ASSIGNMENT-2.3

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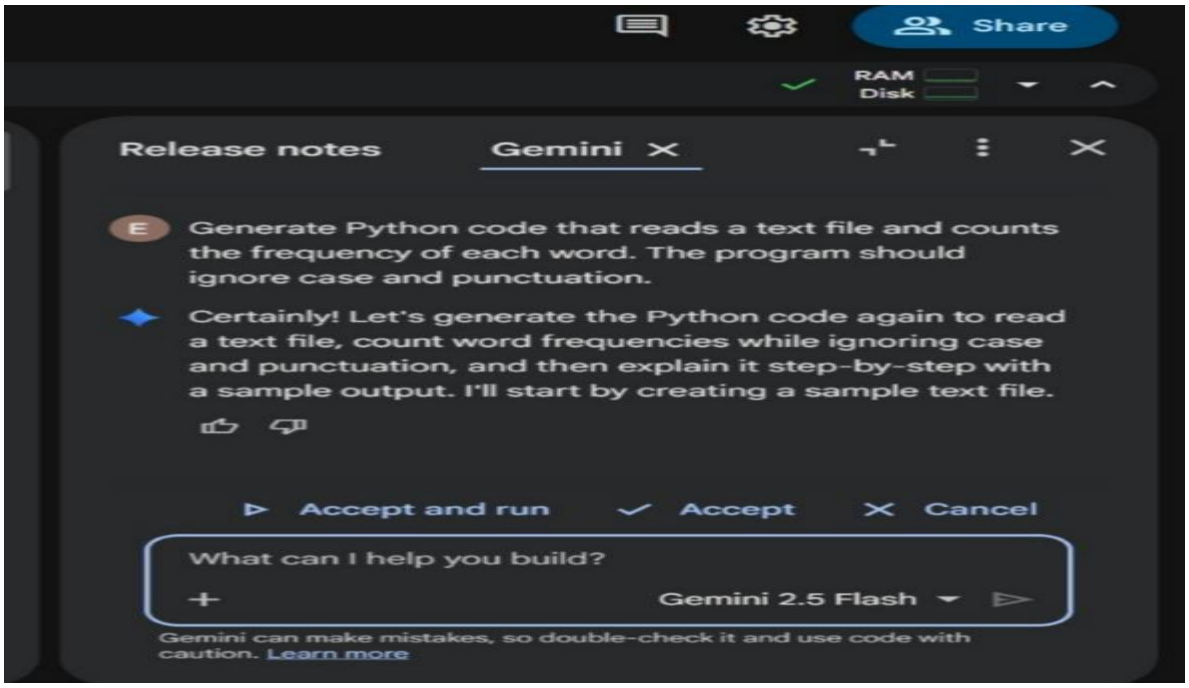
Batch:05

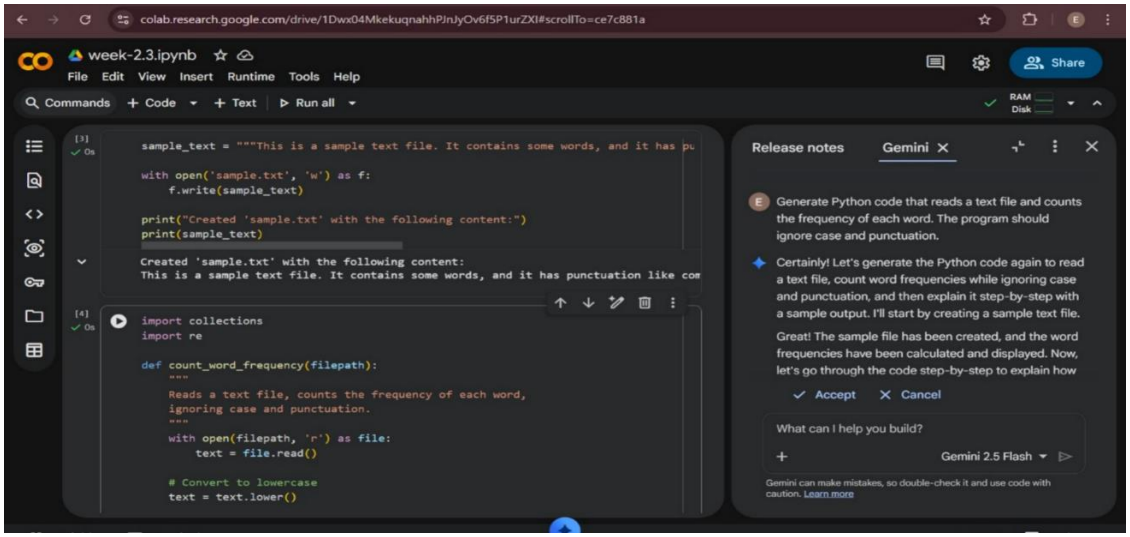
TASK:01

Word Frequency from Text File

PROMPT:



CODE:


colab.research.google.com/drive/1Dwx04MkekuqnahhPJnJyOv6f5P1urZXI#scrollTo=ce7c881a
week-2.3.ipynb
File Edit View Insert Runtime Tools Help
Share
Commands + Code + Text Run all
RAM Disk
[3] 0s
sample_text = """This is a sample text file. It contains some words, and it has pu
with open('sample.txt', 'w') as f:
f.write(sample_text)
print("Created 'sample.txt' with the following content:")
print(sample_text)
Created 'sample.txt' with the following content:
This is a sample text file. It contains some words, and it has punctuation like com
[4] 0s
import collections
import re
def count_word_frequency(filepath):
"""
Reads a text file, counts the frequency of each word,
ignoring case and punctuation.
"""
with open(filepath, 'r') as file:
text = file.read()
# Convert to lowercase
text = text.lower()
Release notes
Gemini
Generate Python code that reads a text file and counts the frequency of each word. The program should ignore case and punctuation.
Certainly! Let's generate the Python code again to read a text file, count word frequencies while ignoring case and punctuation, and then explain it step-by-step with a sample output. I'll start by creating a sample text file.
Great! The sample file has been created, and the word frequencies have been calculated and displayed. Now, let's go through the code step-by-step to explain how
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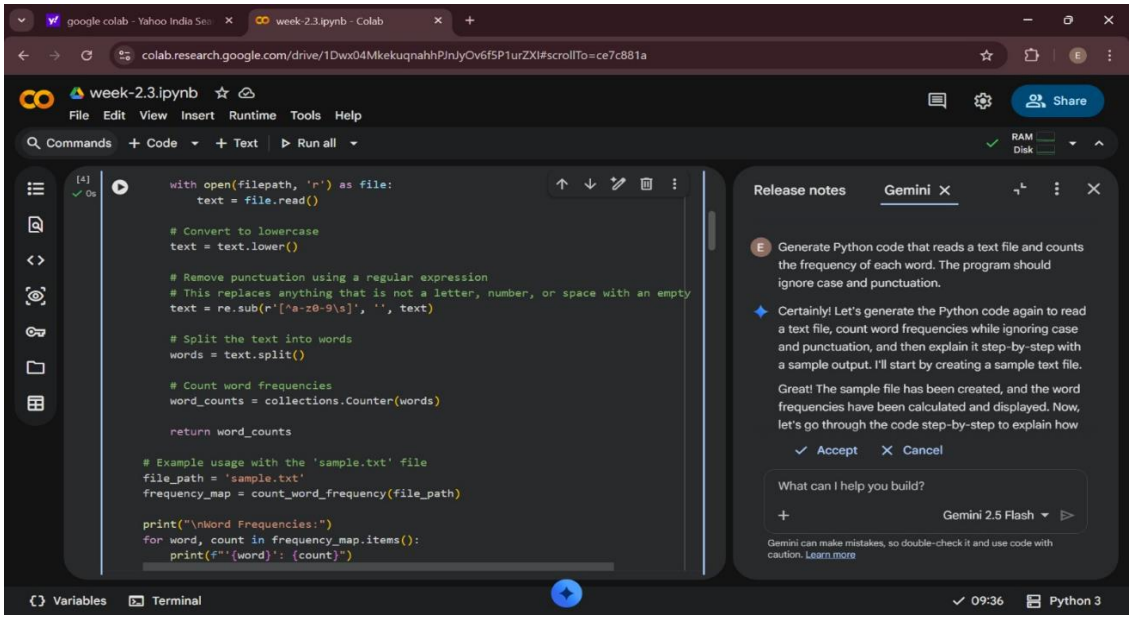
google colab - Yahoo India Sea
week-2.3.ipynb - Colab
colab.research.google.com/drive/1Dwx04MkekuqnahhPJnJyOv6f5P1urZXI#scrollTo=ce7c881a
week-2.3.ipynb
File Edit View Insert Runtime Tools Help
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RAM Disk
[4] 0s
with open(filepath, 'r') as file:
text = file.read()
# Convert to lowercase
text = text.lower()
# Remove punctuation using a regular expression
# This replaces anything that is not a letter, number, or space with an empty
text = re.sub(r'[^a-z0-9\s]', '', text)
# Split the text into words
words = text.split()
# Count word frequencies
word_counts = collections.Counter(words)
return word_counts
# Example usage with the 'sample.txt' file
file_path = 'sample.txt'
frequency_map = count_word_frequency(file_path)
print("\nWord Frequencies:")
for word, count in frequency_map.items():
print(f"'{word}': {count}")
Release notes
Gemini
Generate Python code that reads a text file and counts the frequency of each word. The program should ignore case and punctuation.
Certainly! Let's generate the Python code again to read a text file, count word frequencies while ignoring case and punctuation, and then explain it step-by-step with a sample output. I'll start by creating a sample text file.
Great! The sample file has been created, and the word frequencies have been calculated and displayed. Now, let's go through the code step-by-step to explain how
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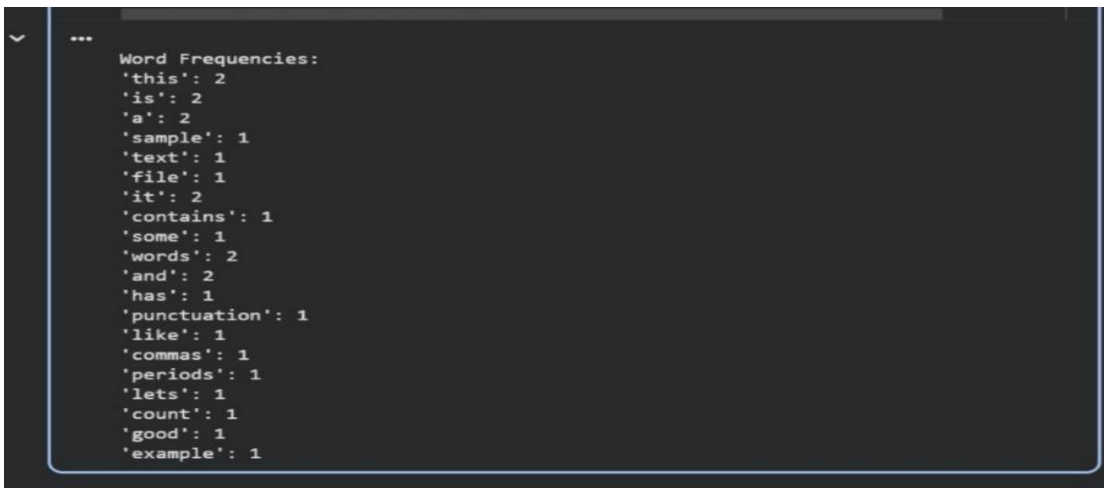
Variables Terminal
09:36 Python 3

