Assignment - 5.4

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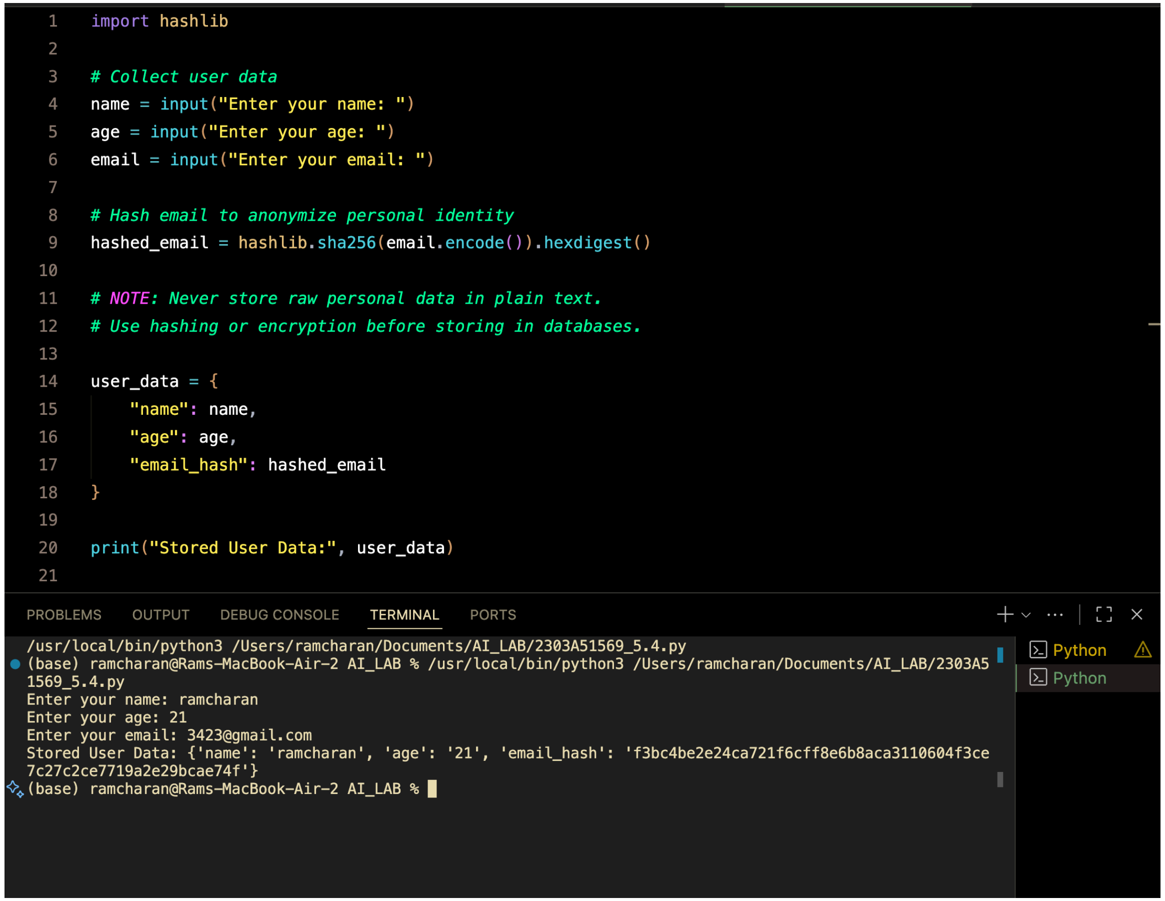
Prompt to Copilot

Generate a Python script that collects user name, age, and email. Add comments on how to anonymize or protect this data.

