Assignment-5.4

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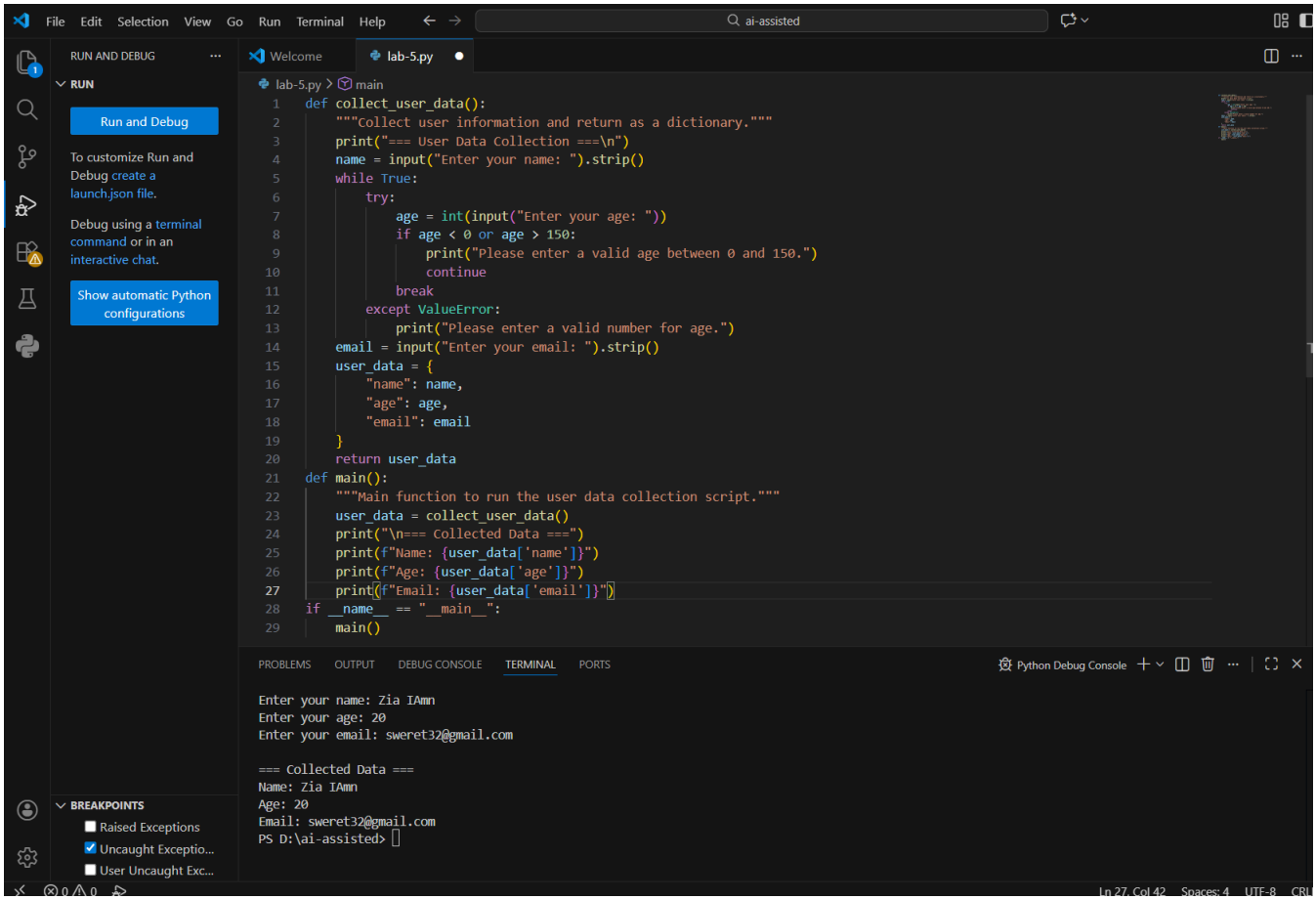
Task Description #1:

