Topic: Check Password

My Name

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Overview

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Introduction

Motivation

Context

With the rapid expansion of digital services and online accounts, password security has become a major issue in cybersecurity. Many users still choose weak or predictable passwords, which exposes their accounts to brute-force or dictionary attacks.

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Problem Statement

How can we ensure that a password chosen by a user is secure enough to withstand unauthorized access attempts?

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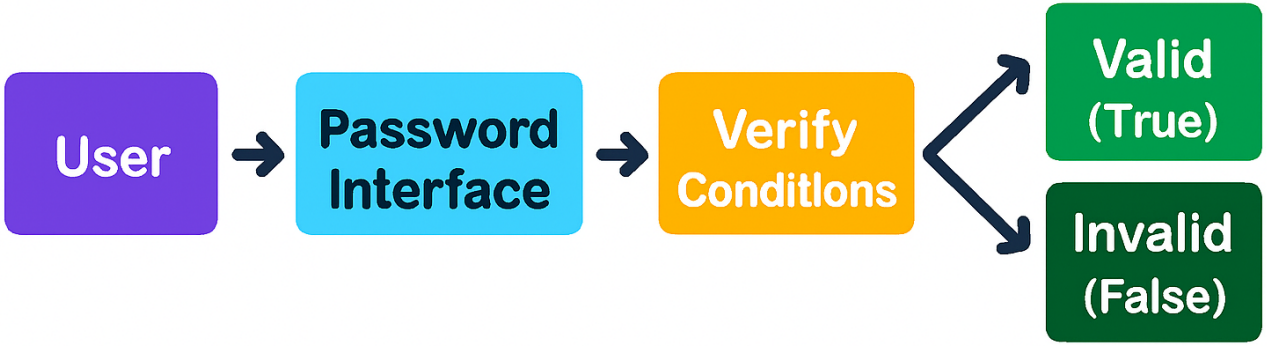
Objective

To design and develop a Python program capable of analyzing a password entered by a user and automatically determining whether it complies with a predefined set of security rules.

Project Workflow

The diagram below illustrates the overall functioning of the password verification program.



Tools Used

To carry out this project, several Python tools and libraries were employed to ensure both the robustness of the validation logic and the simplicity of the user interface:

- **Programming Language:** Python 3
- **Library:** Tkinter — Python's standard library for creating intuitive and interactive graphical user interfaces (GUIs)
- **Code Editor:** Jupyter Notebook
- **Execution Environment:** Python Terminal or Tkinter interface

In this section, we will examine how the program behaves depending on the password entered by the user, using code examples.

Table: Validation Tests

Password Examples	**Results**	**Error or Confirmation Messages**
abc123	`False`	Missing uppercase letters, special characters, and length < 8
qwerty	False	The password is too common and not secure.
AAA111!!!!	False	Contains three identical consecutive characters.
Password1!	True	All security requirements met.

