Project: Password Generator and Strength Checker

1. Introduction

In today's digital age, the security of online accounts is paramount. One of the key aspects of online security is having strong passwords. This project aims to provide a simple yet effective tool for generating secure passwords and evaluating the strength of existing ones.

2. Objectives

- To create a password generator that allows users to customize the characters included in the password.
- To develop a password strength checker that evaluates passwords based on their length and character variety.
- To educate users on best practices for creating strong passwords.

3. Methodology

The project is implemented in Java and includes the following components:

- **Main.java**: The entry point of the application.
- **Alphabet.java**: Defines the character sets used for password generation.
- **Generator.java**: Handles the logic for generating passwords and interacting with the user.
- **Password.java**: Represents a password and includes methods for evaluating its strength.
- **GeneratorTest.java**: Contains unit tests to ensure the correctness of the password generation and evaluation logic.

4. Results

The application successfully generates passwords based on user preferences and evaluates the strength of passwords. The password strength checker provides feedback on the quality of the password, helping users to improve their password security.

5. Conclusion

This project achieves its goals of providing a tool for generating secure passwords and educating users on password security. Future enhancements could include a graphical user interface and additional features such as password storage and retrieval.

6. Future Work

- Implementing a graphical user interface (GUI) for a better user experience.
- Adding functionality for securely storing and retrieving passwords.
- Enhancing the password strength checker with more advanced metrics.