

## Capstone Project Weekly Progress Report

<b>Semester</b>	Fall-2024 Semester 3rd
<b>Course Code</b>	AML-3406
<b>Section</b>	Section 1
<b>Project Title</b>	Car Damage Detection
<b>Group Name</b>	Group B
<b>Student names/Student IDs</b>	Sakshi (C0908000) Bansil Patel (C0912873) Harsh Mohile (C0912872) Meet Patel (C0910378) Rachit Bhatt (C0902810) – TL
<b>Reporting Week</b>	Week 2
<b>Faculty Supervisor</b>	William Pourmajidi

**1. Grade the level of collaboration from different aspects between team members:**  
 (use: good, medium, below expectation)

Sakshi	Bansil Patel	Harsh Mohile	Meet Patel	Rachit Bhatt
Good	Good	Good	Good	Good

## 2. Tasks outlined in the previous Weekly Progress Report for this reporting week at the individual level and group level

### 2.1 Individual tasks (each team member)

**Sakshi:** Document the proposal with proper formatting and make project icon.

**Bansil Patel:** Research project domain and define resource allocation.

**Harsh Mohile:** Study on ML-Ops.

**Meet Patel:** Select the dataset.

**Rachit Bhatt:** Configure GitHub.

### 2.2 Your team's tasks

- Trailing with various datasets and finalizing one for the project.
- Researching on Computer Vision for Image Processing.
- Configuring GitHub and initiating working on ML-Ops.
- Decorate the project by creating an appropriate icon and structuring the reports.

## 3. Progress made in Reporting Week at an individual level and group level

### 3.1 Individual progress

**Sakshi:** Developed an appropriate icon for the project and learned GitHub.

**Bansil Patel:** Researched multiple project domains and defined their challenges and scope.

**Harsh Mohile:** Studied ML-Ops.

**Meet Patel:** Explored various datasets and found a dataset appropriate for the project.

**Rachit Bhatt:** Initiated GitHub configuration for the project.

### 3.2 Your team's progress

- Explored various datasets and picked the one with more appropriate images.
- Initiated the research on Computer Vision.
- Initiated the GitHub configuration for the project management.
- Implemented a project icon.

## 4. The areas/tasks you could not make progress and/or complete as scheduled or the difficulties encountered in this reporting week at individual level and group level.

### 4.1 Individual project blockers

**Sakshi:** A lot of time was consumed when using AI for idealizing project icons.

**Bansil Patel:** Understanding the concept of Edge Detection.

**Harsh Mohile:** Confused in the CI/CD pipeline implementation in GitHub.

**AL and ML Capstone Project**

**Meet Patel:** Managing datasets due to low storage space and huge dataset size to accommodate one at a time.

**Rachit Bhatt:** Creating and configuring branch rulesets.

**4.2 Your team's project blockers**

- Identifying the most current and relevant project topics was particularly challenging, as it involved extensive research and evaluation.
- Finding appropriate algorithms, datasets, and deployment standards required careful consideration to ensure they met our project needs.

