C++ MINI PROJECT REPORT

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Course: B.Tech CSE
Subject: C++ Programming
Mini Project: Password strength checker

Project Title:

Implementation of Password Strength Checker Using C++

Introduction :

Passwords are an essential part of digital security. Weak passwords can lead to unauthorized access and data breaches. Therefore, it is important to evaluate password strength before accepting it.
This project implements a Password Strength Checker using C++ in a console-based environment. The program analyzes a user-entered password and classifies it as Weak, Medium, or Strong based on predefined criteria. The program also provides suggestions for improvement and continues execution until a strong password is entered.

Objectives :

- To validate password strength

- To categorize passwords as Weak, Medium, or Strong

- To use conditional statements for decision-making

- To implement loops for repeated execution

- To use character validation using `<cctype>`

- To provide user feedback for improvement

🛠 Technologies Used :

Programming Language: C++
Platform: Console / Terminal
Compiler: g++ / VS Code

🧩 Project Description :

The Password Strength Checker works by analyzing the password entered by the user.

The program checks for:

- Presence of uppercase letters

- Presence of lowercase letters

- Presence of digits

- Presence of special characters

- Minimum length requirement (8 characters)
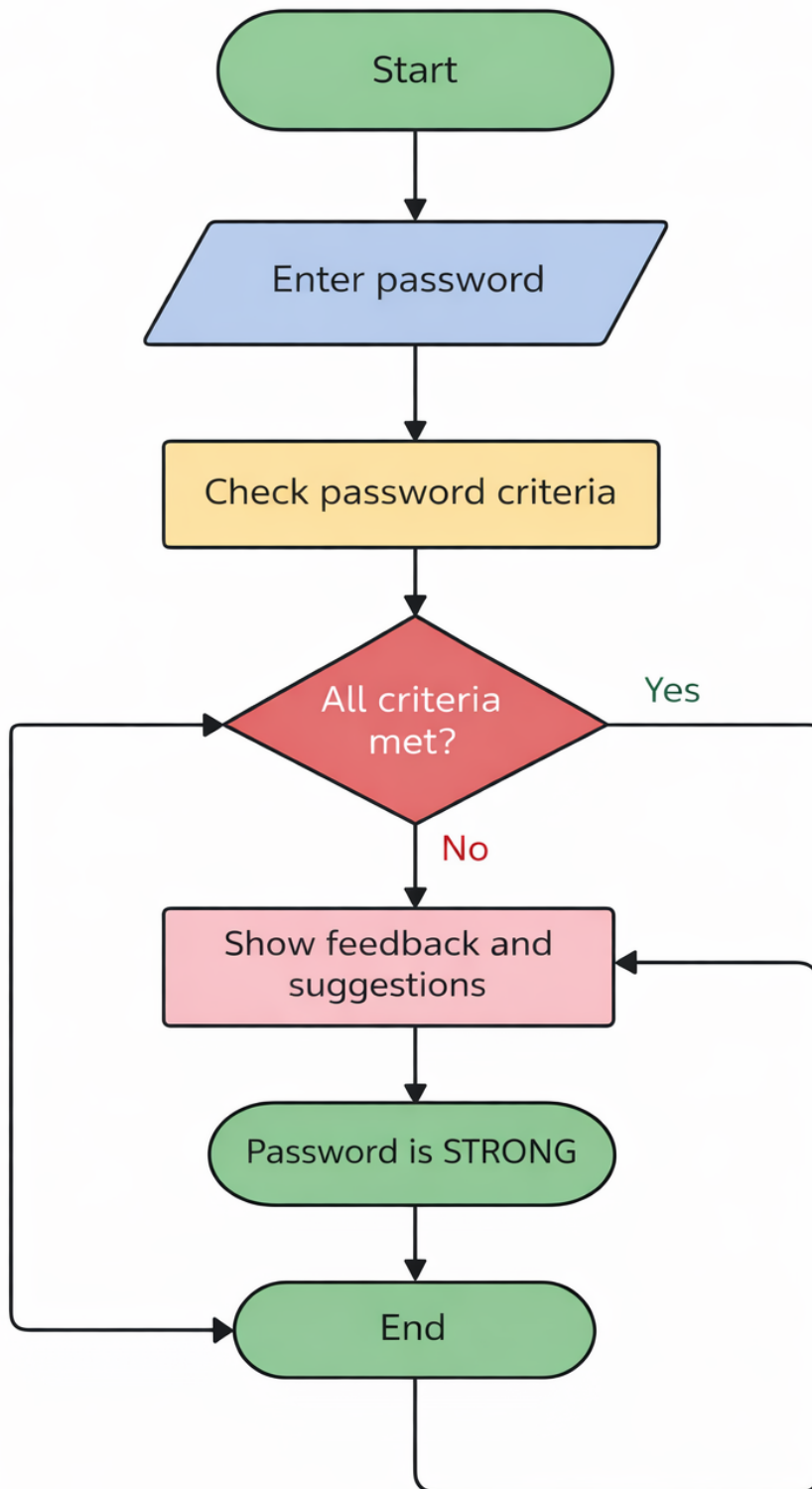
Based on these conditions:

- Weak Password: Missing multiple required criteria

- Medium Password: Meets partial conditions

- Strong Password: Meets all required conditions

The program uses a do-while loop to repeatedly ask for input until the password becomes strong.

Suggestions are displayed for missing elements such as uppercase letters, numbers, special characters, or minimum length.

🧠 Algorithm :

1) Start the program

2) Prompt the user to enter a password

3) Initialize boolean variables:

- upper = false

- lower = false

- digit = false

- special = false

4) Traverse each character of the password

5) Check character type using:

- isupper()

- islower()

- isdigit()

6) Validate password length

7) If all strong conditions are satisfied:

- Display "Password is STRONG"

- Exit loop

8) Else:

- Display Weak or Medium

- Show suggestions

9) Repeat until password becomes strong

10) End program

```mermaid
Start
  |
  v
Enter password
  |
  v
Check password criteria
  |
  v
All criteria met? ---- Yes
  |
  No
  |
  v
Show feedback and suggestions
  |
  v
Password is STRONG
  |
  v
End
```

Start

Enter password

Check password criteria

All criteria met?

Yes

No

Show feedback and suggestions

Password is STRONG

End

🌐 Project Links :

GitHub Repository:
https://github.com/saudamini-stackk/password-strength-checker

Future Enhancements :

- Add password masking (hide input while typing)
- Limit number of attempts
- Implement graphical user interface (GUI)
- Add database validation
- Integrate with login system

Conclusion

The Password Strength Checker was successfully implemented using C++. This project helped in understanding core programming concepts such as loops, conditional statements, boolean logic, and character validation.

The program demonstrates logical thinking and practical implementation of security validation techniques in C++.