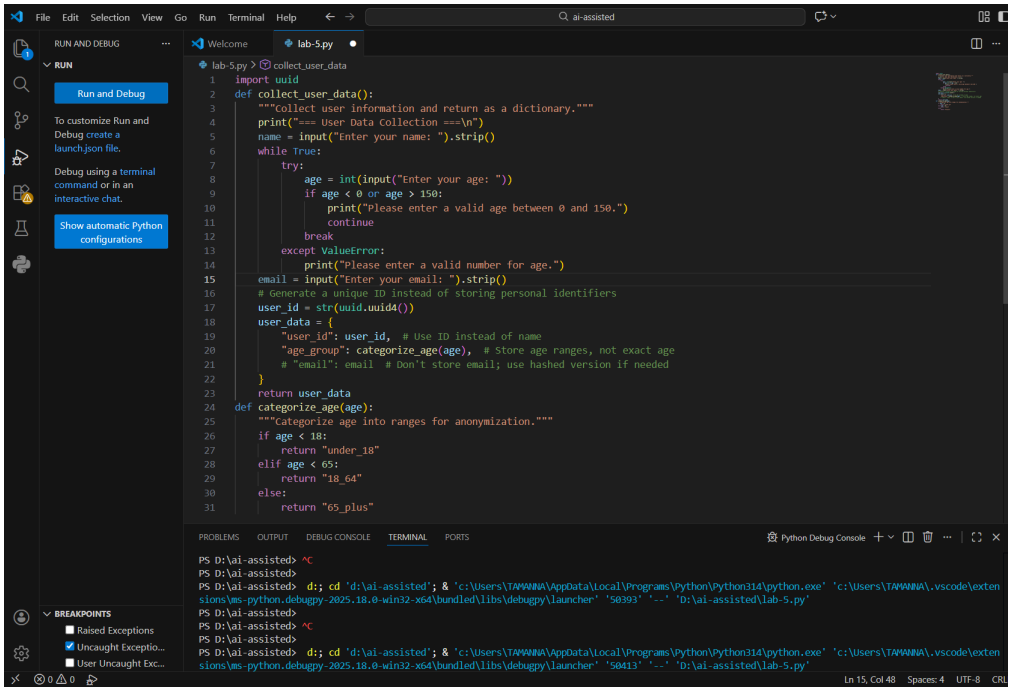
• Prompt GitHub Copilot to generate a Python script that collects user data (e.g., name, age, email). Then, ask Copilot to add comments on how to anonymize or protect this data.



Summary:

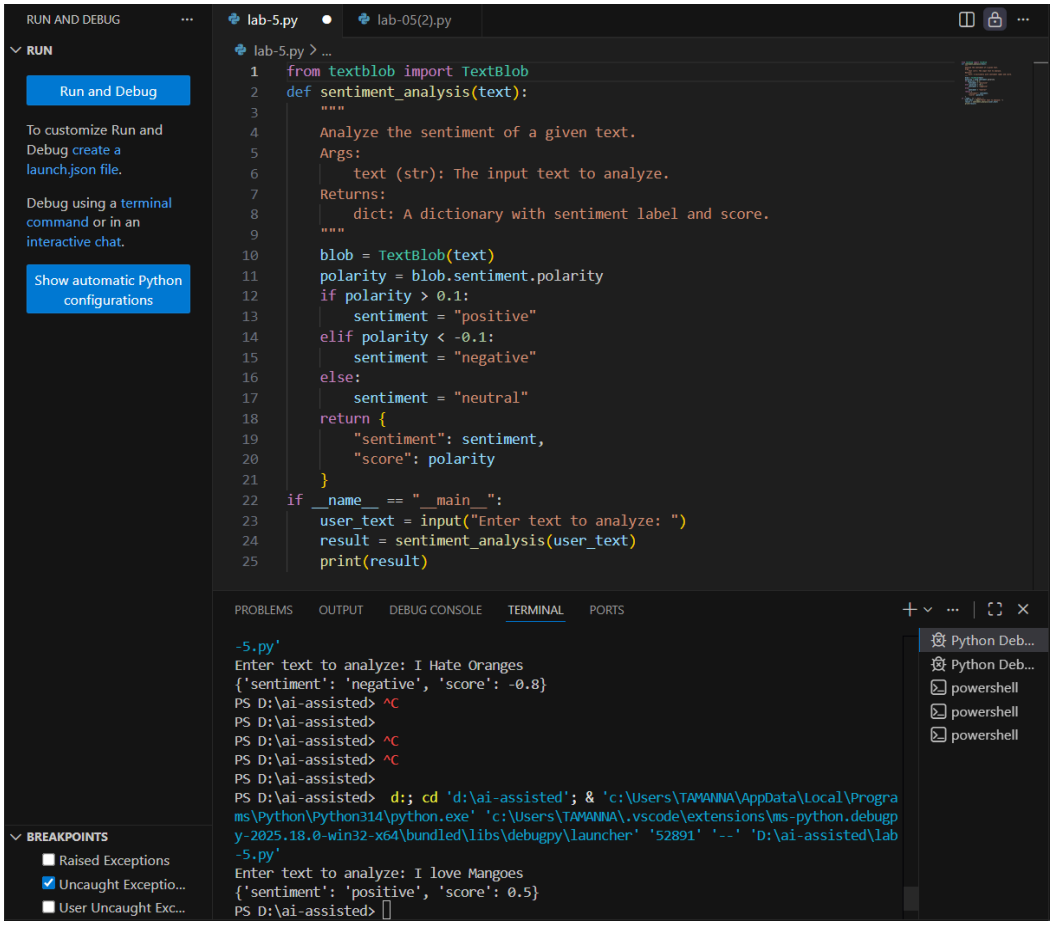
The code given was a script with inline Copilot-suggested code and comments explaining how to safeguard or anonymize user information (e.g., hashing emails, not storing data unencrypted).

- Comments in how to anonymize or protect this data.