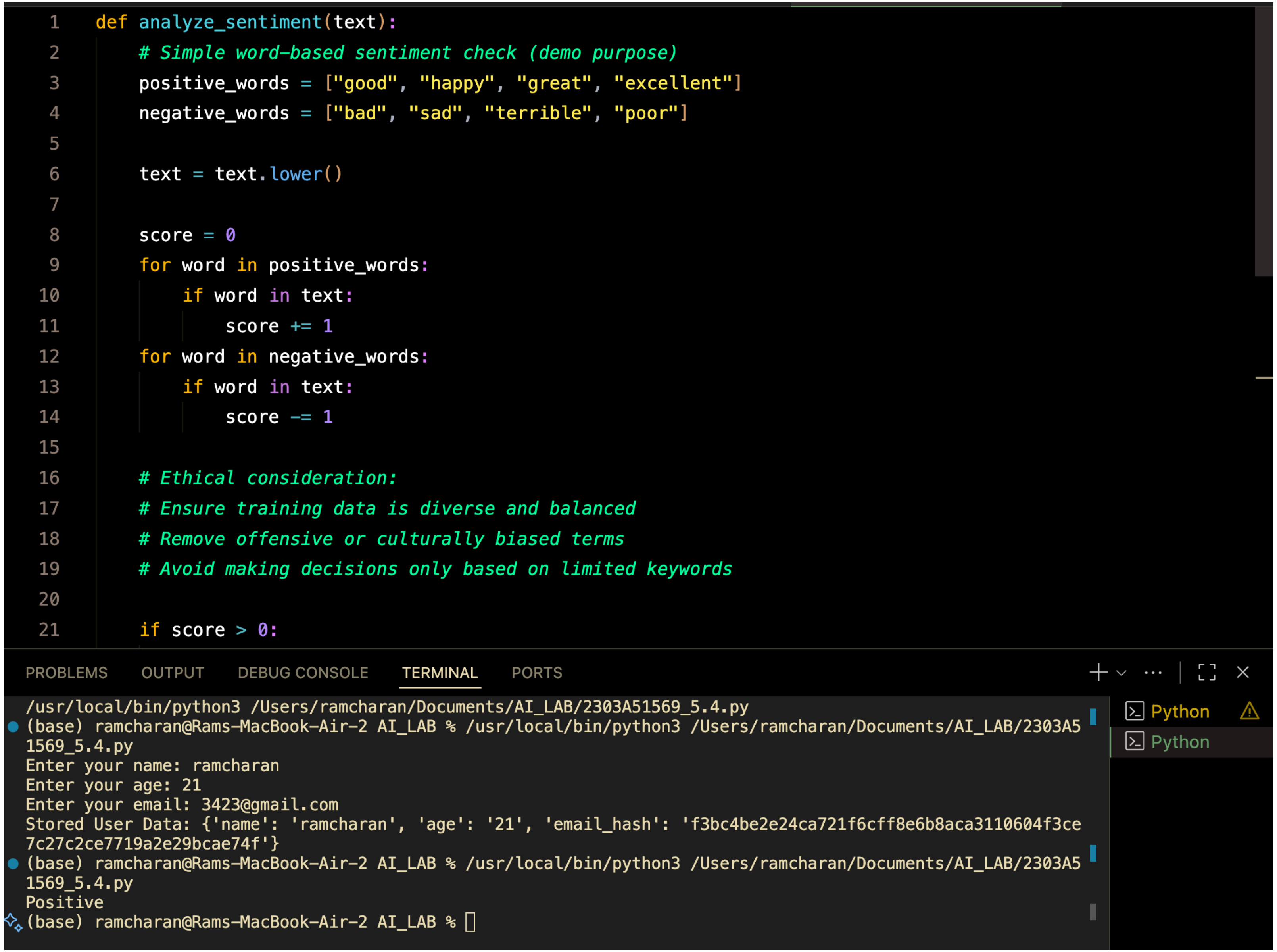


```python
import hashlib

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

# Hash email to anonymize personal identity
hashed_email = hashlib.sha256(email.encode()).hexdigest()

# NOTE: Never store raw personal data in plain text.
# Use hashing or encryption before storing in databases.

user_data = {
    "name": name,
    "age": age,
    "email_hash": hashed_email
}

print("Stored User Data:", user_data)

```

```
/usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A51569_5.4.py
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
Enter your name: ramcharan
Enter your age: 21
Enter your email: 3423@gmail.com
Stored User Data: {'name': 'ramcharan', 'age': '21', 'email_hash': 'f3bc4be2e24ca721f6cff8e6b8aca3110604f3ce
7c27c2ce7719a2e29bcae74f'}
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB %
```

Prompt to Copilot

Generate a Python function for sentiment analysis and handle potential bias in data.