**5. Tasks to be completed in next week at individual level and group level****5.1 Individual tasks**

**Sakshi:** Defining phases of project and analyzing post requirements of project.

**Bansil Patel:** Practicals of learning – Computer Vision.

**Harsh Mohile:** Research on Deployment Platforms.

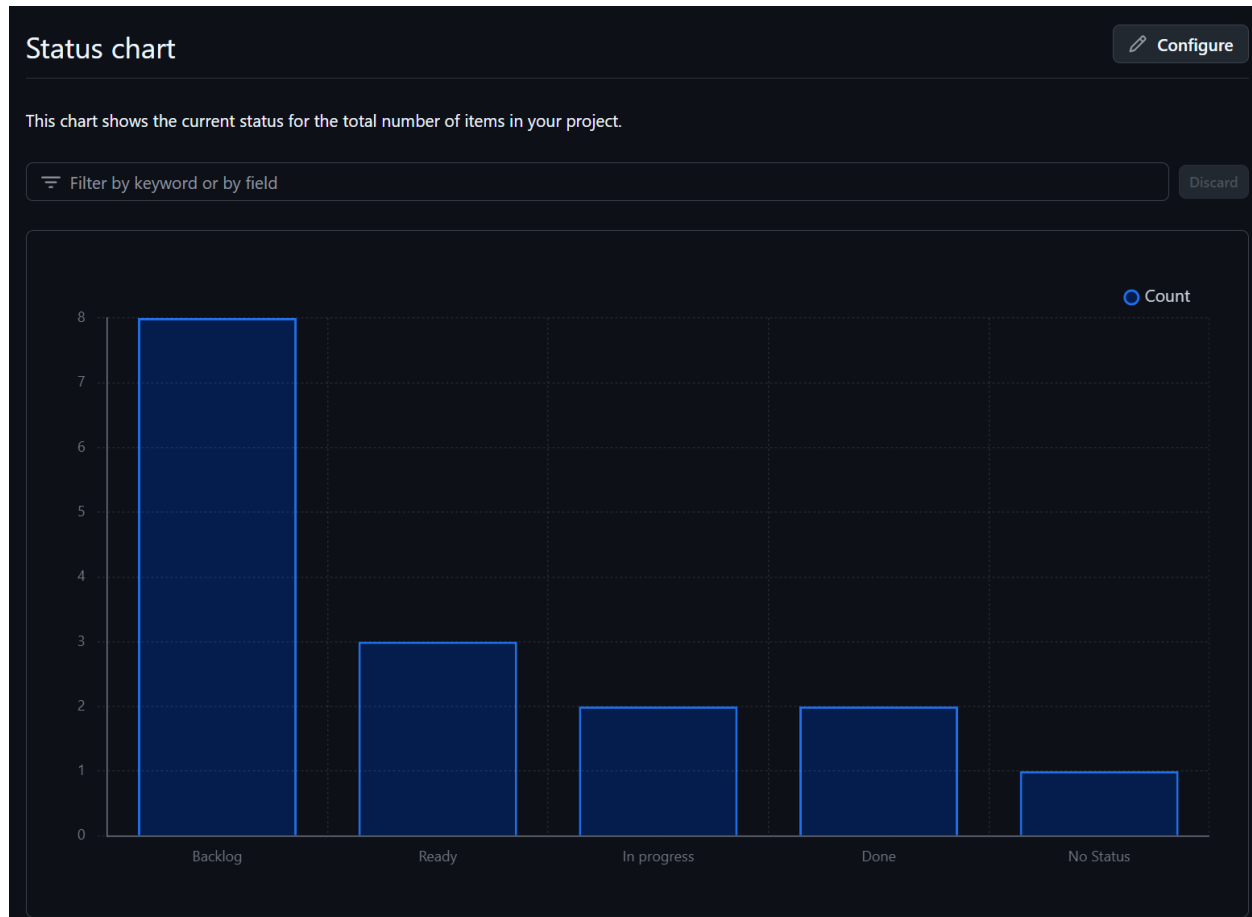
**Meet Patel:** Learning GitHub Management.