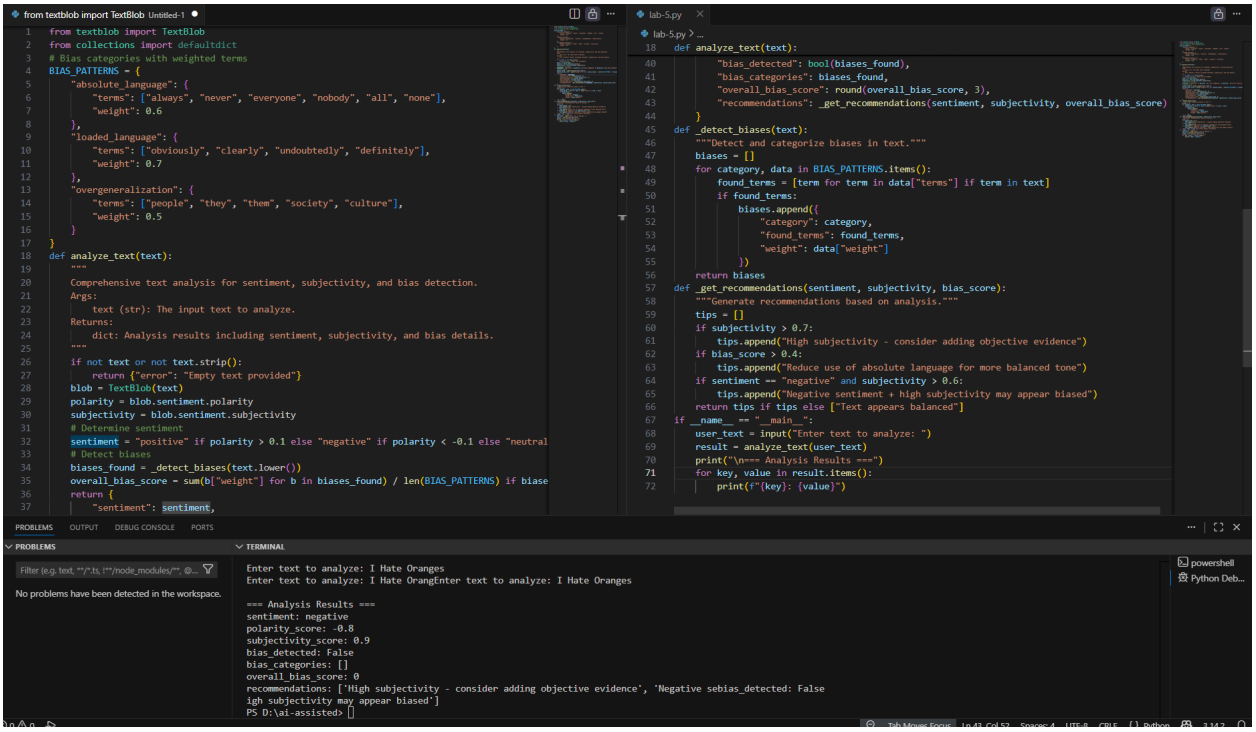


Task Description #2:

• Ask Copilot to generate a Python function for sentiment analysis. Then prompt Copilot to identify and handle potential biases in the Data.



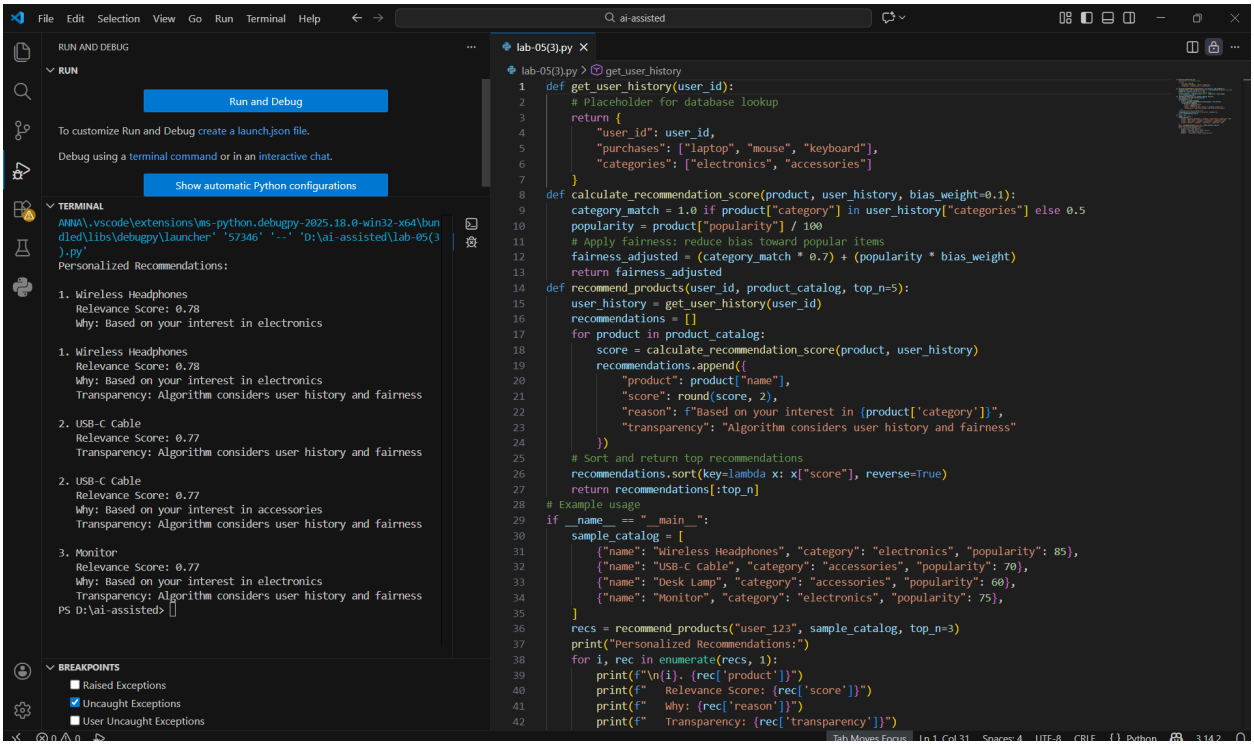
- Identifying and handling potential biases in the data



Summary: The Copilot-generated code with additions or comments addressing bias mitigation strategies (e.g., balancing dataset, removing offensive terms).

