** Rapport Projet Advanced Programming**

**Thème : MCQ-App**

***Supervisé par :***

* Dr. MOUHOUN SAID

Présenté par :

* Benabdelghani Mohamed
* Amghare Zakaria
* Aymen Labraoui
* Laib Abderrahmane

*Sommaire :*

[1.Introduction: 2](#_Toc188479079)

[2. Objective 3](#_Toc188479080)

[3. Features Implemented 3](#_Toc188479081)

[4. Additional Features 4](#_Toc188479082)

[5. Technologies Used 4](#_Toc188479083)

[6. Challenges Encountered 4](#_Toc188479084)

[7. Future Enhancements 4](#_Toc188479085)

[8. Conclusion 5](#_Toc188479086)

[*Inspiration* 5](#_Toc188479087)

# 1.Introduction:

This project is a quiz app designed for students and educators in various domains. The application provides a platform where users can take multiple-choice quizzes, track their progress, and improve their knowledge.

The app is user-friendly and offers quizzes across several topics, such as Python programming, algorithms, networking, and software engineering. By focusing on simplicity and functionality, the app makes learning accessible without requiring advanced technical skills to navigate. Educators can use this platform to assess students, while students can use it for self-study and revision. With features like immediate feedback and randomized questions, the app aims to make the learning process more engaging and effective. Additionally, the inclusion of user authentication ensures personalized experiences, and progress tracking allows users to monitor their growth over time.

2. Objective :

The primary goal of this project is to develop a functional quiz application that:

* Provides a user-friendly interface for answering MCQs.
* Tracks user performance and maintains a history of quiz attempts.
* Encourages learning through immediate feedback and progress monitoring.

# **3. Features Implemented**

* **User Management**: A login system allows users to create profiles and save their quiz history, including scores and test dates.
* **Categorized Questions**: Questions are grouped by topics like Python, Algorithms, and Networking, with 20 questions per category.
* **MCQ Format**: All quizzes are presented in a multiple-choice format, making them easy to interact with.
* **Feedback Mechanism**: After each question, users receive feedback on whether their answer was correct, along with the correct answer if applicable.
* **Score Tracking**: The application saves scores and displays user performance over time.

# **4. Additional Features**

To make the application more robust and user-friendly, additional functionalities include:

* **Randomized Questions**: Each quiz session randomizes question order to ensure variety.
* **Error Handling**: Handles cases like invalid inputs, missing files (users.json or questions.json), and malformed JSON data gracefully.
* **Timer:** Enhances the challenge by setting a time limit to complete quizzes.
* **Export Results**: Users can save their scores and history to a CSV file.
* **Exit Option:** Allows the user to exit the application gracefully with a thank-you message.

# **5. Technologies Used**

* **Programming Language**: Python
* **Data Storage**: JSON files for user profiles and quiz questions.
* **Libraries**: Built-in Python libraries for file handling and randomization.

# **6. Challenges Encountered**

* Implementing a seamless user authentication system.
* Managing and randomizing large question sets efficiently.
* Providing accurate and meaningful feedback without disrupting user flow.

# **7. Future Enhancements**

To improve the application, the following features are planned:

* **Custom Quizzes**: Teachers can create personalized quizzes for specific students or groups.
* **Search Functionality**: Allows users to search for specific questions or topics.
* **Daily Challenges**: Engages users with periodic quizzes and rewards.
* **Graphical Interface**: Transitioning from a console-based to a GUI-based application for improved usability.

8. Conclusion

This project successfully demonstrates the development of an interactive MCQ application. By implementing user management, categorized quizzes, and progress tracking, the application meets its primary objectives. It serves as a reliable and scalable tool for both students and educators, laying a solid foundation for future enhancements and additional features

#### Inspiration:

1. **Tutoriels en ligne** : [https://youtu.be/\_3Jy8H1suJ0?si=CQSkSomSlNrGVan7](https://youtu.be/_3Jy8H1suJ0?si=CQSkSomSlNrGVan7%20%20)  + <https://youtu.be/SgQhwtIoQ7o?si=I9hWbfj6Z_xNoakg>