OUTPUT:

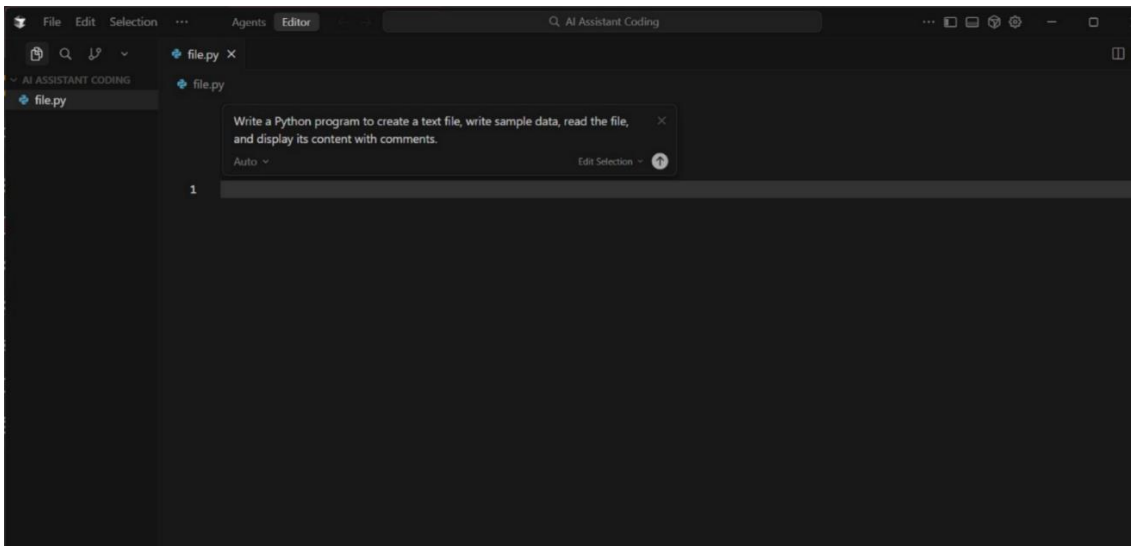

Word Frequencies:
'this': 2
'is': 2
'a': 2
'sample': 1
'text': 1
'file': 1
'it': 2
'contains': 1
'some': 1
'words': 2
'and': 2
'has': 1
'punctuation': 1
'like': 1
'commas': 1
'periods': 1
'lets': 1
'count': 1
'good': 1
'example': 1

EXPLANATION:

- The program reads the contents of a text file.
- It converts all text to lowercase to avoid case mismatch.
- Punctuation marks are removed to ensure accurate word counting.
- Each word is counted using a dictionary.
- The final output displays each word along with its frequency.