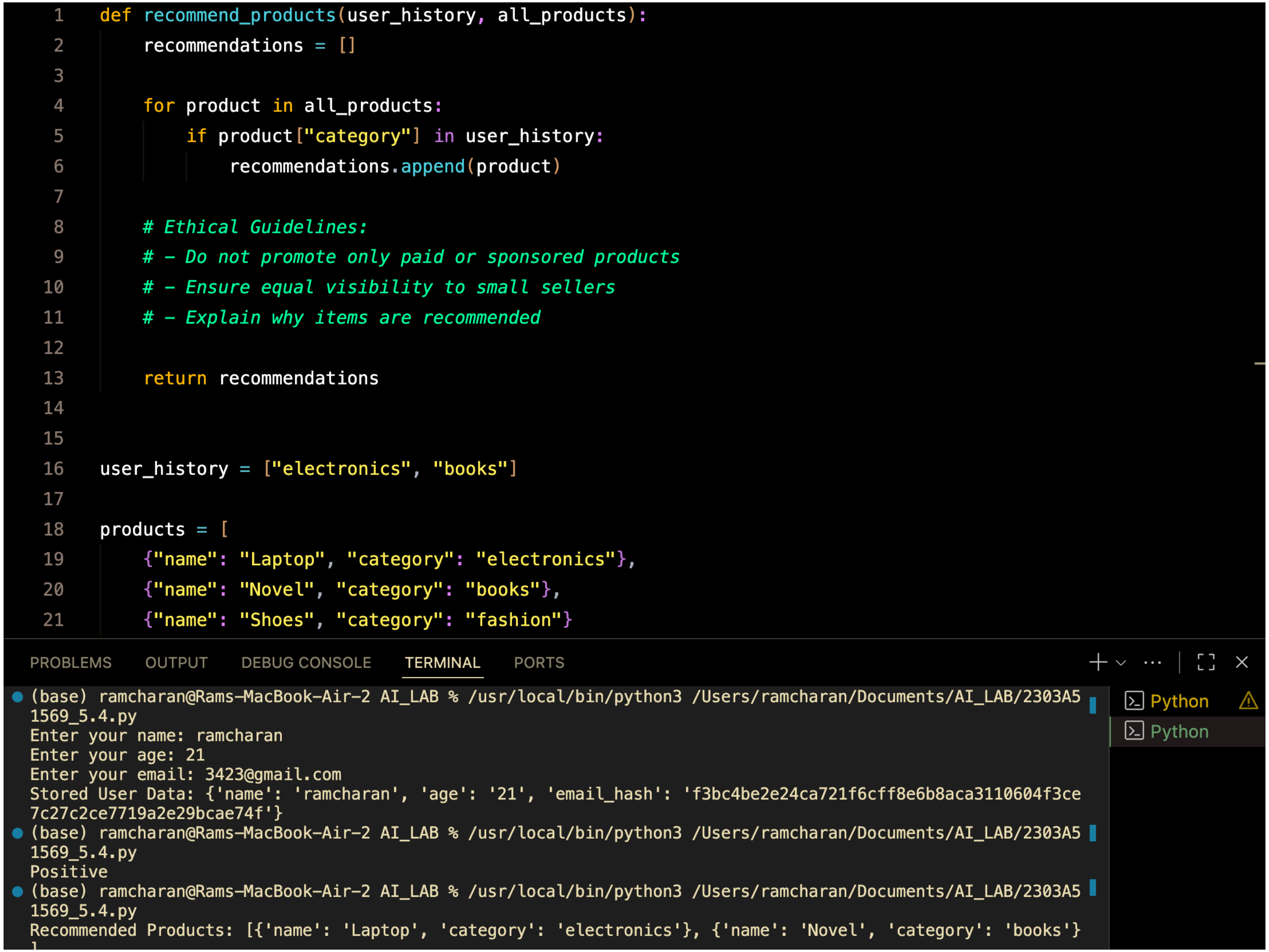


```python
def analyze_sentiment(text):
    # Simple word-based sentiment check (demo purpose)
    positive_words = ["good", "happy", "great", "excellent"]
    negative_words = ["bad", "sad", "terrible", "poor"]

    text = text.lower()

    score = 0
    for word in positive_words:
        if word in text:
            score += 1
    for word in negative_words:
        if word in text:
            score -= 1

    # Ethical consideration:
    # Ensure training data is diverse and balanced
    # Remove offensive or culturally biased terms
    # Avoid making decisions only based on limited keywords

    if score > 0:
```

```
/usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A51569_5.4.py
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
Enter your name: ramcharan
Enter your age: 21
Enter your email: 3423@gmail.com
Stored User Data: {'name': 'ramcharan', 'age': '21', 'email_hash': 'f3bc4be2e24ca721f6cff8e6b8aca3110604f3ce
7c27c2ce7719a2e29bcae74f'}
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
Positive
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % 
```