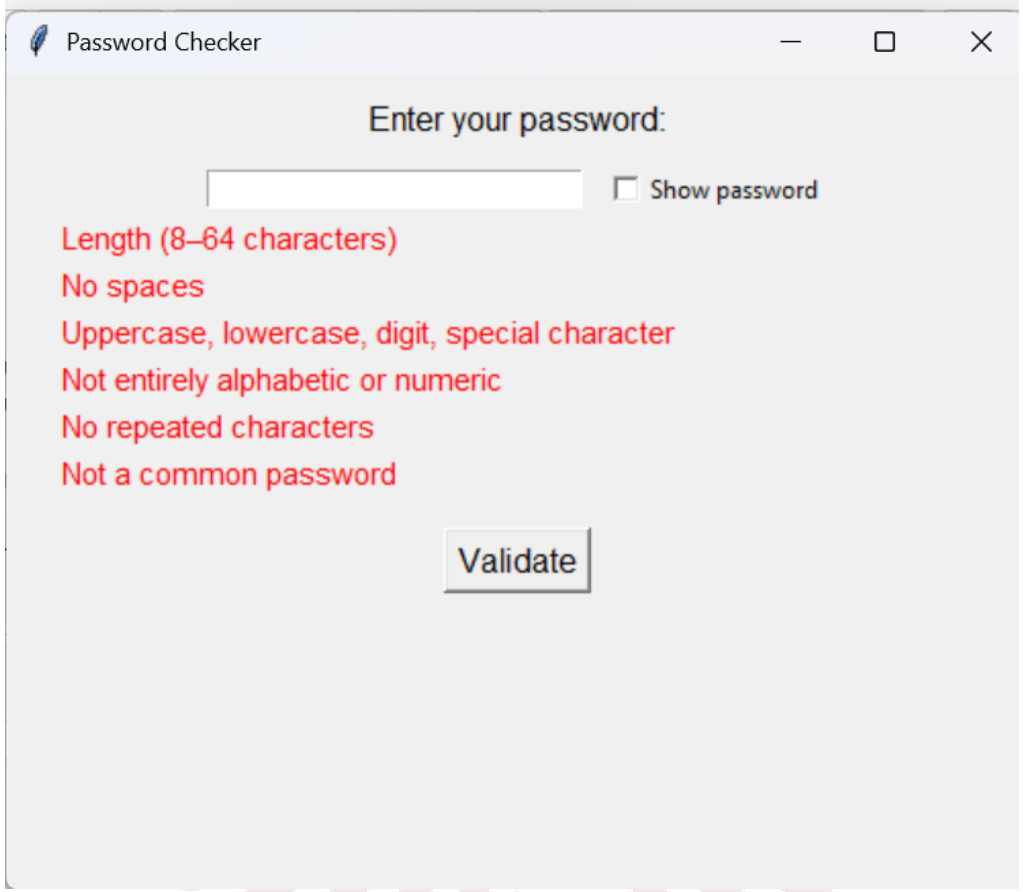


Figure: Example of the user interface — Initial window

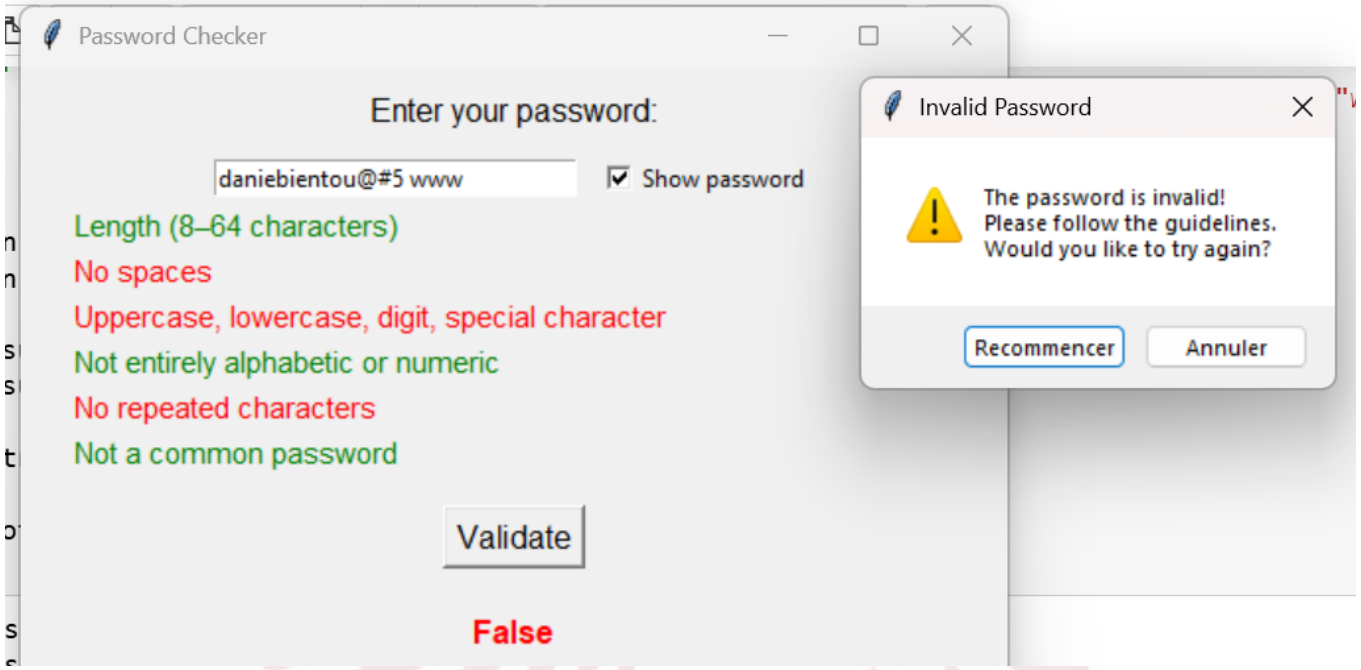