TASK-02:

PROMPT:

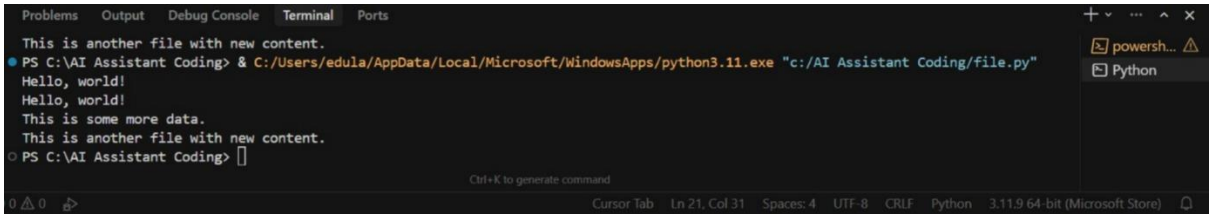


CODE:

```python
# Create and write data to the file
filename = 'sample.txt'
with open(filename, 'w') as file:
    file.write('Hello, world!')

# Read and display the content of the file
with open(filename, 'r') as file:
    content = file.read()
    print(content)

# Append more data to the file
with open(filename, 'a') as file:
    file.write('\nThis is some more data.')

# Read and display the updated content of the file
with open(filename, 'r') as file:
    content = file.read()
    print(content)

# Create another file and write data to it
another_filename = 'another_file.txt'
with open(another_filename, 'w') as file:
    file.write('This is another file with new content.')
```

```
This is another file with new content.
PS C:\AI Assistant Coding> & C:/Users/edula/AppData/Local/Microsoft/WindowsApps/python3.11.exe "c:/AI Assistant Coding/file.py"
Hello, world!
Hello, world!
This is some more data.
This is another file with new content.
PS C:\AI Assistant Coding>
```

OUTPUT:



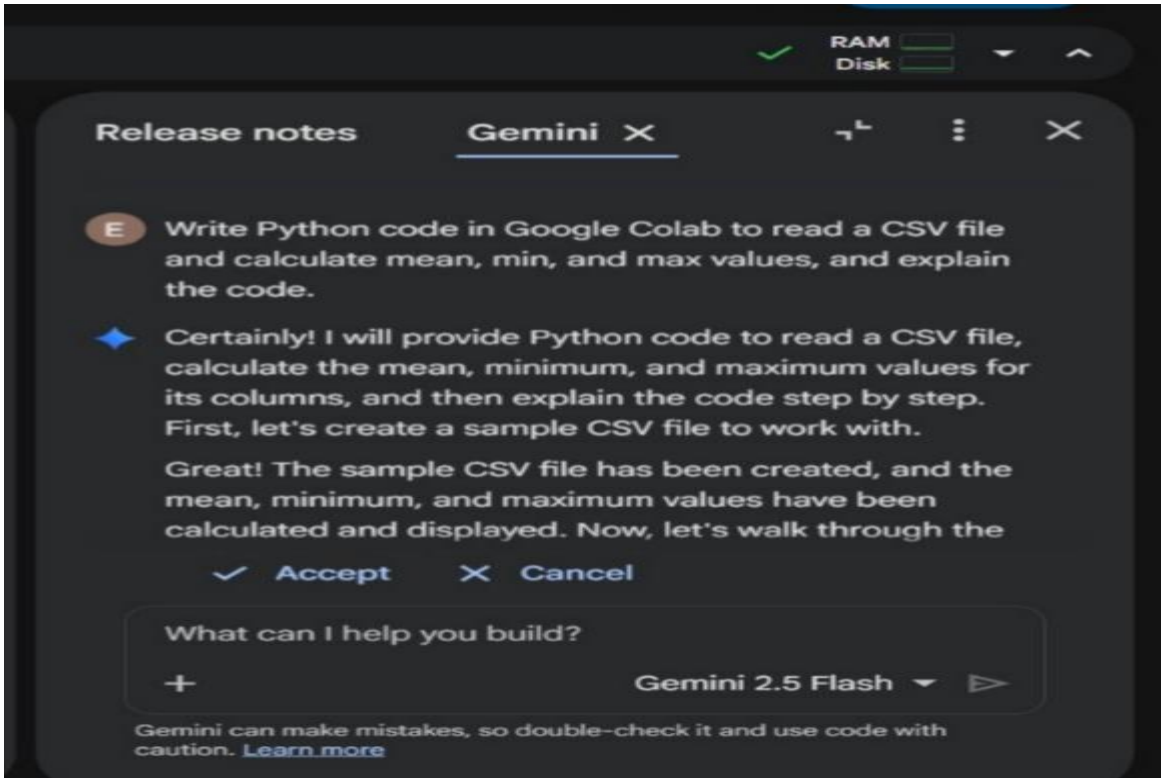
EXPLANATION:

- The program creates a new text file using write mode.
- Sample text is written into the file.
- The file is then opened in read mode.
- The program reads the content of the file.
- Finally, the file content is displayed on the screen.

TASK-03

CSV Data Analysis

PROMPT:


RAM
Disk
Release notes
Gemini
Write Python code in Google Colab to read a CSV file and calculate mean, min, and max values, and explain the code.
Certainly! I will provide Python code to read a CSV file, calculate the mean, minimum, and maximum values for its columns, and then explain the code step by step. First, let's create a sample CSV file to work with.
Great! The sample CSV file has been created, and the mean, minimum, and maximum values have been calculated and displayed. Now, let's walk through the
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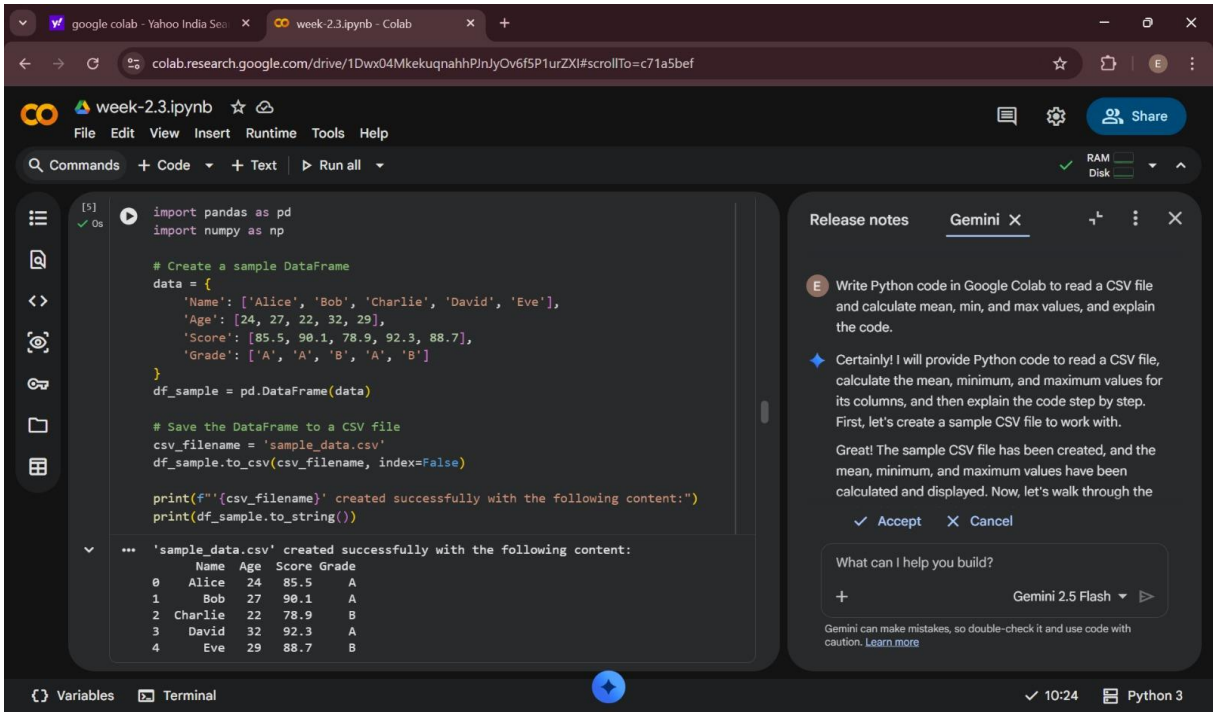
CODE:


google colab - Yahoo India Sea
week-2.3.ipynb - Colab
colab.research.google.com/drive/1Dwx04MkekuqnahhPJnJyOv6f5P1urZXl#scrollTo=c71a5bef
week-2.3.ipynb
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Share
Commands + Code + Text Run all
RAM
Disk
[5]
0s
import pandas as pd
import numpy as np
# Create a sample DataFrame
data = {
'Name': ['Alice', 'Bob', 'Charlie', 'David', 'Eve'],
'Age': [24, 27, 22, 32, 29],
'Score': [85.5, 90.1, 78.9, 92.3, 88.7],
'Grade': ['A', 'A', 'B', 'A', 'B']
}
df_sample = pd.DataFrame(data)
# Save the DataFrame to a CSV file
csv_filename = 'sample_data.csv'
df_sample.to_csv(csv_filename, index=False)
print(f"'{csv_filename}' created successfully with the following content:")
print(df_sample.to_string())
'sample_data.csv' created successfully with the following content:
Name Age Score Grade
0 Alice 24 85.5 A
1 Bob 27 90.1 A
2 Charlie 22 78.9 B
3 David 32 92.3 A
4 Eve 29 88.7 B
Release notes
Gemini
Write Python code in Google Colab to read a CSV file and calculate mean, min, and max values, and explain the code.
Certainly! I will provide Python code to read a CSV file, calculate the mean, minimum, and maximum values for its columns, and then explain the code step by step. First, let's create a sample CSV file to work with.
Great! The sample CSV file has been created, and the mean, minimum, and maximum values have been calculated and displayed. Now, let's walk through the
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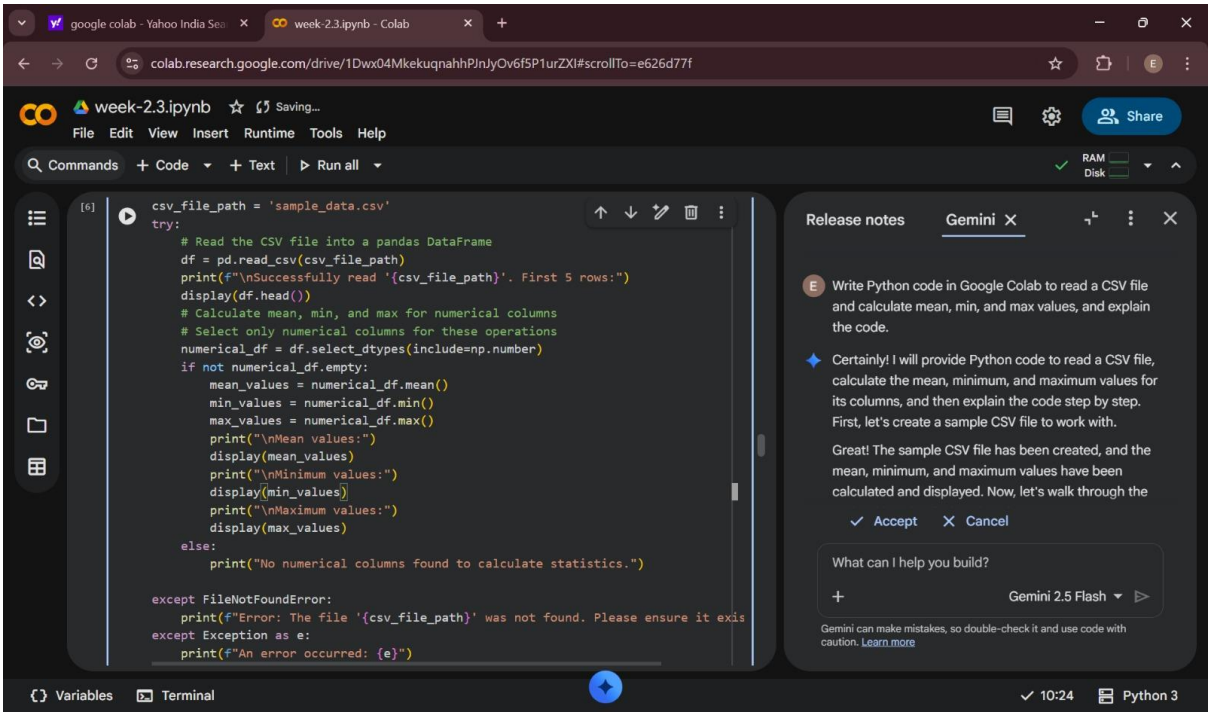
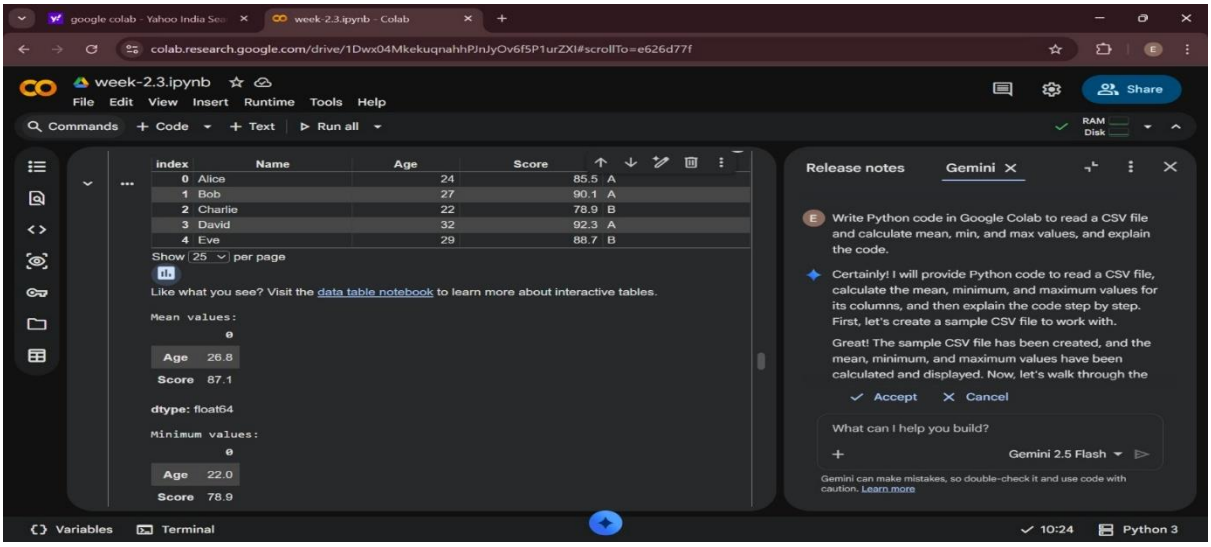
Terminal
10:24
Python 3



