Software Engineering Lab Task 3

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Implement weather modelling using the quadratic solution in stages: hard-coding variables keyboard input, read from a file, for a single set of input, multiple sets of inputs. save all versions, debug, fix problems, create a GitHub account.

Aim:

To model weather temperature using a quadratic equation, demonstrating three scenarios:

1. **Hardcoded Values**: Predefined inputs for simplicity.
2. **Keyboard Input**: User-provided inputs for flexibility.
3. **File Input**: Reading inputs from a file for automated processing.

About the Program:

- The program utilizes a quadratic equation to model temperature changes over time.
- Equation given by:

  Temperature=a×(time)^2+b×(time)+c

1. Hardcoding Variables:
   - Predefined values for coefficients a*a*, b*b*, and c*c*.
   - Calculate temperature for a given time using these hardcoded values.

```
[3] from google. colab import drive
    drive .mount('/content/drive')

Mounted at /content/drive

# Define the quadratic function
def calculate_temperature(a, b, c, time):
    return a * (time ** 2) + b * time + c

# Hardcoded variables
a, b, c = 0.1, 2, 10
time = 5

# Calculate and display temperature
temperature = calculate_temperature(a, b, c, time)
print(f"Temperature at time {time} hours with hardcoded variables: {temperature}")

Temperature at time 5 hours with hardcoded variables: 22.5
```

2. Accepting Variables via Keyboard Input:

- Prompt the user to enter values for coefficients a*a*, b*b*, and c*c*.
- Calculate temperature for a given time using these user-provided values.

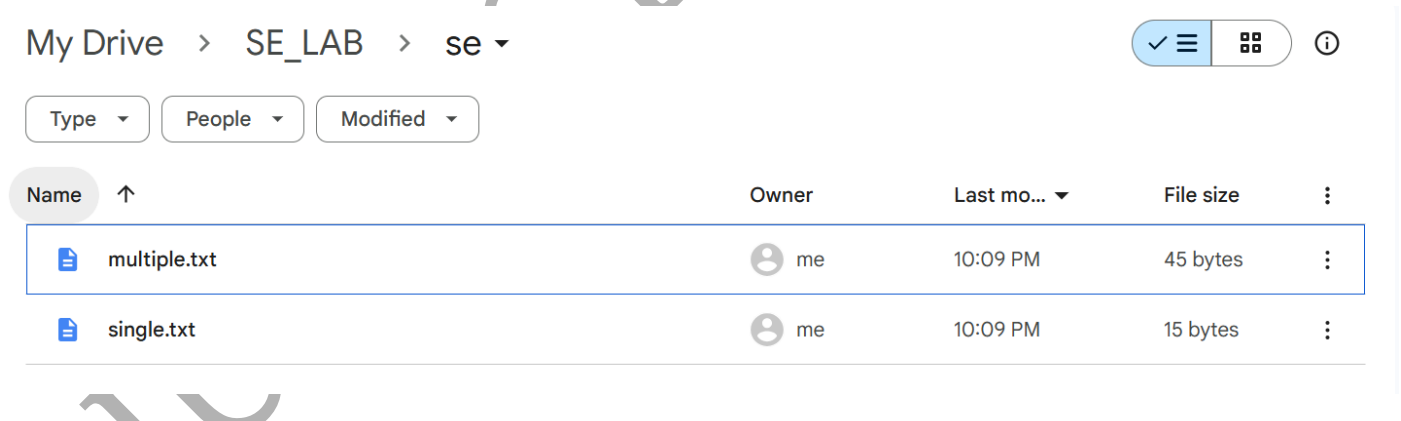
```
# Accept coefficients from user input
a = float(input("Enter coefficient a: "))
b = float(input("Enter coefficient b: "))
c = float(input("Enter coefficient c: "))
time = float(input("Enter time: "))

# Calculate and display temperature
temperature = calculate_temperature(a, b, c, time)
print(f"Temperature at time {time} hours with keyboard input: {temperature}")
10
```

