main.py ✕   a2.py

```python
import bcrypt
import random

# Simple in-memory storage (list of dictionaries)
user_db = []

def register():
    print("\n--- Register ---")
    username = input("Username: ")
    password = input("Password: ")

    # Generate a salt and hash the password
    # Note: bcrypt requires bytes, so we encode the string
    password_bytes = password.encode('utf-8')
    hashed_password = bcrypt.hashpw(password_bytes, bcrypt.gensalt())

    user_db.append({
        "username": username,
        "hashed_password": hashed_password
    })
    print("User registered successfully!")

def login():
    print("\n--- Login ---")
    username = input("Username: ")
    password = input("Password: ")
```

Problems   Output   Debug Console   **Terminal**   Ports

```
(venv) vishesh@Visheshs-MacBook-Air Authentication % python3 main.py

--- Register ---
Username: visheshchandok
Password: Vishesh@755
User registered successfully!

--- Login ---
Username: visheshchandok
Password: Vishesh@755

[System] Password verified.

*** SMS SENT: Your 6-digit code is: 505583 ***

Enter MFA OTP: 505583
```

OUTLINE

TIMELINE

```python
a2.py
25    def validate_token(token):
35
36        except jwt.ExpiredSignatureError:
37            print("Token Invalid: Token has expired")
38
39        except jwt.InvalidTokenError:
40            print("Token Invalid")
41
42
43    # --------------------------------------------------
44    # Main Execution
45    # --------------------------------------------------
46    if __name__ == "__main__":
47        # Generate token
48        user_id = "12345"
49        token = generate_token(user_id)
50
51        print("Generated JWT:")
52        print(token)
53        print("-" * 50)
54
55        # Validate token
56        print("Validating Token...")
57        validate_token(token)
58
```

Problems Output Debug Console **Terminal** Ports

```
Downloading PyJWT-2.10.1-py3-none-any.whl (22 kB)
Installing collected packages: PyJWT
Successfully installed PyJWT-2.10.1
(venv) vishesh@Visheshs-MacBook-Air Authentication % python3 a2.py
/Users/vishesh/Downloads/Authentication/a2.py:15: DeprecationWarning: datetime.datetime.utcnow() is deprecated and scheduled for removal in a fu
ture version. Use timezone-aware objects to represent datetimes in UTC: datetime.datetime.now(datetime.UTC).
  "exp": datetime.utcnow() + timedelta(minutes=5)  # Token expires in 5 minutes
Generated JWT:
eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJzdWIiOiIxMjM0NSIsInJvbGUiOiJ1c2VyIiwiZXhwIjoxNzY4MzAyMTEzfQ.QBFv3foFcc6wfZVdYYQCIrHMu4yqFVkgTzehV1QEcwY
--------------------------------------------------
Validating Token...
Token Valid
Claims: {'sub': '12345', 'role': 'user', 'exp': 1768302113}
(venv) vishesh@Visheshs-MacBook-Air Authentication %
```

⌘K to generate command