Task Description #3:

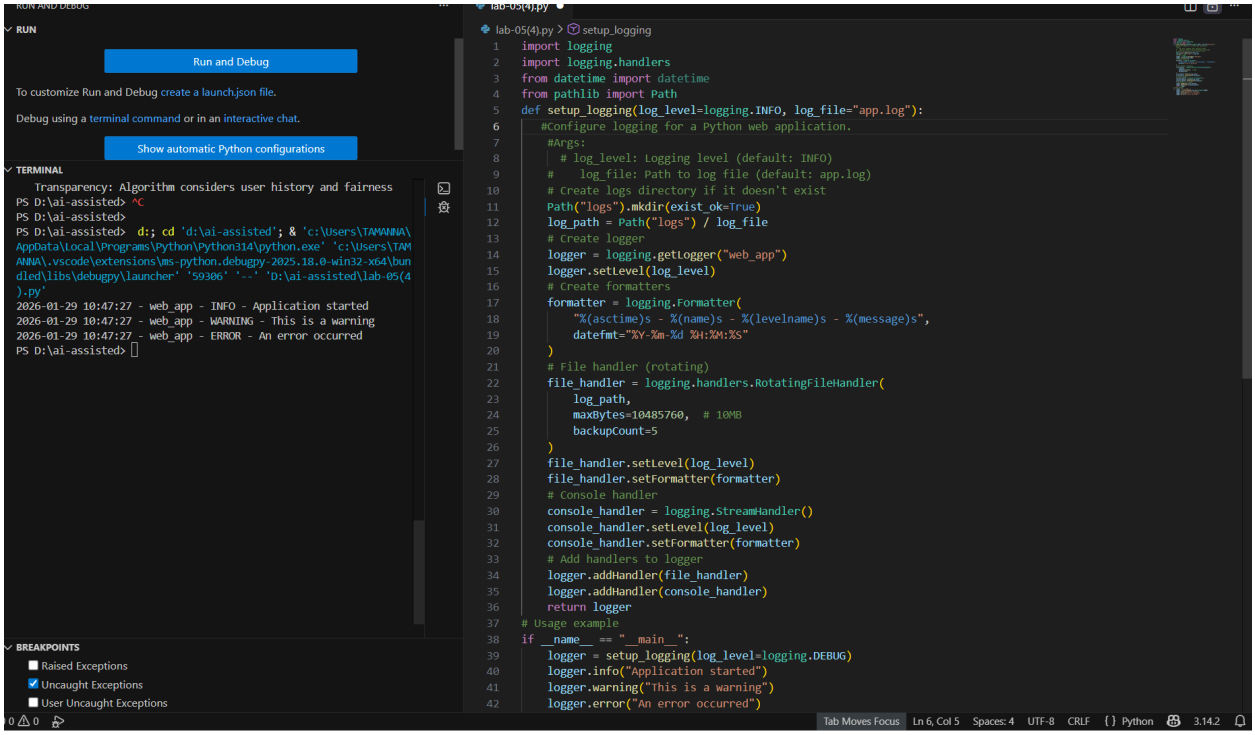
• Use Copilot to write a Python program that recommends products based on user history. Ask it to follow ethical guidelines like transparency and fairness.



Summary: The code written by Github-Copilot includes explanations, fairness checks
(e.g., avoiding favoritism), and user feedback options in the code.

Task Description #4:

• Prompt Copilot to generate logging functionality in a Python web application. Then, ask it to ensure the logs do not record sensitive information.