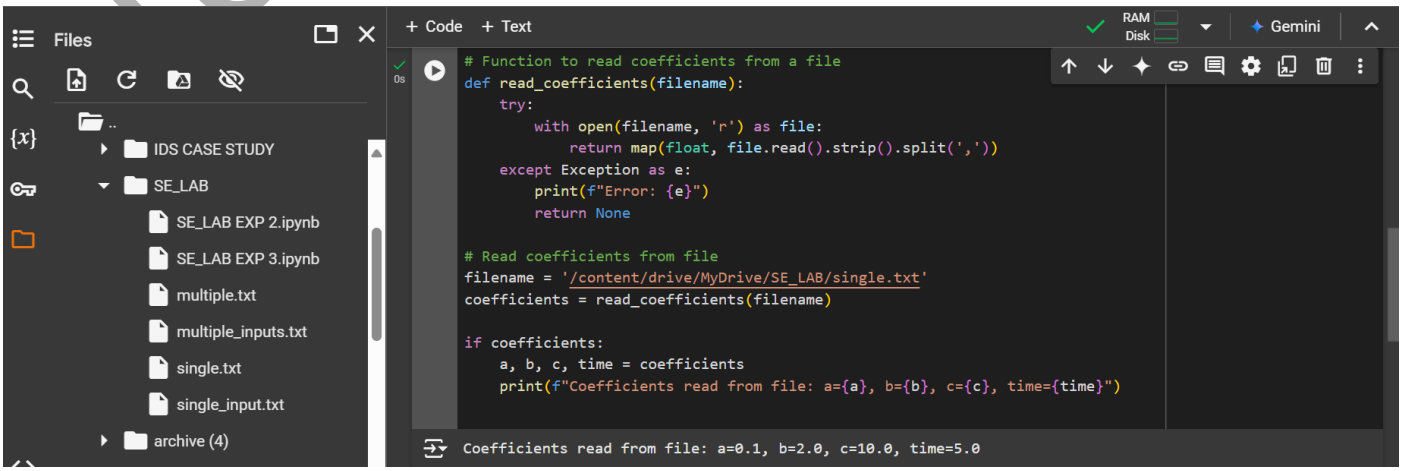
```
Enter coefficient a: 0.1
Enter coefficient b: 2
Enter coefficient c: 10
Enter time: 5
Temperature at time 5.0 hours with keyboard input: 22.5
```

3. Reading Variables from a File:

- Read coefficients a, b, c, and time from a file.
- Calculate temperature for each set of inputs read from the file.

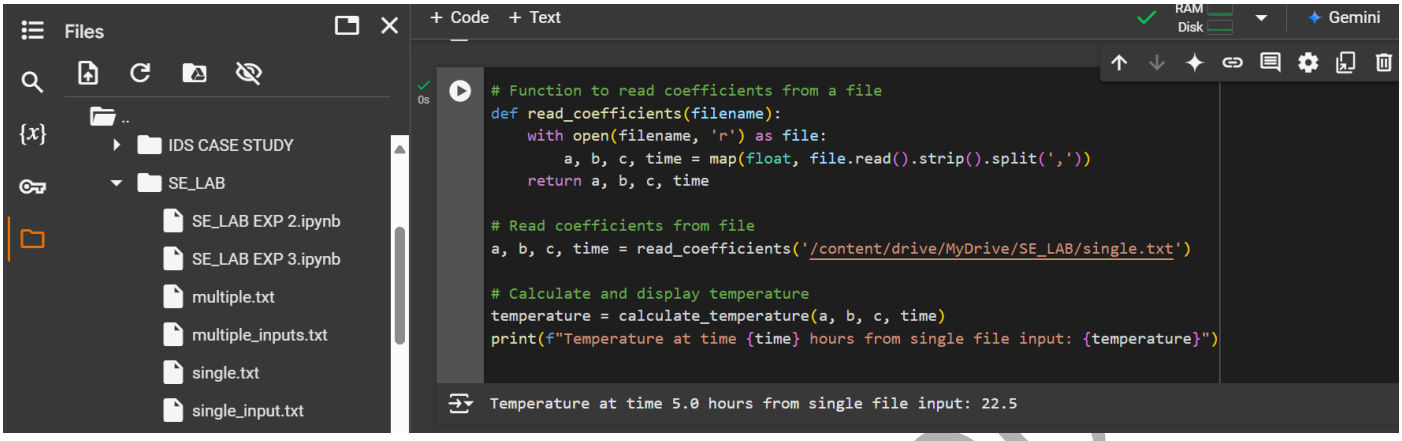
Step 1: upload the required files in google drive. So that we can use in code.