Prompt to Copilot

Generate product recommendation code that follows fairness and transparency.

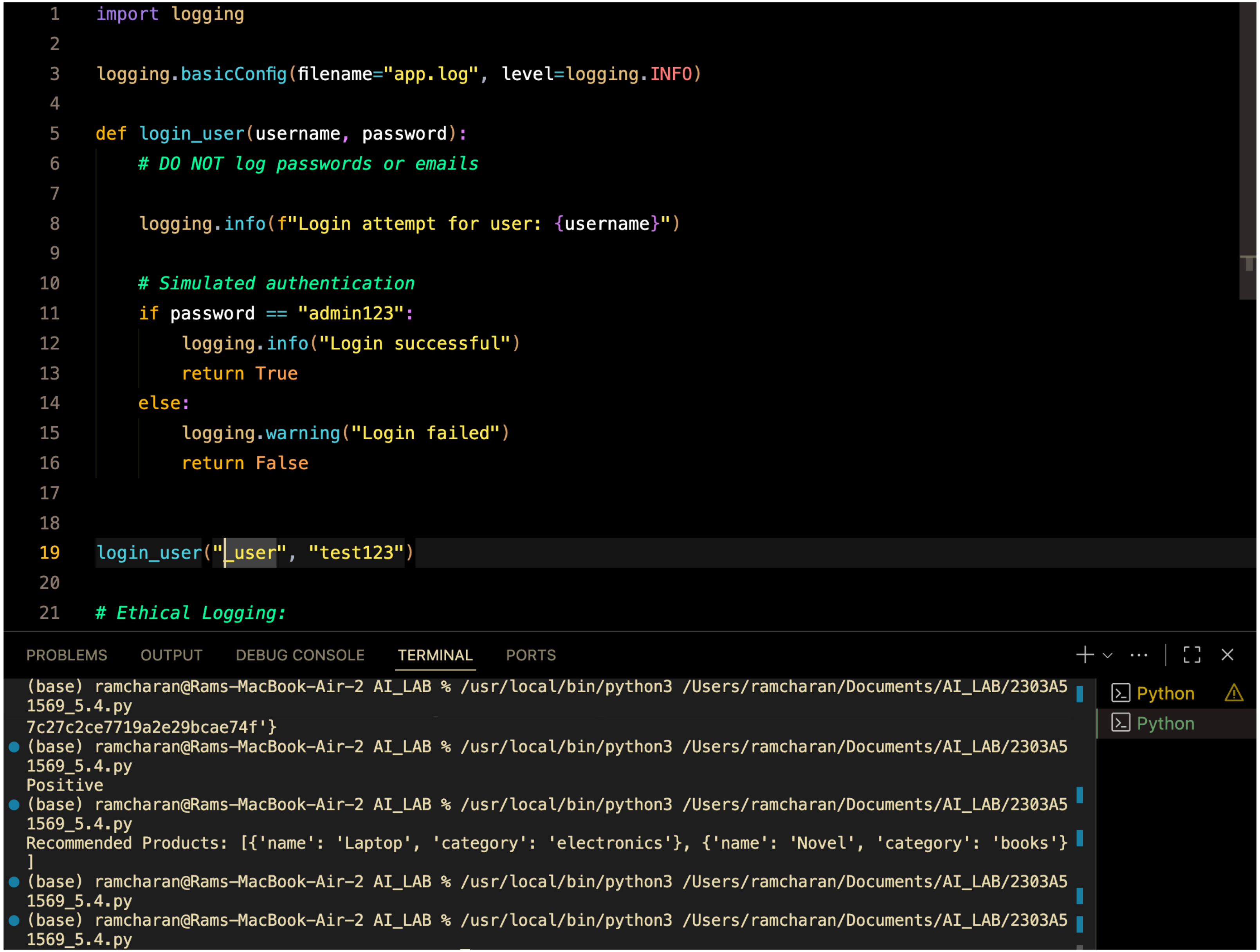


```python
def recommend_products(user_history, all_products):
    recommendations = []

    for product in all_products:
        if product["category"] in user_history:
            recommendations.append(product)

    # Ethical Guidelines:
    # - Do not promote only paid or sponsored products
    # - Ensure equal visibility to small sellers
    # - Explain why items are recommended

    return recommendations


user_history = ["electronics", "books"]

products = [
    {"name": "Laptop", "category": "electronics"},
    {"name": "Novel", "category": "books"},
    {"name": "Shoes", "category": "fashion"}
```

```
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
Enter your name: ramcharan
Enter your age: 21
Enter your email: 3423@gmail.com
Stored User Data: {'name': 'ramcharan', 'age': '21', 'email_hash': 'f3bc4be2e24ca721f6cff8e6b8aca3110604f3ce
7c27c2ce7719a2e29bcae74f'}
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
Positive
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
Recommended Products: [{'name': 'Laptop', 'category': 'electronics'}, {'name': 'Novel', 'category': 'books'}
]
```

