EARTHQUAKE BUILDING DAMAGE PREDICTION SYSTEM

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TABLE OF CONTENTS

Presentation Outline

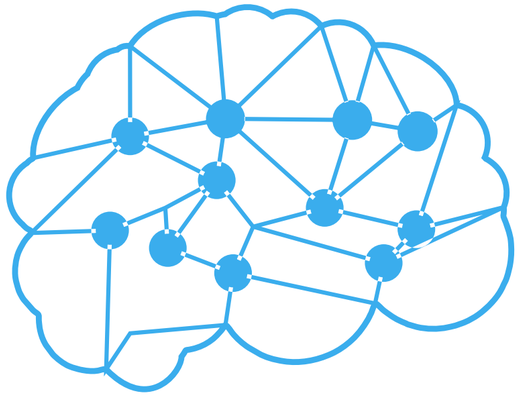
PROBLEM STATEMENT

- Visually identifying and classifying individual building damage is time-consuming
- Delayed assessment of the building could result in casualty
- Development of a predictive classification model to predict earthquake damage incurred on buildings.

WHY THIS PROJECT?

- Data Availability
- Relevance & Applicability
- Feasibility

FEASIBILITY STUDY



Techincal Feasibility

Technically feasible as system will be created using available softwares and technologies like Python, Google Colab etc.

Economic Feasibility

Economically Feasible as system can be created without any expensive hardware and softwares.

Time Feasibility

Time feasible as system can be created within specified time.

Data Source

Kaggle

Dataset Name: Earthquake Magnitude, Damage and Impact

Link: https://www.kaggle.com/code/ar89dsl/predicting-building-damage-from-earthquakes/data

Data Overview: 762106 rows and 79 columns

Target: damage_grade(grade 1, 2, 3, 4, 5)

Possible Target

- To find out whether the given building is safe to operate or not.
- Safety tagging of existing buildings
- To govern the design of new buildings
- Useful for construction enhancement work analysis

ALGORITHMS

Different classification algorithms will be tried and models will be developed.

Some of the algorithms we are considering are:

1. Logistic Regression
2. Decision Tree
3. Random Forest

All these models will be evaluated based on performance metrics and best model will be selected.

PERFORMANCE METRICS

Accuracy

Precision

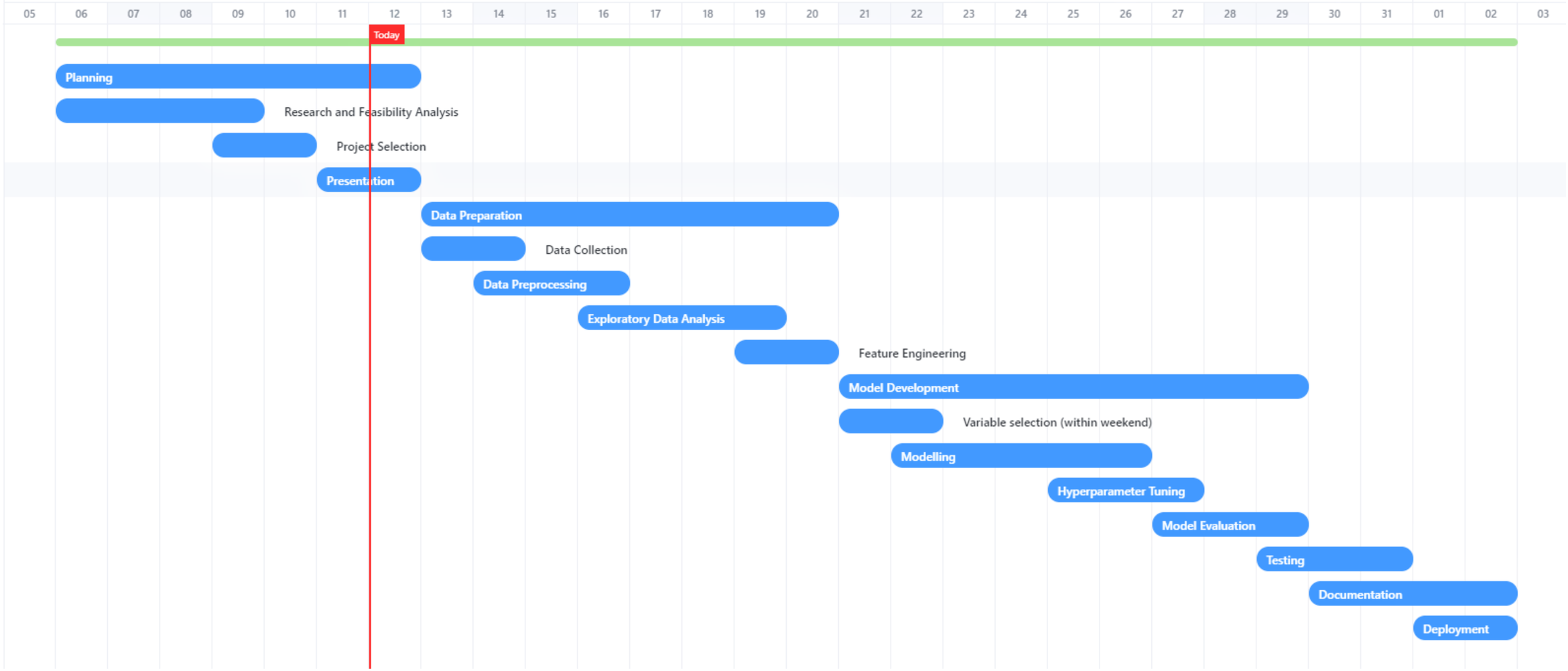
Recall

F1-Score

PROJECT TIMELINE

- Approximately 4 to 5 Weeks
- Main Development Phases include:
  - Planning
  - Data Preparation
  - Model Development
  - Testing
  - Documentation
  - Deployment

GANTT CHART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Today
Planning
Research and Feasibility Analysis
Project Selection
Presentation
Data Preparation
Data Collection
Data Preprocessing
Exploratory Data Analysis
Feature Engineering
Model Development
Variable selection (within weekend)
Modelling
Hyperparameter Tuning
Model Evaluation
Testing
Documentation
Deployment

THANK YOU