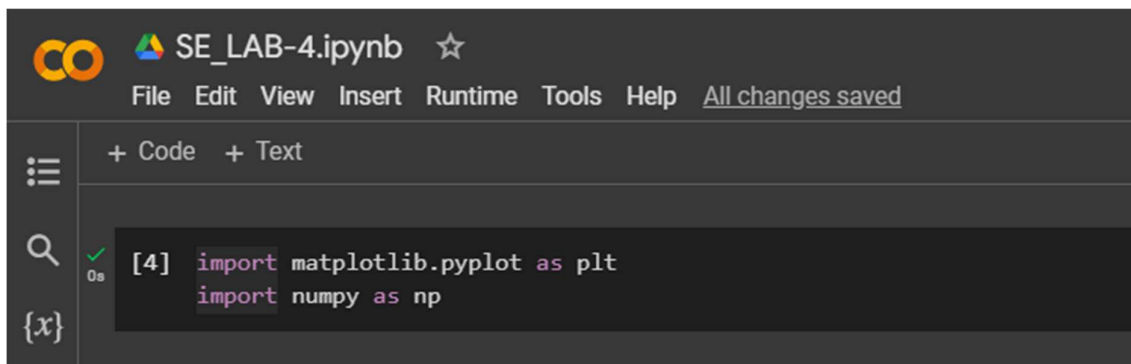Archana Ray

HU22CSEN0102029

SE Lab Task-4

1. Develop weather modelling using the quadratic model using Agile model.
2. Write about all the phases in Agile model

1. Importing libraries


```
import matplotlib.pyplot as plt
import numpy as np
```

2. Defining the Agile Phases


```python
def plot_agile_iterative_process():
    phases = ["Requirement Analysis", "Dataset Creation", "Preprocessing", "Model Training", "Evaluation", "Visualization", "Iteration & Feedback" ]

    angles = np.linspace(0, 2 * np.pi, len(phases), endpoint=False).tolist()
    angles += angles[:1]

    fig, ax = plt.subplots(figsize=(8, 8), subplot_kw={'polar':True})
    ax.set_theta_offset(np.pi / 2)
    ax.set_theta_direction(-1)

    for i, phase in enumerate (phases):
      ax.text(angles[i], 1.2, phase, ha='center', va='center', fontsize=10, wrap=True)

    for i in range(len(phases)):
      next_index = (i + 1) % len(phases)
      ax.annotate( "", xy=(angles[next_index], 1), xytext=(angles[i], 1), arrowprops=dict(arrowstyle="->", lw=1.5, color="blue"))

    ax.set_ylim(0, 1.5)
    ax.axis('off')
    plt.title("Agile Iterative Process for Weather Modeling", fontsize=14, y=1.1)
    plt.show()

plot_agile_iterative_process()
```
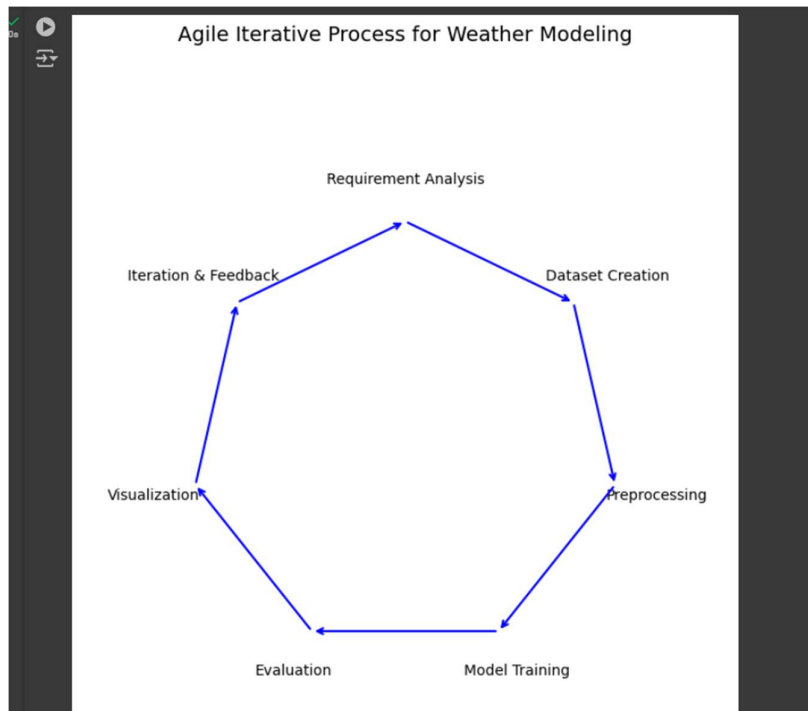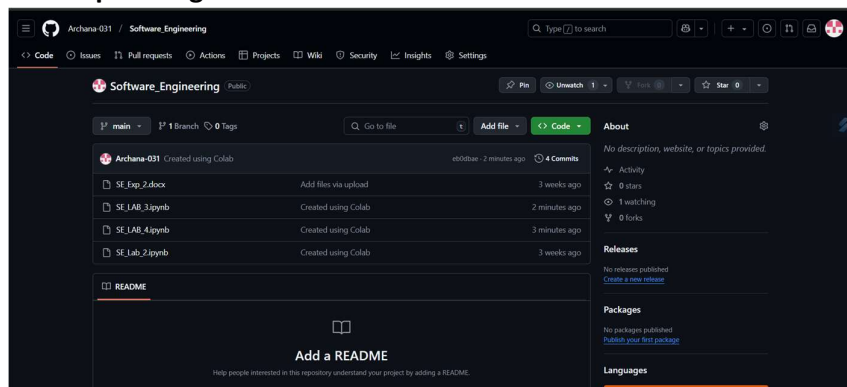
3. Implementation Output

Agile Iterative Process for Weather Modeling

Code uploading in Github:

4. Phases of Agile model

What is the Agile Model?

The Agile Model is a flexible and iterative way of managing projects. Instead of trying to complete everything at once, the Agile approach divides work into smaller, manageable parts, called iterations or sprints. Each part focuses on delivering a piece

of the project, and after each step, feedback is gathered to improve the next steps. This approach is particularly useful for projects where requirements might change or evolve over time.

Phases of the Agile Model

1. **Requirement Analysis**
   - Understand what the project needs to achieve.
   - Gather details about the goals, problems to solve, and features to include.
2. **Dataset Creation**
   - Collect the data required for the project.
   - Ensure the data is relevant and sufficient for the task.
3. **Preprocessing**
   - Clean and prepare the data to make it usable.
   - Fix missing values, remove errors, and organize the data.
4. **Model Training**
   - Use the prepared data to train a machine learning or AI model.
   - The model learns patterns from the data to make predictions or decisions.
5. **Evaluation**
   - Test how well the model performs by checking its accuracy and reliability.
   - Compare the model's results against known outcomes.
6. **Visualization**
   - Create charts, graphs, or dashboards to represent the results clearly.
   - Help team members and stakeholders understand the progress and outcomes.
7. **Iteration & Feedback**
   - Review the work done so far and collect feedback from the team or stakeholders.
   - Make improvements based on the feedback and repeat steps as needed to refine the results.

Drawbacks of the Agile Model

1. **Lack of Predictability**
   - Difficulty in estimating timelines and budgets due to frequent changes.
2. **Requires High Collaboration**
   - Success depends heavily on teamwork and effective communication.
3. **Not Ideal for All Projects**
   - Unsuitable for projects with fixed requirements or strict regulations.
4. **Frequent Changes Can Be Disruptive**
   - Continuous feedback and evolving requirements may cause confusion.