Summary:

This code sets up a logging system with sensitive data filtering. Here's the summary:

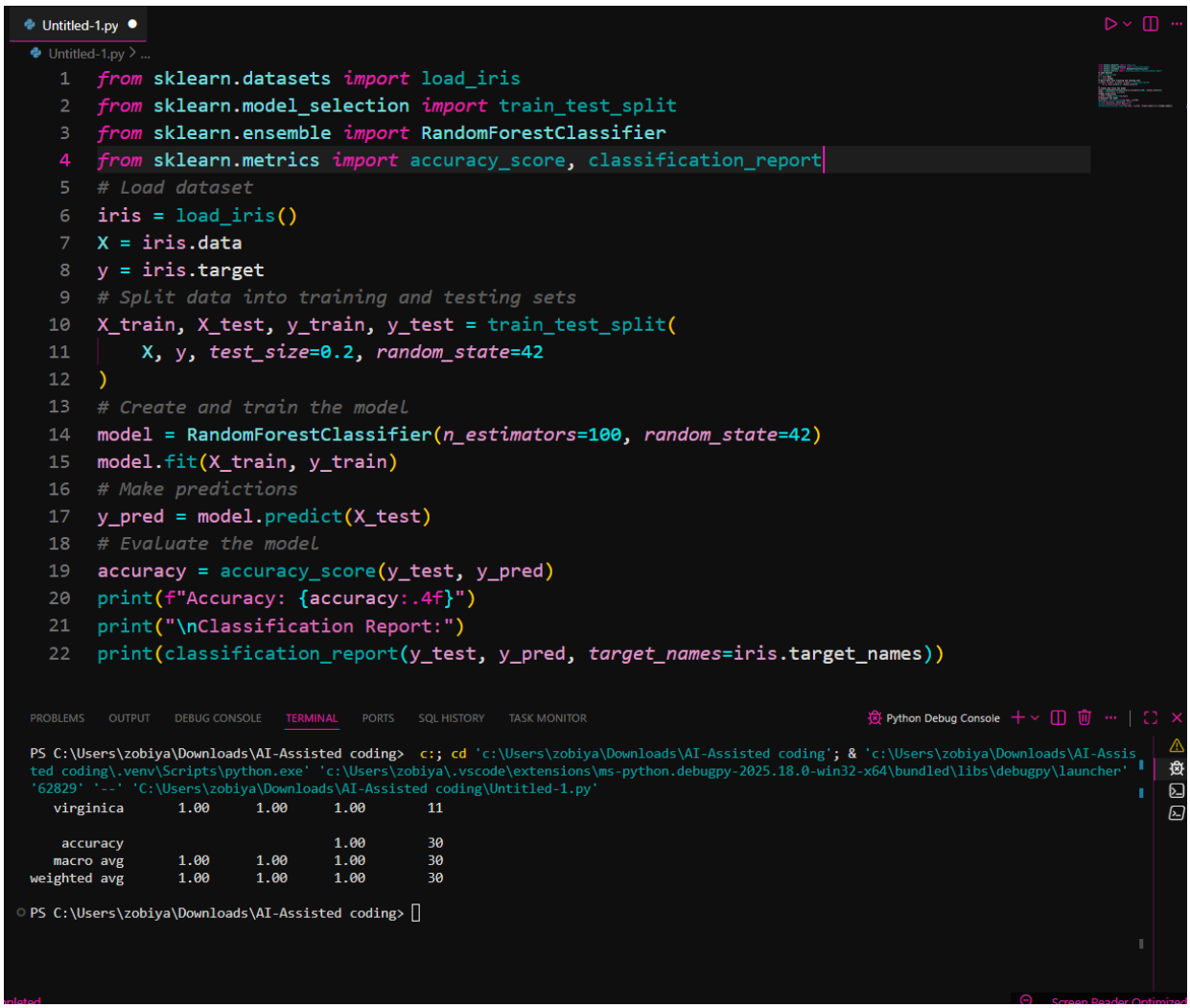
1. **Logging Configuration**: Configures a rotating file handler that logs to `app.log` with a max size of 10MB and keeps 5 backup files.
2. **SensitiveDataFilter Class**: A custom logging filter that detects and redacts sensitive information including:
   - Passwords
   - Email addresses
   - Phone numbers
   - Credit card numbers
   - Social Security numbers
   - API keys/tokens
3. **Pattern Matching**: Uses regex patterns to find sensitive data in log messages and replaces them with `[REDACTED_TYPE]` placeholders.

