OTP VERIFICATION

SECURE AUTHENTICATION SYSTEM

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OTP Verification Using Python

Title: Problem Statement

- **Content:**

- Develop a system to generate a 6-digit OTP.

- Send OTP to the user's email for verification.

- Validate user-entered OTP.
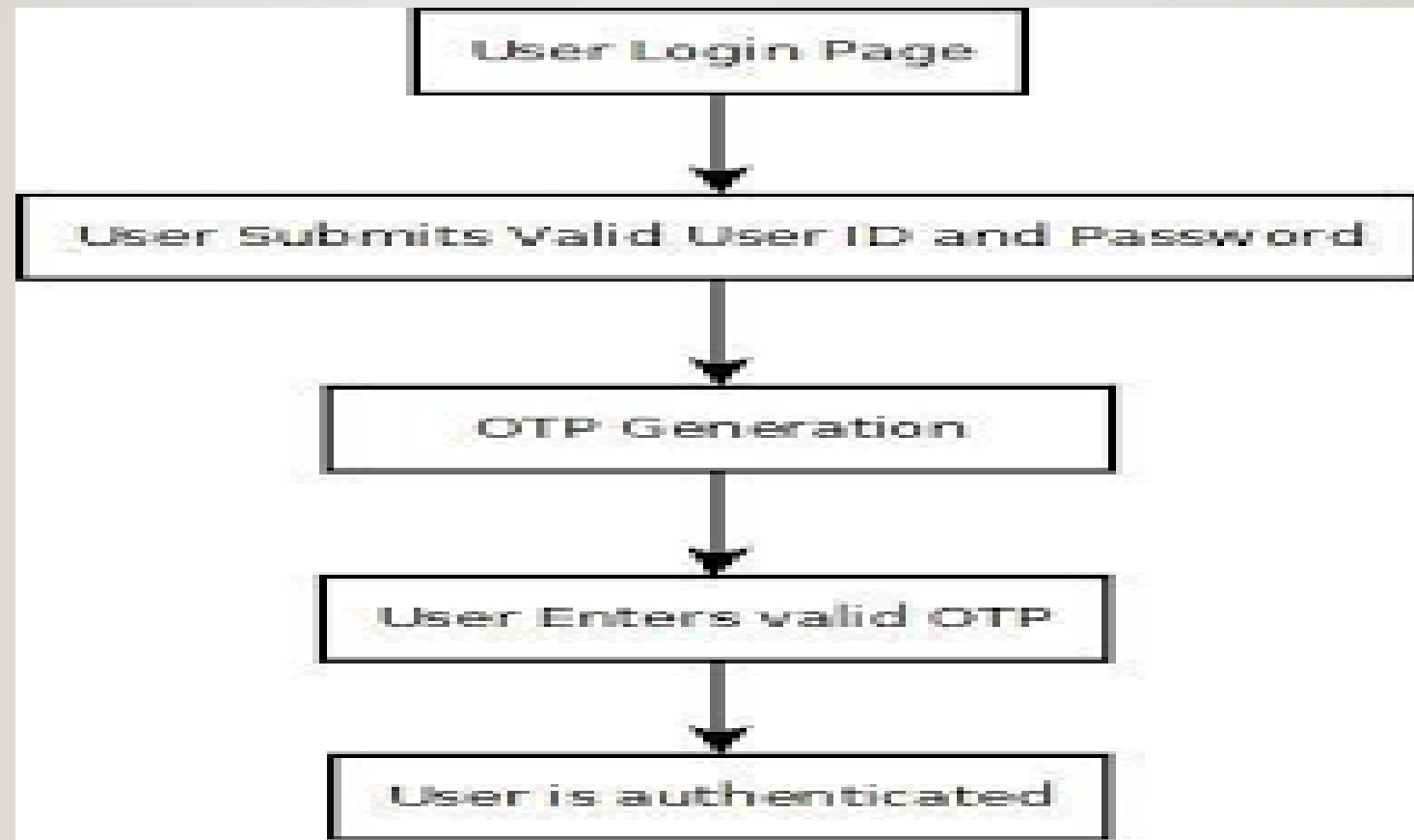
- Grant or deny access based on OTP verification.

Project Requirements

❑ **Content:**

❑ Generate a 6-digit OTP.

❑ Send OTP to user's email.

❑ Prompt user for OTP input.

❑ Validate entered OTP.

❑ Include error handling and user prompts.

❑ Allow retries for incorrect OTP.

System Workflow

Flowchart: Start → Generate OTP → Send OTP to Email → User Inputs OTP → Validate OTP→ Grant/Deny Access

OTP Generation :

```python
import random # import random module to create unique passwordt
def generate_otp(letters,numbers,special_charater):
  otp=[]
  for i in range(1,3):                    #loop is to create in each time to create unique p
    i=random.choice(letters)
    otp.append(i)
    i=random.choice(numbers)
    otp.append(i)
    i=random.choice(special_charater)
    otp.append(i)
    result = ''.join(map(str, otp))  #password store in list format so i need to merge
```

GENERATES A 6-DIGIT OTP USING RANDOM INTEGERS,LETTERS,SPECIAL_CHARACTERS

SENDING OTP :

```python
smtp_server = 'smtp.gmail.com'  #  SMTP server address it depends upon which account to
port = 587  # Port may vary depending on your SMTP server
sender_email = 'manjunadha865@gmail.com'  # email address
password = 'mhbjevpwnqjnkxll' #password
# Create a message
message = MIMEMultipart() #for creating message to import this module
message['From'] = sender_email
message['To'] = 'amitimanju76@gmail.com'  # recipient's email address
message['Subject'] = 'Hello, there!'
from email.mime.text import MIMEText
# Create MIMEText object for the body
body = "Hi, this is your a one time password: "+k+" Enter to access" # here i added OTP
body_part = MIMEText(body, 'plain')
message.attach(body_part)

server=smtplib.SMTP(smtp_server, port) # connect with sender account
server.starttls()  # Secure the connection
server.login(sender_email, password) # login to account

text = message.as_string()
server.sendmail(sender_email,'amitimanju76@gmail.com', text)
server.quit()
```

OTP INPUT AND VALIDATION

```python
n=3
while n>0:
  otp=input('enter otp')
  if otp==k:
    print('Grant Access')
    break
  else:
    n=n-1
    print(f"Wrong Password, you have {n} attempts left")
    if n==0:
      print('Access denied try again')
```

Invalid OTP!

Enter OTP

Check your email for the OTP

One Time Password

Submit

PROJECT DELIVERABLES

Content:

- Python script with OTP generation and validation.
- Documentation of functions and how to run the program.
- Test cases for various scenarios.

FUTURE IMPROVEMENTS

Content:

- **Two-Factor Authentication:** Add a secondary verification method.
- **Encryption:** Secure OTP transmission.

THANK YOU FOR YOUR ATTENTION!