

Password Strength Checker - Project Report

Introduction

The Password Strength Checker is a C++ program designed to evaluate the security level of user-input passwords. It assesses password strength based on length, character diversity, and entropy. The program categorizes passwords into three categories: Weak, Moderate, and Strong.

Features

- **Password Strength Evaluation**: Analyzes password length and character diversity (uppercase, lowercase, digits, special characters).
- **Entropy Calculation**: Measures the randomness of the password.
- **Regular Expressions**: Used for checking the presence of required character types.
- **String Manipulation**: Processes and evaluates passwords efficiently.
- **Hashing (Optional)**: Can be implemented for additional security.

Implementation

- **Language**: C++
- **Libraries Used**: `<iostream>`, `<string>`, `<regex>`
- **Algorithm**: The program checks the length of the password and verifies if it contains uppercase letters, lowercase letters, digits, and special characters. Based on these parameters, it assigns a strength level.

Strength Criteria

- **Weak**: Length < 6 or contains only one type of character.
- **Moderate**: Length between 6-10, contains at least two character types.
- **Strong**: Length > 10 and includes uppercase, lowercase, digits, and special characters.

GitHub Repository

Find the complete source code and updates on GitHub:

<https://github.com/AbyssTraveler08/Password-Strength-Checker.git>

Usage

1. Clone the repository using:

```
```sh
```

```
git clone https://github.com/AbyssTraveler08/Password-Strength-Checker.git
```

```
```
```

2. Compile the C++ program:

```
```sh  
g++ password_strength_checker.cpp -o password_checker
```
```

3. Run the executable:

```
```sh  
./password_checker
```
```

4. Enter a password to check its strength.

Conclusion

This project provides a simple yet effective way to evaluate password security. Future improvements can include dictionary-based checks, integration with password managers, and real-time feedback.

Author

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