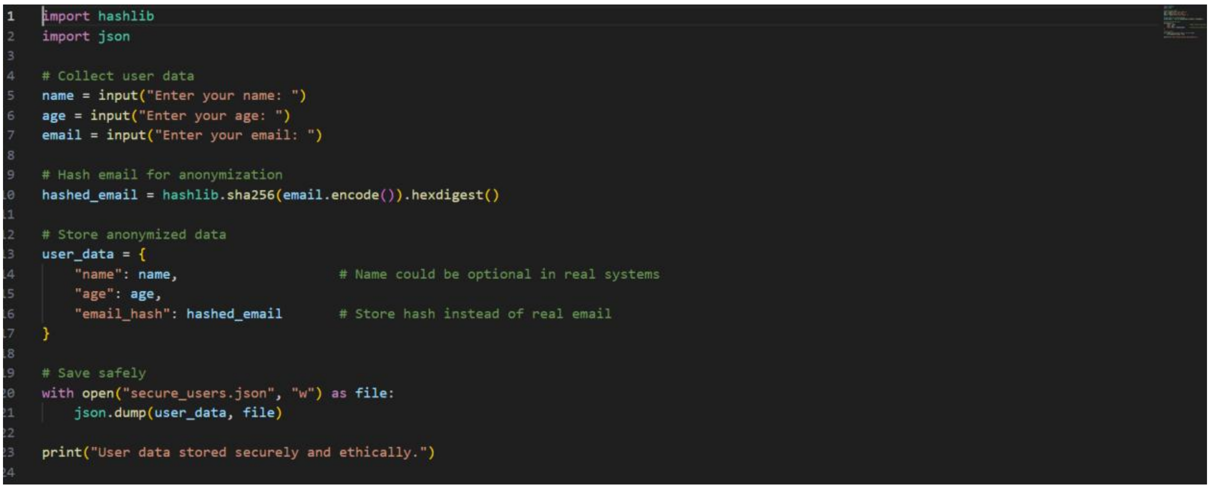
Name:- I.NIPUN

H.T.NO:- 2303A52208

BATCH :- 43

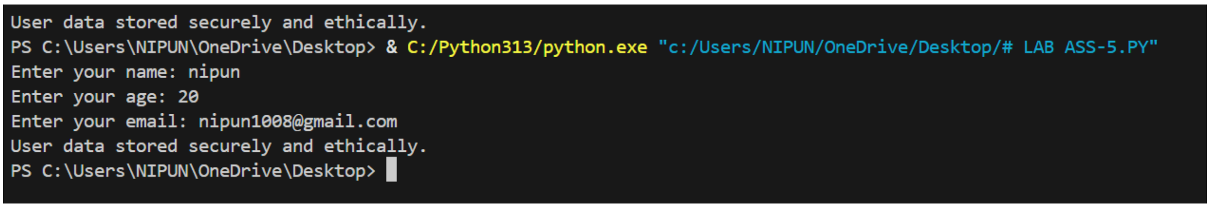
AI ASSISTED CODING LAB ASSIGNMENT-5.4

TASK :- 1



```python
import hashlib
import json

# Collect user data
name = input("Enter your name: ")
age = input("Enter your age: ")
email = input("Enter your email: ")

# Hash email for anonymization
hashed_email = hashlib.sha256(email.encode()).hexdigest()

# Store anonymized data
user_data = {
    "name": name,                    # Name could be optional in real systems
    "age": age,
    "email_hash": hashed_email       # Store hash instead of real email
}

# Save safely
with open("secure_users.json", "w") as file:
    json.dump(user_data, file)

print("User data stored securely and ethically.")
```