**Rachit Bhatt:** Creating demo for CI/CD Pipeline.

**5.2 Your team's tasks**

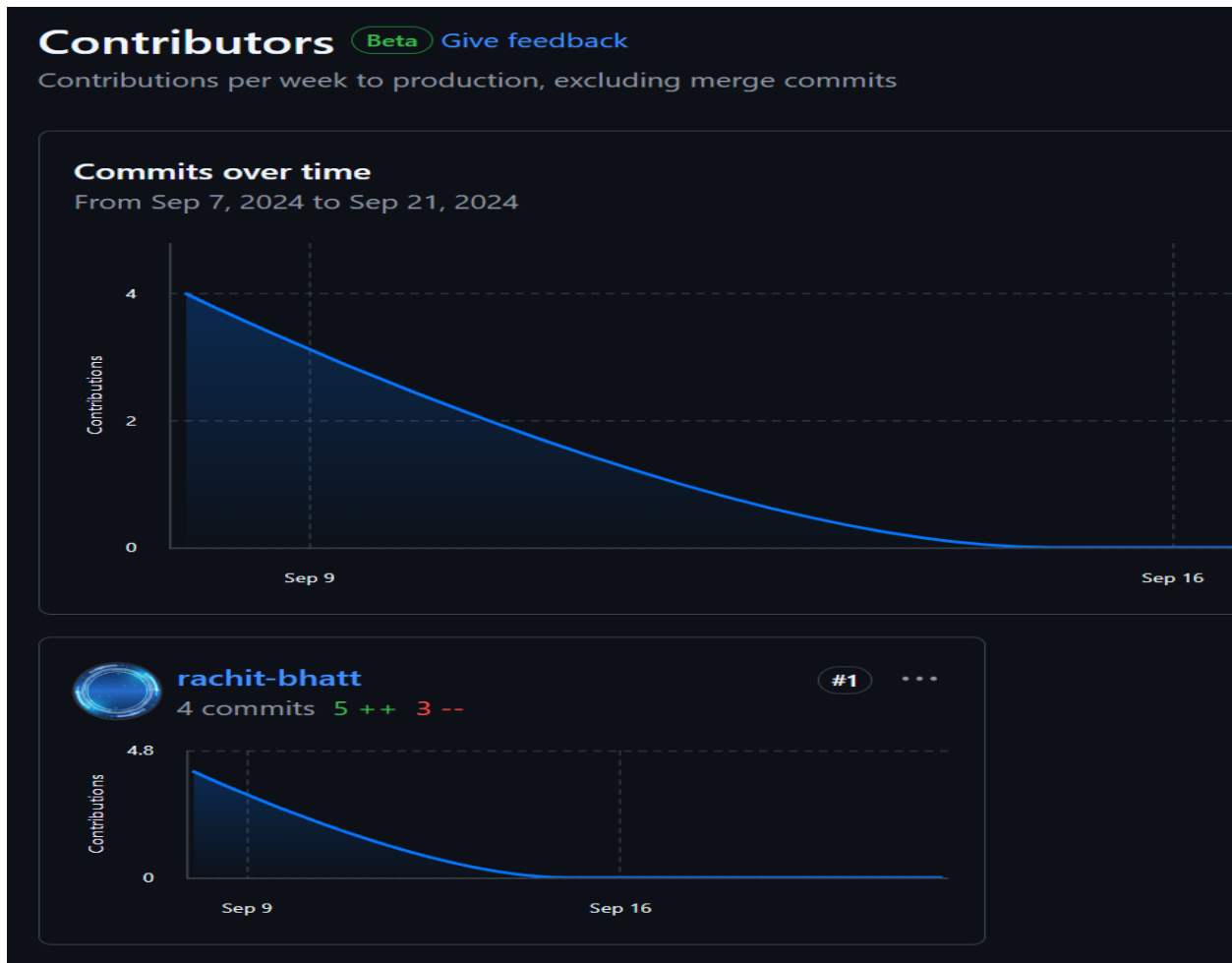
- Initiate work on the project concepts.
- Understand the suitable deployment platforms.

6. Include the tasks from your sprint planning (Github/Zenhub) for the present period.



**Figure 1:** Status Chart of GitHub Issues in Milestone

7. Include charts/graphs (e.g., burn down charts) from your project management tool (Github/Zenhub) that shows your progress for the period of this report.



**Figure 2:** Highest Contributor of the Week

8. Include a note and address to your project Github with list of codes uploaded/updated on Github in this reporting week.

**GitHub:** <https://www.github.com/rachit-bhatt/Capstone-Project>

```

1 import os
2 import numpy as np # linear algebra
3 import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)
4 import cv2
5 import tensorflow as tf
6 import matplotlib.pyplot as plt
7 from tensorflow.keras.preprocessing.image import ImageDataGenerator
8 from tensorflow.keras.callbacks import EarlyStopping
9 from tensorflow.keras.applications import ResNet50
10 from tensorflow.keras import layers, models, optimizers
11 from sklearn.model_selection import KFold
12 from tensorflow.keras import regularizers
13 !pip install ipywidgets
14 import ipywidgets as widgets
15 from IPython.display import display
16 from tensorflow.keras.preprocessing.image import load_img, img_to_array
17 import numpy as np
18 import matplotlib.pyplot as plt

```

Requirement already satisfied: ipywidgets in c:\users\pbans\onedrive\desktop\cd2\conda\lib\site-packages (8.1.5)

Requirement already satisfied: comm>=0.1.3 in c:\users\pbans\appdata\roaming\python\python312\site-packages (from ipywidgets) (0.2.2)

Requirement already satisfied: ipython>=6.1.0 in c:\users\pbans\appdata\roaming\python\python312\site-packages (from ipywidgets) (8.27.0)

