Pre-requisites:

pip install cryptography bcrypt

Running the Application

Use the following commands for different operations:

- **Register a User:**

python app.py register --username testuser --password testpass --role user

```
(SecureEn) neno@turing:~/Envs/SecureEn/app2$ python app.py register --username testuser --password testpass --role user
User 'testuser' added successfully.
(SecureEn) neno@turing:~/Envs/SecureEn/app2$
```

python app.py register --username admin --password adminpass --role admin

```
(SecureEn) neno@turing:~/Envs/SecureEn/app2$ python app.py register --username admin --password adminpass --role admin
User 'admin' added successfully.
(SecureEn) neno@turing:~/Envs/SecureEn/app2$
```

Login:

python app.py login --username admin --password adminpass

```
(SecureEn) neno@turing:~/Envs/SecureEn/app2$ python app.py login --username admin --password adminpass
Login successful. Role: admin
(SecureEn) neno@turing:~/Envs/SecureEn/app2$
```

- **Add an Artefact:**

python app.py add --file /path/to/file --name "MySong"

```
(SecureEn) neno@turing:~/Envs/SecureEn/app2$ python app.py add --file teste/music-no-copyright-239544.mp3 --name "MySong"
Enter username: testuser
Enter password:
Artefact created successfully with checksum: b4fe73f975c4c740fbf04b12f133aac71e042e52ea6f17136d61f24fd9ebe74b
(SecureEn) neno@turing:~/Envs/SecureEn/app2$
```

- **View, Update, Delete, and List Artefacts:**
  Refer to the command documentation below.

5. Command Documentation

register

- **Purpose:** Register a new user with a specified role (admin or user) using bcrypt for password hashing.

- **Usage:**

python app.py register --username <username> --password <password> --role <admin|user>

- **Example:**

python app.py register --username testuser --password testpass --role user

login

- **Purpose:** Authenticate an existing user.

- **Usage:**

python app.py login --username <username> --password <password>

- **Example:**

python app.py login --username admin --password adminpass

add

- **Purpose:** Add a new artefact by encrypting the file, computing its SHA-256 checksum, and storing metadata.

- **Usage:**

python app.py add --file <path_to_file> --name <artefact_name>

- **Example:**

python app.py add --file /home/user/music/song.mp3 --name "MySong"

view

- **Purpose:** View artefact details and preview the decrypted file content.

- **Usage:**

python app.py view --id <artefact_id>

- **Example:**

python app.py view --id 1

update

- **Purpose:** Update an existing artefact with a new encrypted file.

- **Usage:**

python app.py update --id <artefact_id> --file <path_to_new_file>

- **Example:**

python app.py update --id 1 --file /home/user/music/new_song.mp3

```
(SecureEn) neno@turing:~/Envs/SecureEn/app2$ python app.py update --id 1 --file teste/teste
teste1.txt  teste2.txt  teste3.txt  teste4.txt  teste5.txt
(SecureEn) neno@turing:~/Envs/SecureEn/app2$ python app.py update --id 1 --file teste/teste1.txt
Enter username: testuser
Enter password:
Artefact updated successfully with new checksum: a22dfb0947722ebf853f69b946570e41b22740e59a125a17dc1869c02e1bf9ac
(SecureEn) neno@turing:~/Envs/SecureEn/app2$ python app.py view --id 1
Enter username: testuser
Enter password:
Artefact: MySong
Checksum: a22dfb0947722ebf853f69b946570e41b22740e59a125a17dc1869c02e1bf9ac
Created At: 2025-03-10T18:02:58.078981
Updated At: 2025-03-10T18:05:04.795529
File Content (first 200 bytes): b'ESTIVEAQUIEUAHAHAHAHasdasdasd\n'
(SecureEn) neno@turing:~/Envs/SecureEn/app2$
```

delete

- **Purpose:** Delete an artefact and remove its encrypted file.

- **Usage:**

python app.py delete --id <artefact_id>

- **Example:**

python app.py delete --id 1

```
(SecureEn) neno@turing:~/Envs/SecureEn/app2$ python app.py delete --id 1
Enter username: testuser
Enter password:
Artefact deleted successfully.
(SecureEn) neno@turing:~/Envs/SecureEn/app2$
```

list

- **Purpose:** List all artefacts accessible to the authenticated user.

- **Usage:**

python app.py list

- **Example:**

```
(SecureEn) neno@turing:~/Envs/SecureEn/app2$ python app.py list
Enter username: testuser
Enter password:
ID: 2 Name: TextFile Created At: 2025-03-10T18:07:27.622045
ID: 3 Name: TextFile Created At: 2025-03-10T18:07:40.707441
(SecureEn) neno@turing:~/Envs/SecureEn/app2$ python app.py list
Enter username: admin
Enter password:
ID: 2 Name: TextFile Created At: 2025-03-10T18:07:27.622045
ID: 3 Name: TextFile Created At: 2025-03-10T18:07:40.707441
(SecureEn) neno@turing:~/Envs/SecureEn/app2$
```