OUTPUT :-

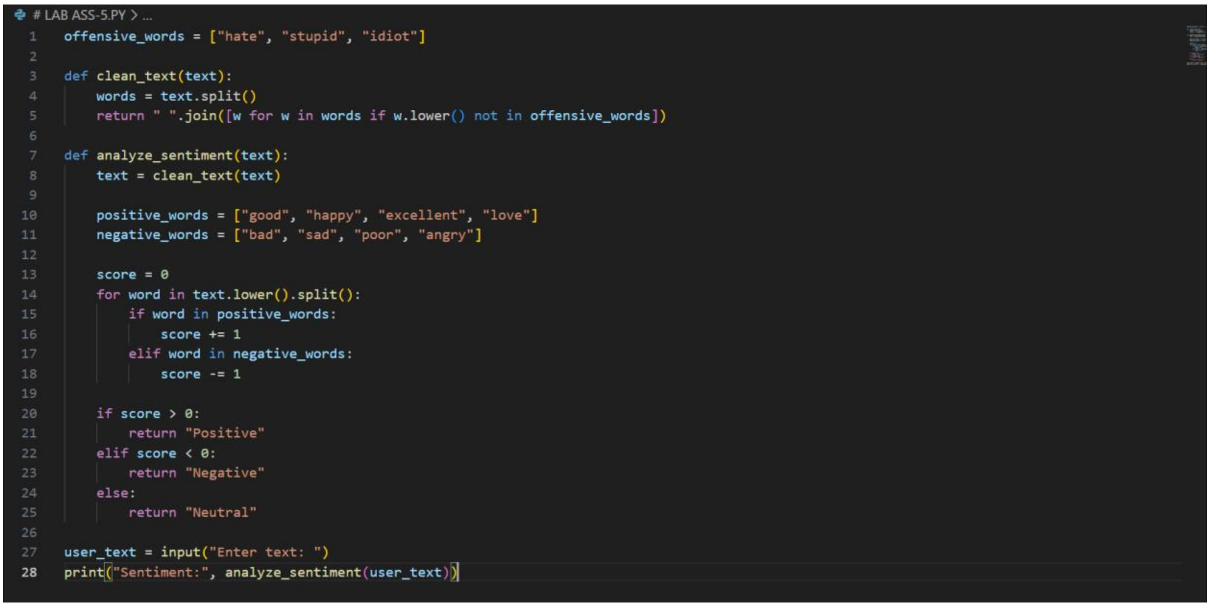


```
User data stored securely and ethically.
PS C:\Users\NIPUN\OneDrive\Desktop> & C:/Python313/python.exe "c:/Users/NIPUN/OneDrive/Desktop/# LAB ASS-5.PY"
Enter your name: nipun
Enter your age: 20
Enter your email: nipun1008@gmail.com
User data stored securely and ethically.
PS C:\Users\NIPUN\OneDrive\Desktop> 
```

Summary :-

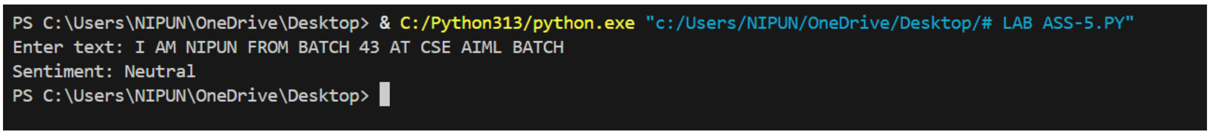
This program collects basic user information such as name, age, and email. To ensure ethical and responsible data handling, the email is not stored in plain text. Instead, it is converted into a secure hash using the SHA-256 cryptographic algorithm. This prevents unauthorized access to sensitive personal data and protects user privacy. The system follows ethical principles such as data minimization, anonymization, and secure storage. The program demonstrates responsible AI coding by ensuring that personally identifiable information (PII) is not stored directly and is handled safely.

TASK :- 2



```python
offensive_words = ["hate", "stupid", "idiot"]

def clean_text(text):
    words = text.split()
    return " ".join([w for w in words if w.lower() not in offensive_words])

def analyze_sentiment(text):
    text = clean_text(text)

    positive_words = ["good", "happy", "excellent", "love"]
    negative_words = ["bad", "sad", "poor", "angry"]

    score = 0
    for word in text.lower().split():
        if word in positive_words:
            score += 1
        elif word in negative_words:
            score -= 1

    if score > 0:
        return "Positive"
    elif score < 0:
        return "Negative"
    else:
        return "Neutral"

user_text = input("Enter text: ")
print("Sentiment:", analyze_sentiment(user_text))
```