4.**Example Usage**: Demonstrates logging various messages containing sensitive data, which are automatically filtered before being written to the log file.

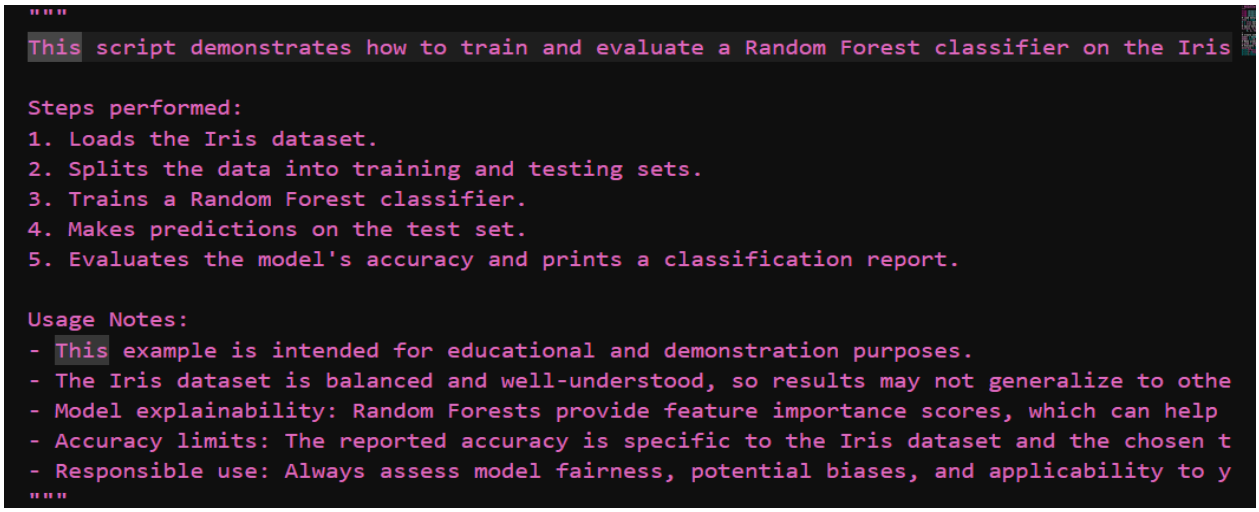
The purpose is to prevent accidentally logging confidential information while maintaining a complete audit trail.

Task Description #5:

• Ask Copilot to generate a machine learning model. Then, prompt it to add documentation on how to use the model responsibly (e.g., explainability, accuracy limits).



- Documentation on how to use it properly:



```
"""
This script demonstrates how to train and evaluate a Random Forest classifier on the Iris

Steps performed:
1. Loads the Iris dataset.
2. Splits the data into training and testing sets.
3. Trains a Random Forest classifier.
4. Makes predictions on the test set.
5. Evaluates the model's accuracy and prints a classification report.

Usage Notes:
- This example is intended for educational and demonstration purposes.
- The Iris dataset is balanced and well-understood, so results may not generalize to othe
- Model explainability: Random Forests provide feature importance scores, which can help
- Accuracy limits: The reported accuracy is specific to the Iris dataset and the chosen t
- Responsible use: Always assess model fairness, potential biases, and applicability to y
"""
```

Summary: This script demonstrates how to train and evaluate a Random Forest classifier on the Iris dataset using scikit-learn.

Steps performed:

1. Loads the Iris dataset.
2. Splits the data into training and testing sets.
3. Trains a Random Forest classifier.
4. Makes predictions on the test set.
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