Prompt to Copilot

Generate logging functionality that avoids sensitive data.

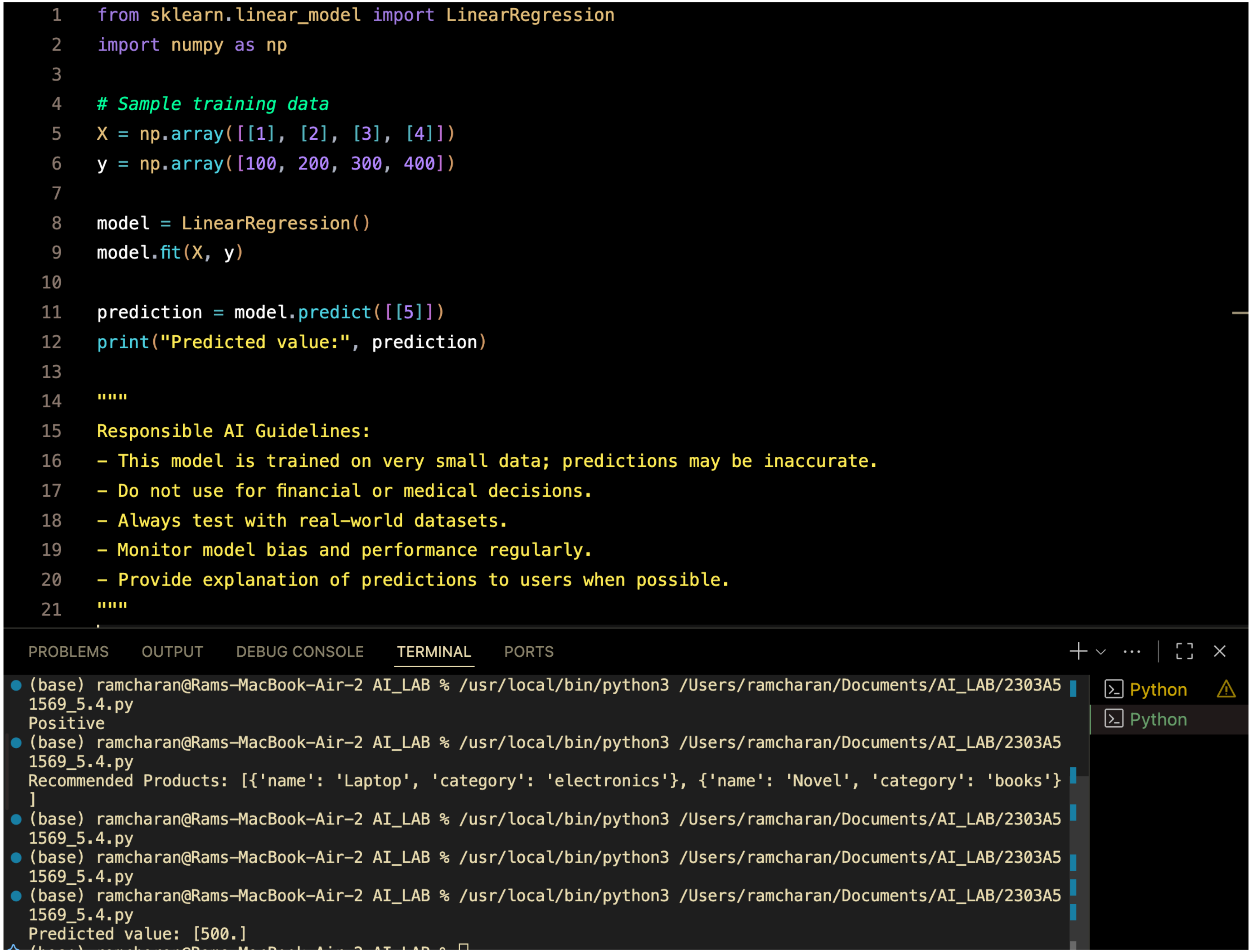


```python
import logging

logging.basicConfig(filename="app.log", level=logging.INFO)

def login_user(username, password):
    # DO NOT log passwords or emails

    logging.info(f"Login attempt for user: {username}")

    # Simulated authentication
    if password == "admin123":
        logging.info("Login successful")
        return True
    else:
        logging.warning("Login failed")
        return False


login_user("_user", "test123")

# Ethical Logging:
```

```
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
7c27c2ce7719a2e29bcae74f'}
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
Positive
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
Recommended Products: [{'name': 'Laptop', 'category': 'electronics'}, {'name': 'Novel', 'category': 'books'}
]
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
```

Prompt to Copilot

Generate ML model code and add responsible usage documentation.



```python
from sklearn.linear_model import LinearRegression
import numpy as np

# Sample training data
X = np.array([[1], [2], [3], [4]])
y = np.array([100, 200, 300, 400])

model = LinearRegression()
model.fit(X, y)

prediction = model.predict([[5]])
print("Predicted value:", prediction)

"""
Responsible AI Guidelines:
- This model is trained on very small data; predictions may be inaccurate.
- Do not use for financial or medical decisions.
- Always test with real-world datasets.
- Monitor model bias and performance regularly.
- Provide explanation of predictions to users when possible.
"""
```

```
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
Positive
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
Recommended Products: [{'name': 'Laptop', 'category': 'electronics'}, {'name': 'Novel', 'category': 'books'}
]
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
(base) ramcharan@Rams-MacBook-Air-2 AI_LAB % /usr/local/bin/python3 /Users/ramcharan/Documents/AI_LAB/2303A5
1569_5.4.py
Predicted value: [500.]
```