OUTPUT :-

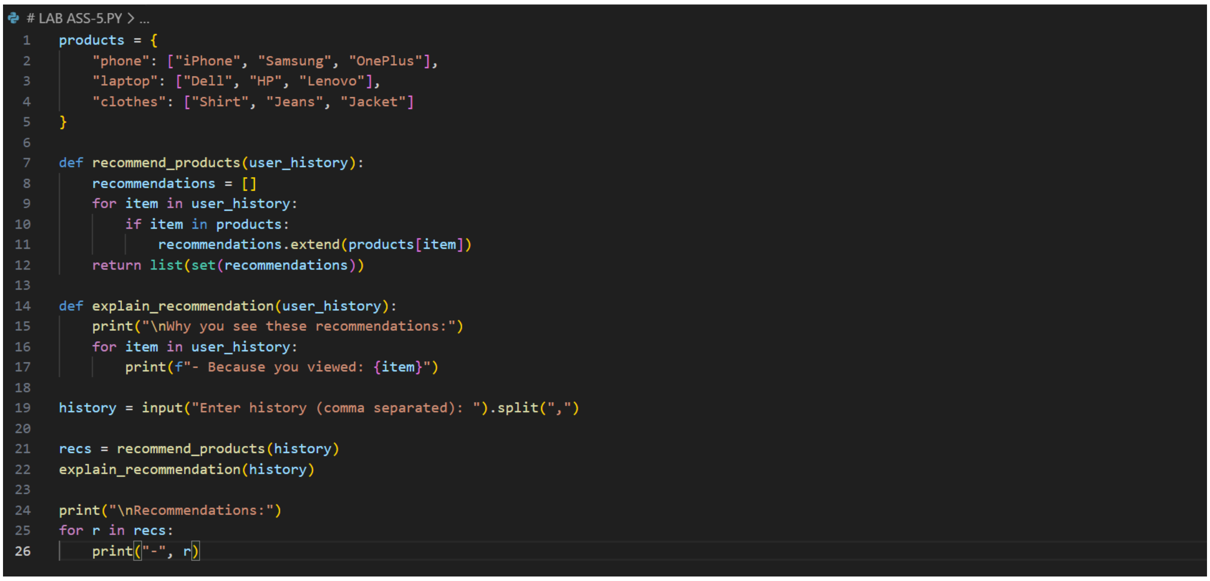


```
PS C:\Users\NIPUN\OneDrive\Desktop> & C:/Python313/python.exe "c:/Users/NIPUN/OneDrive/Desktop/# LAB ASS-5.PY"
Enter text: I AM NIPUN FROM BATCH 43 AT CSE AIML BATCH
Sentiment: Neutral
PS C:\Users\NIPUN\OneDrive\Desktop> 
```

Summary :-

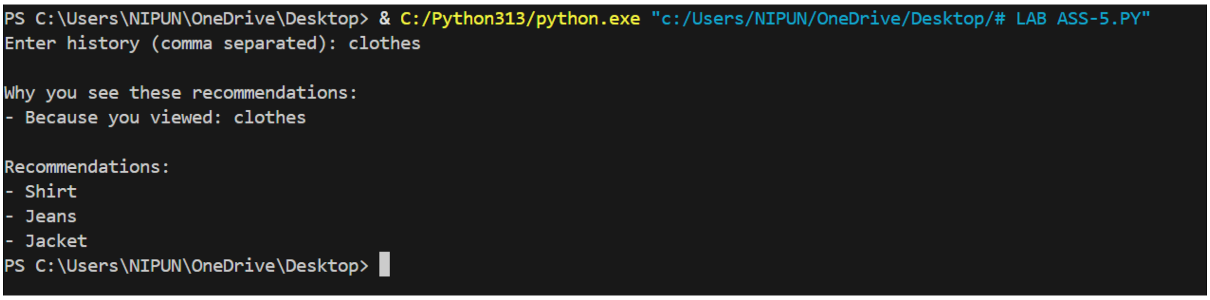
This program performs basic sentiment analysis on user input text. To reduce harmful bias, the system first cleans the input data by removing offensive and inappropriate words. It then analyzes sentiment using positive and negative word indicators. Ethical safeguards are included to prevent discriminatory language processing and biased outputs. The model demonstrates responsible AI principles by addressing potential cultural and linguistic bias and promoting fairness in text analysis.

TASK :- 3



```python
products = {
    "phone": ["iPhone", "Samsung", "OnePlus"],
    "laptop": ["Dell", "HP", "Lenovo"],
    "clothes": ["Shirt", "Jeans", "Jacket"]
}

def recommend_products(user_history):
    recommendations = []
    for item in user_history:
        if item in products:
            recommendations.extend(products[item])
    return list(set(recommendations))

def explain_recommendation(user_history):
    print("\nWhy you see these recommendations:")
    for item in user_history:
        print(f"- Because you viewed: {item}")

history = input("Enter history (comma separated): ").split(",")

recs = recommend_products(history)
explain_recommendation(history)

print("\nRecommendations:")
for r in recs:
    print("-", r)
```

