Python - Capstone Project

**Project Title:** OTP Verification System

**Problem Statement:**

You are tasked with developing an OTP (One-Time Password) verification system in Python. The system should generate a 6-digit OTP and send it to the user's email address for verification. Upon receiving the OTP, the user should enter it into the system for validation. If the entered OTP matches the generated OTP, access should be granted; otherwise, access should be denied.

**Project Requirements:**

* Implement a function to generate a 6-digit OTP randomly.
* Develop a function to simulate sending the OTP to the user's email address.
* Create a function to prompt the user to enter the OTP received in their email.
* Implement a function to verify if the entered OTP matches the generated OTP.
* Ensure proper error handling and user-friendly prompts throughout the system.
* Allow the user to retry OTP entry in case of incorrect input.

**Project Deliverables:**

* Python script containing the implementation of the OTP verification system.
* Documentation explaining the functionality of each function, how to run the program, and any dependencies required.
* Test cases to ensure the system functions correctly under various scenarios, including correct and incorrect OTP entries.
* Optionally, you can create a simple GUI interface for the OTP verification system to enhance user experience.

**Functions Description Used in Code**

**Random Library :**

I am imported Random library . It contains a method called randint()  
which is used to generate a random number with in the given parameters

Syntax: random.randint(range\_of\_numbers) – EX: (100000,999999)

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**smtplib: Simple Mail Transfer Protocol Library**

The smtplib library in Python is a built-in module used to send emails using the **Simple Mail Transfer Protocol (SMTP)**. It provides an easy-to-use interface for connecting to an SMTP server, authenticating with credentials, and sending email messages.

For an OTP verification system, smtplib can be used to send one-time passwords (OTPs) securely to users' email addresses. This adds a layer of authentication and security to your application.

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**Generate\_otp() Function :**

generate\_otp() generates and returns a random 6-digit OTP as a string.

**send\_otp\_to\_email ( ) Function :**

The send\_otp\_to\_email() function sends an OTP to the specified email address. It connects to Gmail's SMTP server, authenticates with the sender's email credentials, and sends an email containing the OTP to the recipient

**get\_user\_otp() Function :**  
The get\_user\_otp() function prompts the user to input the OTP they received via email and returns the entered OTP.

**verify\_otp( ) Function :**The verify\_otp() function checks if the OTP entered by the user matches the generated OTP and returns True if they match; otherwise, it returns False.

**otp\_verification\_system()** **Function :**

The otp\_verification\_system() function manages the process of verifying a one-time password (OTP). It creates an OTP, sends it to your email, and gives you three chances to enter the correct OTP. If you enter it correctly, you're granted access; if not, access is denied.

**APP PASSWORD CREATE :**

You should create a email Pass key for your account to send mail from your Account

**THANK YOU –**

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