OUTPUT:



EXPLANATION:

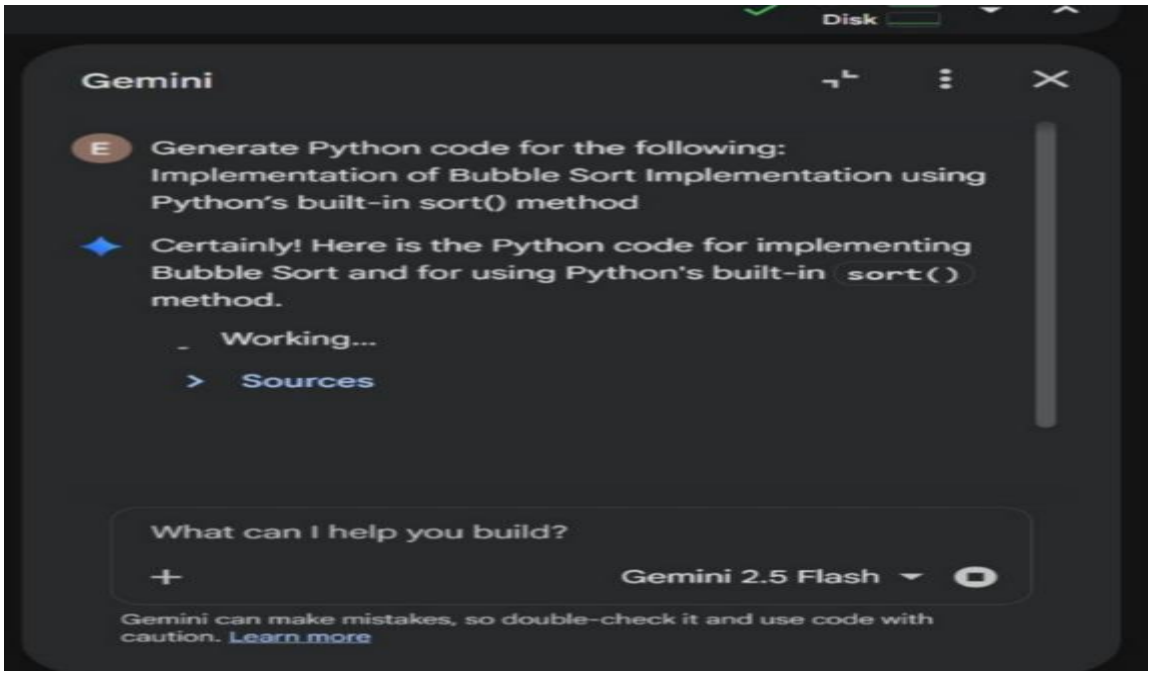
- The program imports the pandas library to work with CSV data.
- The CSV file is uploaded and read into a DataFrame.
- The dataset is displayed to understand its structure.

