()
  + LoadFromFile()
* Student:
  + Int id
  + String username
  + String password
* Question Bank:
  + ObservableCollection<Section> sections
  + ObservableCollection<Attempt> attempts
  + SaveToFile()
  + LoadFromFile()
* Section
  + Int id
  + String name
  + ObservableCollection<Quiz> quizzes
  + ObservableCollection<Question> questions
* Quiz
  + Int id
  + String name
  + ObservableCollection<int> questionIds
  + ObservableCollection<string> questionNames
  + ObservableCollection<Attempt> attempt
* Question
  + Int id
  + String title
  + ObservableCollection<string> answers
  + ObservableCollection<string> correctAnswers
* Attempt
  + Student student
  + Int QuizId
  + String QuizName
  + String SectionName
  + DateTime AttemptDate
  + Int score

# **Student Perspective:**

**User Authentication:**

* Users can register with a unique username and password.
* Upon login, users will be prompted to enter their username and password.

**Quiz Taking:**

* Users can start a new quiz by selecting a knowledge section (e.g., Math, English, Biology).
* Each quiz consists of 20 questions, with varying formats (single/multiple correct answers).

**Results Viewing:**

* Users can view the results of their previous quizzes.

**Leaderboard:**

* A leaderboard feature displays the top 20 scores for a specific quiz, allowing students to gauge their performance against others.

**Settings Management:**

* Users can edit their password and username.

# **Teacher Perspective:**

**Users authentication:**

* Consists of one account as the project focus more on students information

**Property:**

* The application is structured around subjects, with each subject containing a collection of questions and quizzes.
* Quizzes within each subject are composed of specific questions that students can interact with, while individual questions include options for answers and correct responses.
* Teachers or administrators have the ability to modify or remove subjects, quizzes or questions as desired.

# **Logical Diagram**