Figure: Example of the user interface — Password analysis

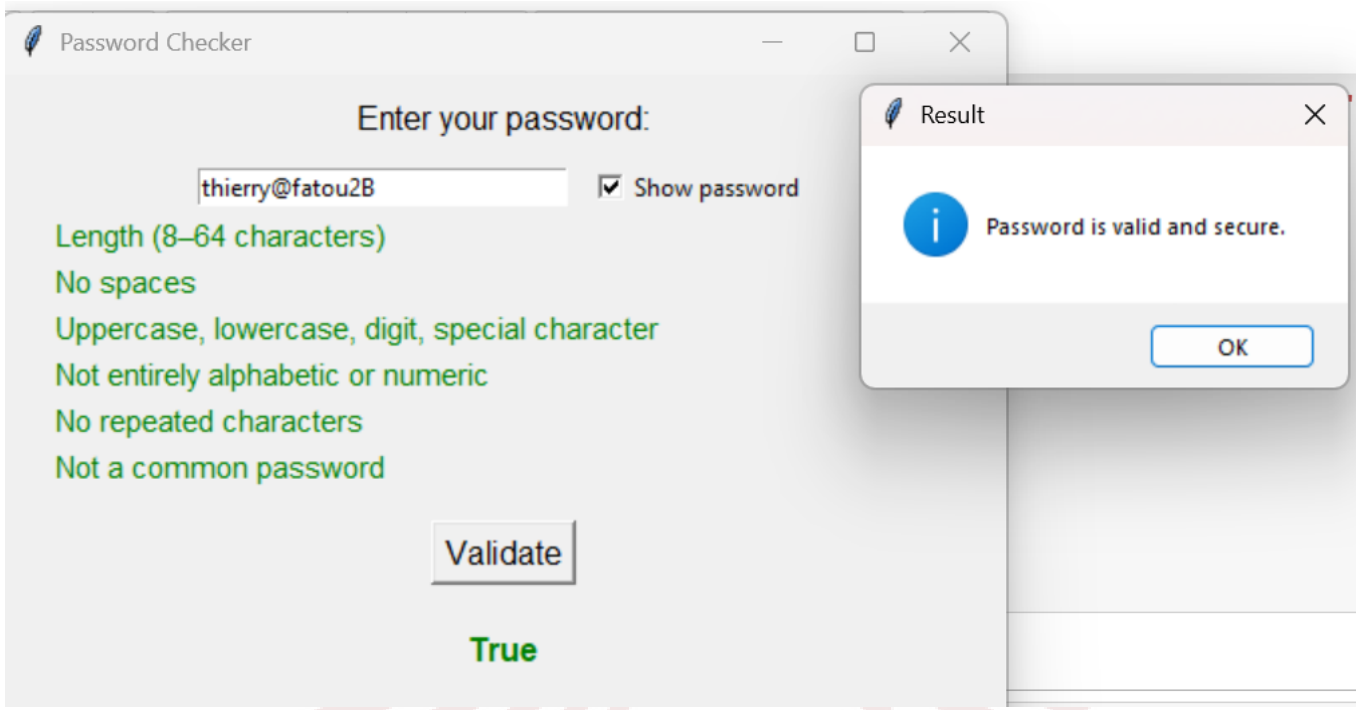


Figure: Example of the user interface — Validation result