OUTPUT :-

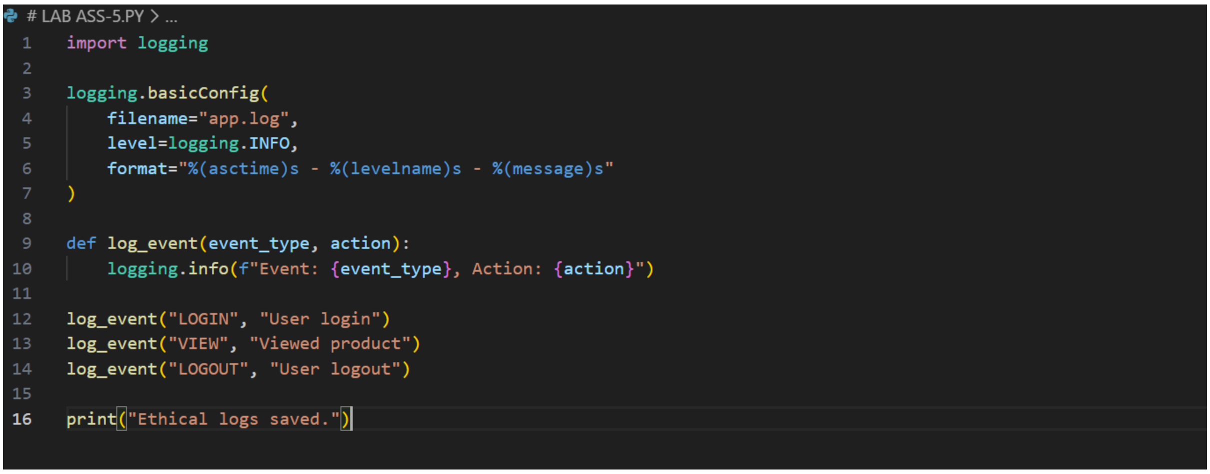


```
PS C:\Users\NIPUN\OneDrive\Desktop> & C:/Python313/python.exe "c:/Users/NIPUN/OneDrive/Desktop/# LAB ASS-5.PY"
Enter history (comma separated): clothes

Why you see these recommendations:
- Because you viewed: clothes

Recommendations:
- Shirt
- Jeans
- Jacket
PS C:\Users\NIPUN\OneDrive\Desktop>
```

Summary :-

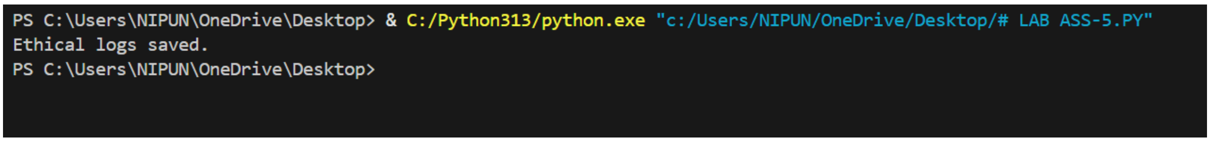
This program recommends products based on user browsing history. Ethical AI principles such as transparency, fairness, and user autonomy are followed. The system clearly explains why recommendations are shown and avoids favoritism toward specific brands or products. Users are informed about the recommendation logic and are given control over the system. This ensures ethical AI use by preventing manipulation, hidden promotions, and biased decision-making.

TASK :- 4



```python
import logging

logging.basicConfig(
    filename="app.log",
    level=logging.INFO,
    format="%(asctime)s - %(levelname)s - %(message)s"
)

def log_event(event_type, action):
    logging.info(f"Event: {event_type}, Action: {action}")

log_event("LOGIN", "User login")
log_event("VIEW", "Viewed product")
log_event("LOGOUT", "User logout")

print("Ethical logs saved.")
```

