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Problem Statement:

Create a Python-based console application where users need to log in to access the top 5 news headlines based on a keyword of their choice. The user credentials should be stored in a CSV file, and a password reset option should be available. The application should limit tailed login attempts to prevent unauthorized access. Upon successful login, the app will fetch and display news headlines from NewsAPI. Requirements:

 1. Login System: o User credentials are stored in a CSV file (regno.csv). The file contains fields like email, password (hashed), and security_question (for password recovery). o During login, the system will prompt the user for their email and password.

2. Input Validation: o The email must be in a valid format (e.g., example@domain.com). o The password must meet a minimum length of 8 characters, contain at least one special character, and be validated against the stored password (use hashing for comparison).

3. Forgot Password: o If the user chooses to reset their password, they are prompted to enter their registered email. o If the email exists in the CSV file, the user must answer a security question correctly. Upon correct answer, they can set a new password.

 4. Login Attempts: o The user is allowed up to 5 login attempts. After 5 failed attempts, the user is logged out, and further attempts are denied until the application restarts.

 5. API Integration (NewsAPI): o After successful login, prompt the user to enter a keyword or topic of interest. o Use the NewsAPI to fetch the top 5 latest news headlines related to the keyword. o Display the headlines, along with the source, in the console.

6. Error Handling: o Handle cases where the API key is invalid or expired. o Handle network errors (e.g., no internet connection). o Handle cases where no news results are found for the given keyword.

import csv

import hashlib

import requests

from getpass import getpass

Replace with your News API key (get it from https://newsapi.org/)

NEWS_API_KEY = "b46305602146404dacdb3397a96af8b1" # Ensure you keep the quotes around the API key

```python
# Define constants
MAX_LOGIN_ATTEMPTS = 5
LOGIN_FILE = "regno.csv"


def validate_email(email):
    return "@" in email and "." in email.split("@")[1]


def validate_password(password):
    return len(password) >= 8 and any(char in "!@#$%^&*()_+-=[]{};':|\,.<>/? " for char in password)


def hash_password(password):
    return hashlib.sha256(password.encode("utf-8")).hexdigest()


def load_users():
    users = {}
    try:
        with open(LOGIN_FILE, newline="") as csvfile:
            reader = csv.DictReader(csvfile)
            for row in reader:
                users[row["email"]] = row
    except FileNotFoundError:
        print(f"CSV file '{LOGIN_FILE}' not found. Please create it.")
    return users


def login(users):
    login_attempts = 0
    while login_attempts < MAX_LOGIN_ATTEMPTS:
        email = input("Enter your email: ")
```

```python
        if not validate_email(email):

            print("Invalid email format. Please try again.")

            continue


        password = getpass("Enter your password: ")

        if not validate_password(password):

            print("Password must be at least 8 characters and contain a special character.")

            continue


        if email in users:

            hashed_password = users[email]["password"]

            if hash_password(password) == hashed_password:  # Corrected the comparison

                print("Login successful!")

                return users[email]

            else:

                print("Incorrect password. Please try again.")

        else:

            print("Email not found. Please try again.")


        login_attempts += 1

    print("Maximum login attempts reached. Please restart the application.")

    return None


def forgot_password(users):

    email = input("Enter your registered email: ")

    if email in users:

        security_question = users[email]["security_question"]

        answer = input(f"Answer your security question: {security_question}")

        if answer == users[email]["security_answer"]:
```

```python
        new_password = getpass("Enter your new password: ")
        if validate_password(new_password):
            users[email]["password"] = hash_password(new_password)
            with open(LOGIN_FILE, "w", newline="") as csvfile:
                writer = csv.DictWriter(csvfile, fieldnames=users[email].keys())
                writer.writeheader()
                writer.writerow(users[email])
            print("Password reset successful!")
            return True
        else:
            print("Incorrect security answer. Password reset failed.")
    else:
        print("Email not found. Password reset failed.")
    return False


def fetch_news(keyword):
    url = f"https://newsapi.org/v2/top-headlines?q={keyword}&apiKey={NEWS_API_KEY}"  # Use NEWS_API_KEY
    try:
        response = requests.get(url)
        response.raise_for_status()  # Raise exception for non-200 status codes
        data = response.json()
        if data["status"] == "ok" and data["articles"]:
            articles = data["articles"][:5]  # Get top 5 headlines
            headlines = [f"{article['title']} - {article['source']['name']}" for article in articles]
            return headlines
        else:
            print("No news found for the given keyword.")
            return None
```

```python
        except requests.exceptions.RequestException as e:

            print(f"Error fetching news: {e}")

            return None


if __name__ == "__main__":

    users = load_users()

    while True:

        print("Welcome to the News App!")

        print("1. Login")

        print("2. Forgot Password")

        print("3. Exit")

        choice = input("Enter your choice: ")


        if choice == "1":

            user_data = login(users)

            if user_data:

                keyword = input("Enter a keyword or topic: ")

                headlines = fetch_news(keyword)

                if headlines:

                    print("Top 5 news headlines:")

                    for headline in headlines:

                        print(headline)

                else:

                    print("No news found for the given keyword.")

        elif choice == "2":

            forgot_password(users)

        elif choice == "3":

            print("Goodbye!")

            break
```

```
        else:

            print("Invalid choice. Please try again.")
```

```
Welcome to the News App!
1. Login
2. Forgot Password
3. Exit
Enter your choice: 1
Enter your email: user1@example.com
Enter your password:
Login successful!
Enter a keyword or topic: technology
Top 5 news headlines:
Govt looks set to change BEE rules that may be keeping Starlink out of SA - News24
The future of Halo is being built with Unreal Engine 5 - The Verge
Welcome to the News App!
1. Login
2. Forgot Password
3. Exit
Enter your choice:
```

```
Welcome to the News App!
1. Login
2. Forgot Password
3. Exit
Enter your choice: 2
Enter your registered email: user2@example.com
Answer your security question: What was the name of your first pet?Fluffy
Enter your new password:
Password reset successful!
Welcome to the News App!
1. Login
2. Forgot Password
3. Exit
Enter your choice: 1
Enter your email: user2@example.com
Enter your password:
Login successful!
Enter a keyword or topic: health
Top 5 news headlines:
Address 'non-existent' severe ME care or risk further deaths, UK health minister told - The Guardian - Google News (UK)
Jamie Foxx's daughter celebrated her engagement in his physical rehab room - Entertainment Weekly
'Dangerously Stupid' Marjorie Taylor Greene's Milk Boast Gets Udderly Slammed Online - The Huffington Post
LNP pledges extra $590 million for health and to get ramping below 30 per cent if elected - ABC News - Google News (Australia)
Toxic metals in tampons: Should you be worried? - Medical News Today
Welcome to the News App!
1. Login
2. Forgot Password
3. Exit
Enter your choice:
```