



ISBM COLLEGE OF ENGINEERING NANDE, PUNE
ARTIFICIAL INTELLIGENCE & MACHINE LEARNING DEPARTMENT
Academic Year 2023-24

MINI-PROJECT REPORT

Project Title : Password strength checker

Group Members: 1) Krishna Birla (Roll no: 07)

Problem Definition:

In the digital age, weak passwords are a leading cause of security breaches. Users often choose simple, easily guessable passwords, making their accounts vulnerable to unauthorized access. The goal of this project is to develop a Password Strength Checker that evaluates the strength of a user's password based on predefined criteria, providing feedback and recommendations for improvement. This tool aims to educate users about password security and encourage the use of stronger passwords.

Project Domain Literature Survey:

- **Password Security Standards:** Research existing guidelines from organizations like NIST (National Institute of Standards and Technology) on password creation.
- **Common Password Vulnerabilities:** Review literature on common password attacks, such as brute force attacks, dictionary attacks, and social engineering.
- **User Behavior Studies:** Analyze studies that explore user behavior regarding password creation and management.
- **Strength Evaluation Algorithms:** Investigate different algorithms and methodologies for assessing password strength, such as entropy calculations and heuristic approaches.

Advantages:



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- ☐ **Enhanced Security:** By encouraging the use of strong passwords, the tool helps reduce the risk of unauthorized access.
- ☐ **User Education:** Provides users with valuable insights and tips on creating secure passwords.
- ☐ **Easy Integration:** Can be implemented as a web application, desktop application, or browser extension.
- ☐ **Customization:** Users can set their own criteria for password strength based on personal or organizational requirement

Disadvantages :

- ☐ **User Compliance:** Users may ignore or bypass recommendations, choosing convenience over security.
- ☐ **False Positives/Negatives:** The tool may inaccurately assess some passwords as strong or weak, leading to potential security risks.
- ☐ **Limited Scope:** Does not address other important aspects of security, such as two-factor authentication or password management.
- ☐ **Dependency on User Input:** The effectiveness relies heavily on the user's willingness to input their passwords into the tool.

Scope of Project :



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- **Functionality:** The project will evaluate passwords based on length, complexity (use of uppercase, lowercase, numbers, and symbols), and common patterns.
- **Feedback Mechanism:** Provide immediate feedback and suggestions for improving password strength.
- **User Interface:** Develop a simple and intuitive interface for ease of use.
- **Reporting:** Optionally, generate reports on password strength trends over time for individual users.
- **Real-Time Feedback:**
 - Provide instant feedback as users input their passwords, highlighting strengths and weaknesses.

Software Requirements:

- **Programming Language:** Python, Java, or JavaScript
- Web framework (if developing a web-based tool, e.g., Flask or React)
- **Libraries:**
 - For Python: password-strength library or custom implementations for entropy calculations, the libraries used in the projects are Regular expression and tk – interface



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Hardware Requirements:

- **Computer:** A standard computer with basic specifications to run the development environment.
- **Storage:** Minimal storage needed for the application files and any libraries used.
- **Internet Connection:** Optional, for downloading dependencies and libraries or for deploying a web version.

```
Enter a password to check its strength: Raj77  
Weak password! Missing criteria: length, special
```

```
Enter a password to check its strength: Krishnab@0907  
Strong password!
```

Password Strength Checker

Enter your password:

Check Strength

Password Strength

Weak password! Missing criteria: length

OK



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Password Strength Checker

About Python libraries used in this project

1. Thinker - Tk interface
2. re - Regular Expressions

About code

- In this we check for Length, Uppercase, Lowercase, Digit, Special Character
- Thinker is use to create an inter-face for the user to inter it's password
- And the password entered is hidden by the * symbol.

To check if libraries are working properly

- I have included 2 files named test_for_re.py and test_for_tkinter.py
- which will check if the lib's are working properly or not

Project Developed by

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Project Guide

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