OUTPUT :-

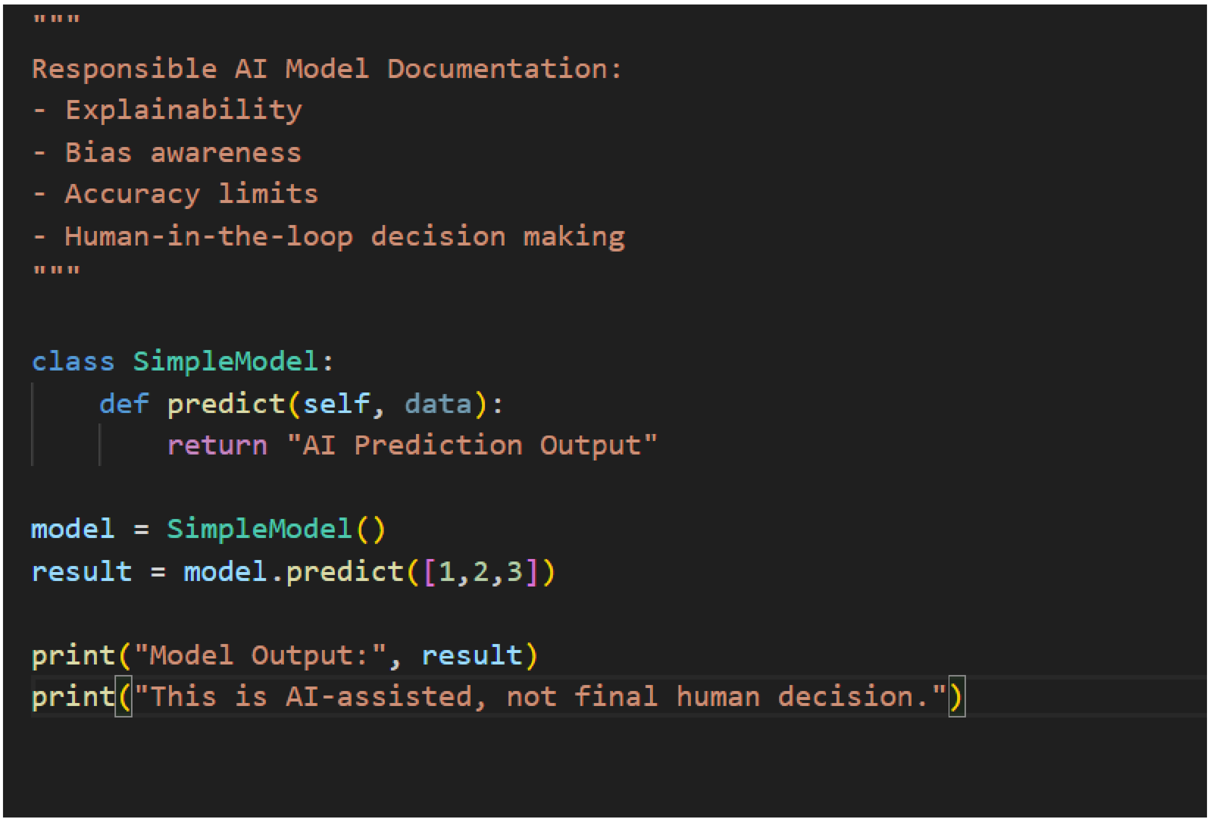


```
PS C:\Users\NIPUN\OneDrive\Desktop> & C:/Python313/python.exe "c:/Users/NIPUN/OneDrive/Desktop/# LAB ASS-5.PY"
Ethical logs saved.
PS C:\Users\NIPUN\OneDrive\Desktop>
```

Summary :-

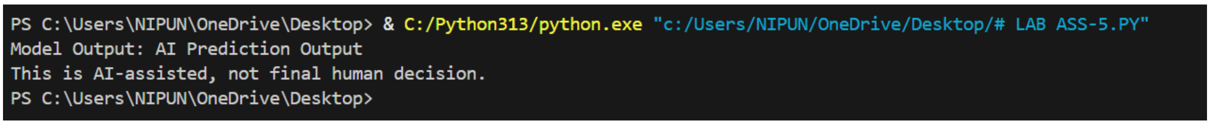
This logging system records application activities while strictly avoiding the storage of sensitive personal information such as passwords, emails, phone numbers, or personal identifiers. The logs only store system-level actions such as login events or page views. Ethical logging principles are applied to ensure privacy, confidentiality, and compliance with data protection standards. This program demonstrates responsible software development practices by protecting user privacy and preventing data misuse.

TASK :- 5



```
"""
Responsible AI Model Documentation:
- Explainability
- Bias awareness
- Accuracy limits
- Human-in-the-loop decision making
"""

class SimpleModel:
    def predict(self, data):
        return "AI Prediction Output"

model = SimpleModel()
result = model.predict([1,2,3])

print("Model Output:", result)
print("This is AI-assisted, not final human decision.")
```

OUTPUT :-



```
PS C:\Users\NIPUN\OneDrive\Desktop> & C:/Python313/python.exe "c:/Users/NIPUN/OneDrive/Desktop/# LAB ASS-5.PY"
Model Output: AI Prediction Output
This is AI-assisted, not final human decision.
PS C:\Users\NIPUN\OneDrive\Desktop>
```

Summary :-

This program demonstrates a basic machine learning model structure with responsible AI documentation. The model includes ethical guidelines related to explainability, accuracy limitations, bias awareness, transparency, and accountability. The documentation clearly states that AI predictions are assistive and should not replace human decision-making. It emphasizes that the model should not be used for high-risk applications such as medical, legal, or financial decision-making without human supervision.