- The program calculates the mean of numeric columns.
- It finds the minimum value in each numeric column.
- It finds the maximum value in each numeric column.
- The results are displayed as output.

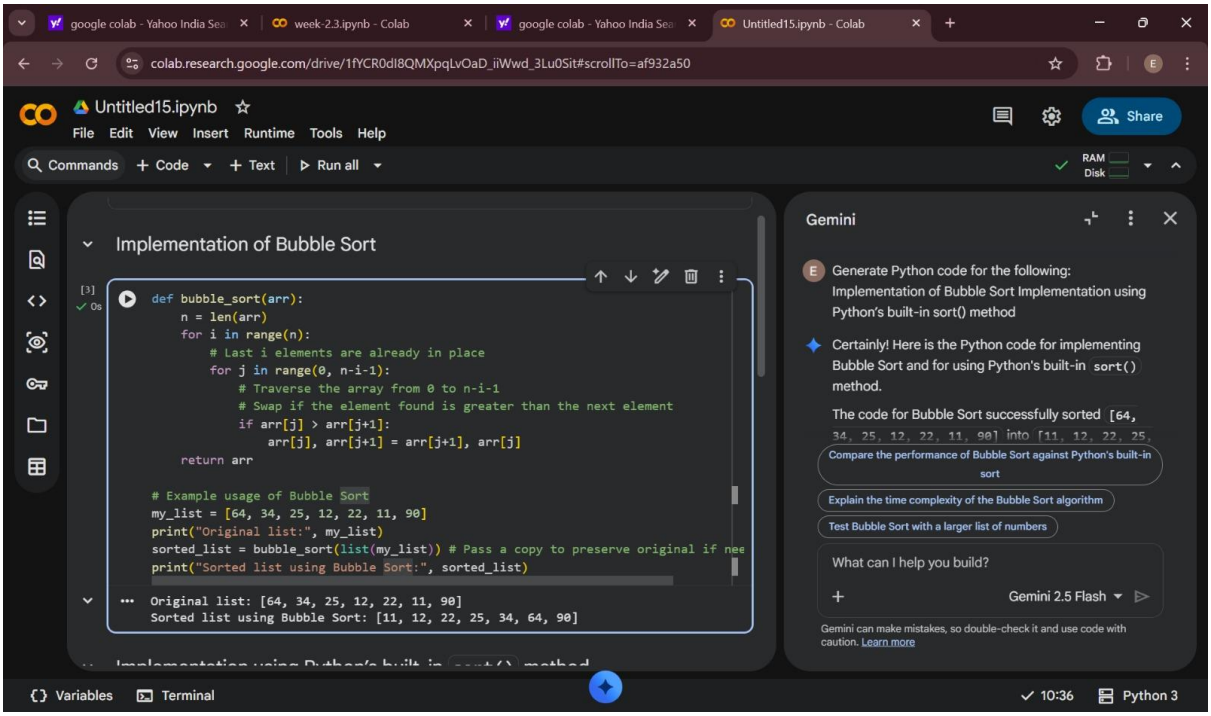
TASK-04

Sorting Lists – Manual vs Built-in

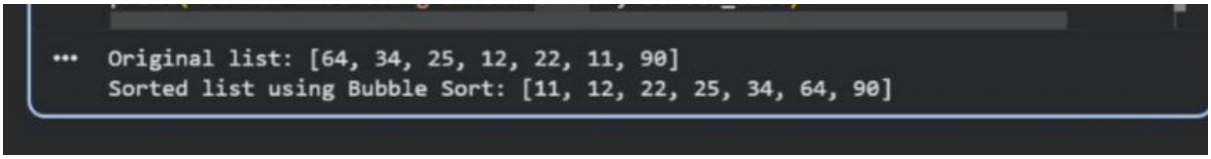
PROMPT:



CODE:



OUTPUT:



EXPLANATION:

1. Bubble Sort

- Bubble sort repeatedly compares adjacent elements.
- If the elements are in the wrong order, they are swapped.
- This process continues until the list is completely sorted.
- It is easy to understand but inefficient for large datasets.

2. Python Built-in sort()

- The sort() method sorts the list directly using an optimized algorithm.
- It is faster and more efficient than bubble sort.
- It requires less code and is suitable for large datasets.

Comparison

- Bubble sort has higher time complexity and is slower.
- Python’s sort() is optimized and much faster.
- Bubble sort is mainly used for learning, while sort() is used in real applications.