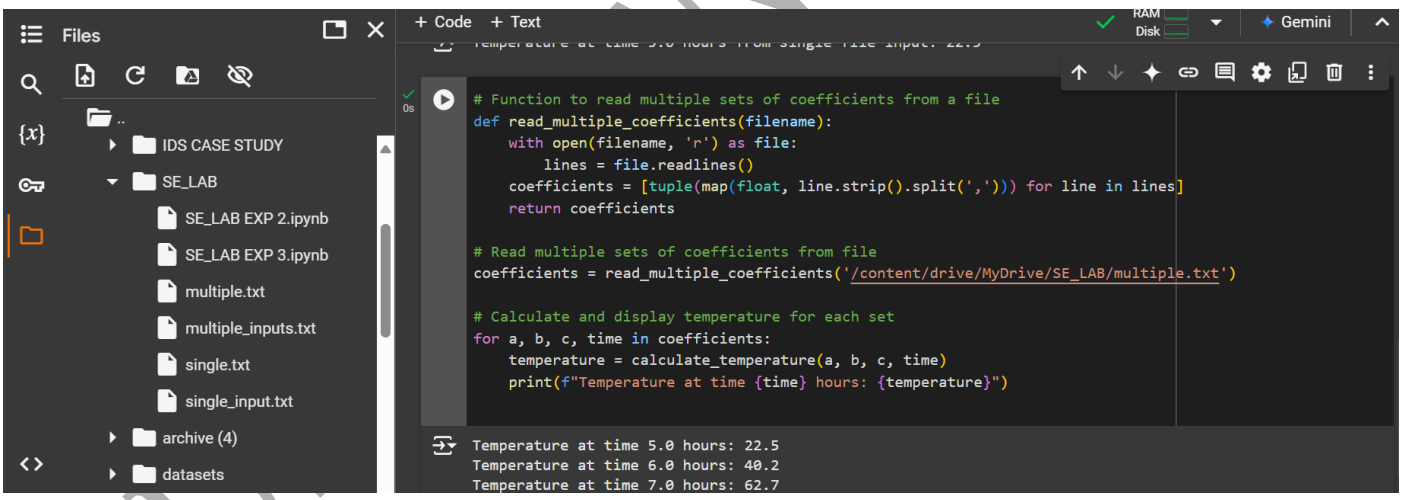
4. Processing a Single Set of Inputs:

- Read a single set of coefficients from a file.
- Calculate and display the temperature for this set.



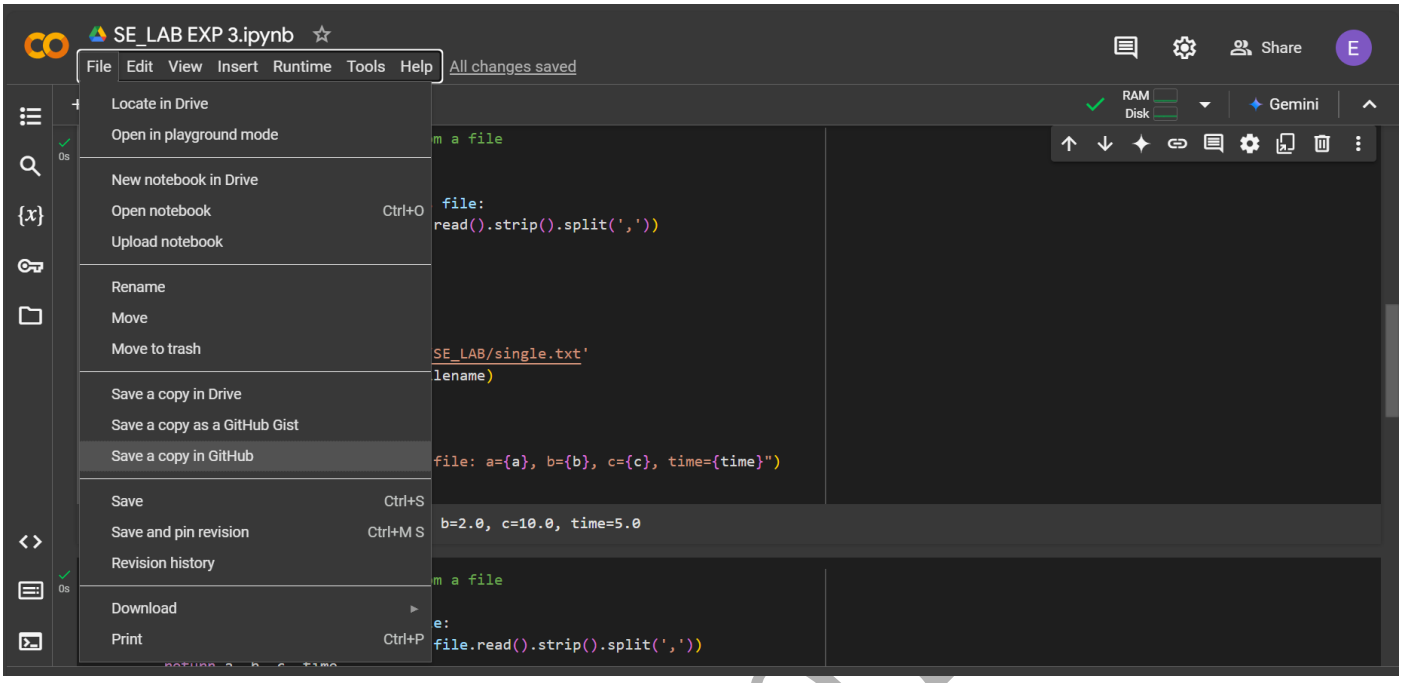
5. Processing Multiple Sets of Inputs:

- Read multiple sets of coefficients from a file.
- Calculate and display the temperature for each set.

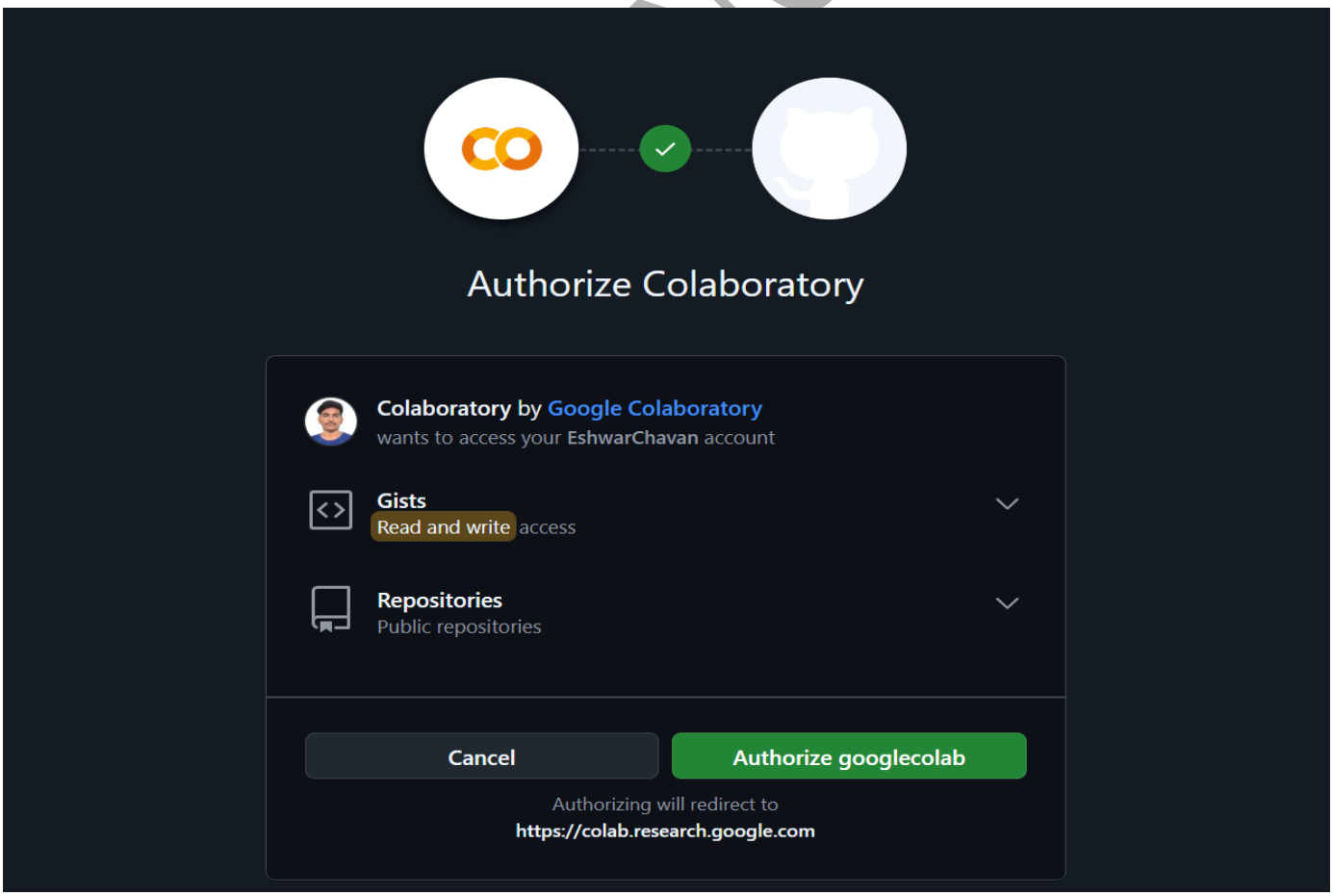


Pushing the project to GitHub.