Requirement already satisfied: traitlets>=4.3.1 in c:\users\pbans\appdata\roaming\python\python312\site-packages (from ipywidgets) (5.14.3)

Requirement already satisfied: widgetsnbextension<4.0.12 in c:\users\pbans\onedrive\desktop\cd2\conda\lib\site-packages (from ipywidgets) (4.0.13)

Requirement already satisfied: jupyterlab-widgets>=3.0.12 in c:\users\pbans\onedrive\desktop\cd2\conda\lib\site-packages (from ipywidgets) (3.0.13)

Requirement already satisfied: decorator in c:\users\pbans\appdata\roaming\python\python312\site-packages (from ipython>=6.1.0->ipywidgets) (5.1.1)

Requirement already satisfied: jedi>=0.16 in c:\users\pbans\appdata\roaming\python\python312\site-packages (from ipython>=6.1.0->ipywidgets) (0.19.1)

Requirement already satisfied: matplotlib-inline in c:\users\pbans\appdata\roaming\python\python312\site-packages (from ipython>=6.1.0->ipywidgets) (0.1.7)

Requirement already satisfied: prompt-toolkit<3.1.0,>=3.0.41 in c:\users\pbans\appdata\roaming\python\python312\site-packages (from ipython>=6.1.0->ipywidgets) (3.0.48)

Requirement already satisfied: pygments>=2.4.0 in c:\users\pbans\appdata\roaming\python\python312\site-packages (from ipython>=6.1.0->ipywidgets) (2.18.0)

Requirement already satisfied: stack-data in c:\users\pbans\appdata\roaming\python\python312\site-packages (from ipython>=6.1.0->ipywidgets) (0.6.3)

Requirement already satisfied: colorama in c:\users\pbans\appdata\roaming\python\python312\site-packages (from ipython>=6.1.0->ipywidgets) (0.4.6)

Requirement already satisfied: parso<0.9.0,>=0.8.3 in c:\users\pbans\appdata\roaming\python\python312\site-packages (from jedi>=0.16->ipython>=6.1.0->ipywidgets) (0.8.4)

Requirement already satisfied: wcwidth in c:\users\pbans\appdata\roaming\python\python312\site-packages (from prompt-toolkit<3.1.0,>=3.0.41->ipython>=6.1.0->ipywidgets) (0.2.13)

Requirement already satisfied: stack-data in c:\users\pbans\appdata\roaming\python\python312\site-packages (from stack-data->ipython>=6.1.0->ipywidgets) (2.1.0)

Requirement already satisfied: asttokens>=2.1.0 in c:\users\pbans\appdata\roaming\python\python312\site-packages (from stack-data->ipython>=6.1.0->ipywidgets) (2.4.1)

Requirement already satisfied: pure-eval in c:\users\pbans\appdata\roaming\python\python312\site-packages (from stack-data->ipython>=6.1.0->ipywidgets) (0.2.3)

Requirement already satisfied: six>=1.12.0 in c:\users\pbans\appdata\roaming\python\python312\site-packages (from asttokens>=2.1.0->stack-data->ipython>=6.1.0->ipywidgets) (1.16.0)

Figure 3: A few Libraries applied on Sample Dataset.

```
1 train_img_path = r"data3a\training"
2 test_img_path = r'data3a\validation'
3 batch_size = 32
4 img_height = 224
5 img_width = 224
6 train_data_gen = ImageDataGenerator(rescale=1 / 255.0,
7     rotation_range=20,
8     zoom_range=0.05,
9     width_shift_range=0.05,
10    height_shift_range=0.05,
11    shear_range=0.05,
12    horizontal_flip=True,
13    validation_split=0.20,)
14
15 # Use flow_from_directory for the training dataset
16 train_ds = train_data_gen.flow_from_directory(
17     train_img_path,
18     target_size=(img_height, img_width),
19     batch_size=batch_size,
20     class_mode='categorical',
21     subset='training',
22     seed=123,
23     shuffle=True
24 )
25 valid_ds = train_data_gen.flow_from_directory(
26     train_img_path,
27     target_size=(img_height, img_width),
28     batch_size=batch_size,
29     class_mode='categorical',
30     subset='validation',
31     seed=123,
32     shuffle=True
33 )
```

```
Found 1108 images belonging to 3 classes.
Found 275 images belonging to 3 classes.
```

Figure 4: Loading Images from a Sample Dataset.