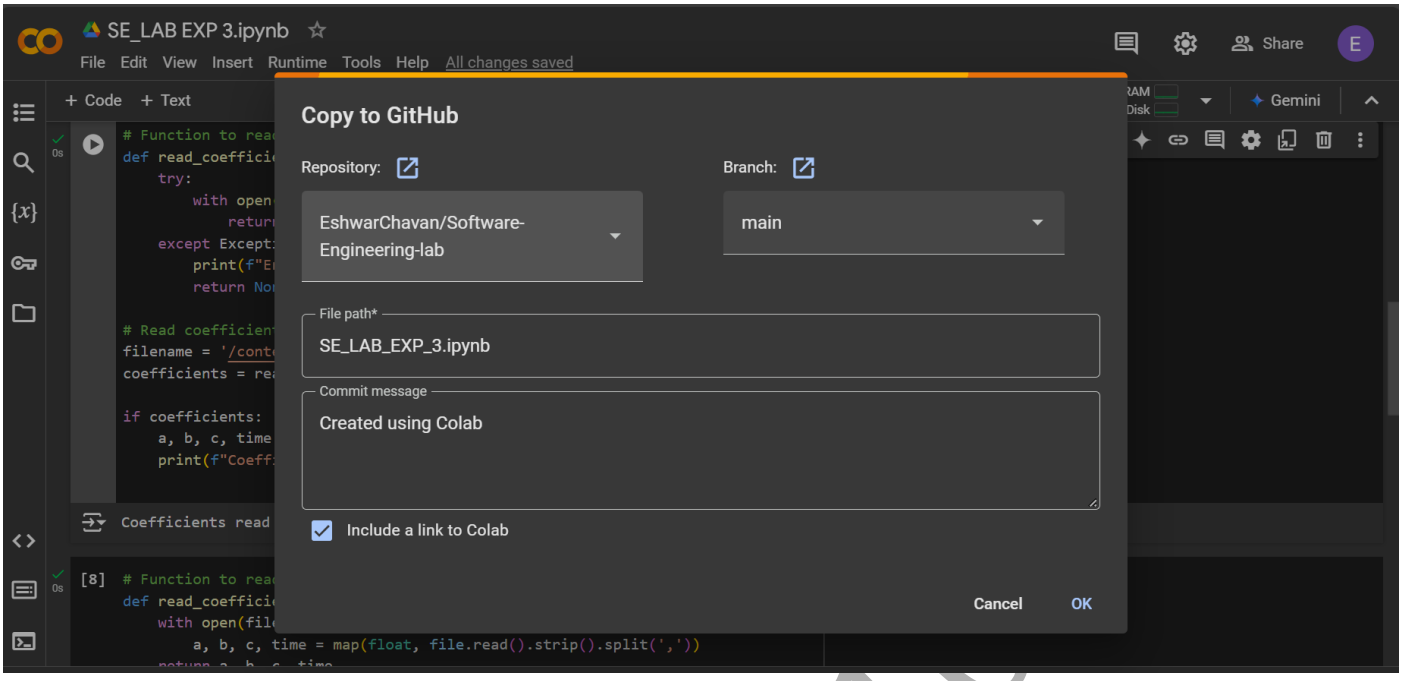
Step 1: Click on file and select option save a copy in GitHub



Step 2: Authorize Colaboratory



Step 3: Click on ok for copying to GitHub.



Step 4: Pushed into GitHub