Planning Logic

The planning logic for the Rising Waters – Flood Prediction System follows an Agile-based approach to ensure systematic and efficient development.

The project is divided into fixed-duration Sprints, where each sprint focuses on completing a defined set of tasks. Large tasks (Epics) are broken into smaller manageable units (User Stories), and each story is assigned Story Points based on effort estimation using the Fibonacci scale (1, 2, 3, 5).

Key Planning Elements:

- **Sprint-Based Development:**
  Work is divided into two structured sprints to manage workload efficiently.

- **Epic Breakdown:**
  Major project components such as Data Collection, Data Preparation, Model Development, and Web Application are categorized as Epics.

- **User Stories:**
  Each Epic is divided into small executable tasks (e.g., handling missing values, training ML models, building web interface).

- **Effort Estimation (Story Points):**
  Tasks are assigned story points based on complexity:

    - 1 – Very Easy

    - 2 – Easy

    - 3 – Moderate

    - 5 – Difficult

Sprint 1 – Data Preparation Phase
Epic 1: Data Collection

Story	Task	Story Points
USN1	Gathering Dataset	2
USN2	Loading Dataset into System	1

Epic 2: Data Preparation

Story	Task	Story Points
USN3	Handling Missing Values	3
USN4	Feature Engineering	3
USN5	Handling Data Inconsistency	3

Total Story Points (Sprint 1)

2 + 1 + 3 + 3 + 3 = 12

Sprint 2 – Model & Visualization Phase

Epic 3: Data Visualization

Story	Task	Story Points
USN6	Bar Chart	2
USN7	Pie Chart	2
USN8	Line Chart	2
USN9	Correlation Heatmap	4

Epic 4: Model Development

Story	Task	Story Points
USN10	Train ML Models	5

Epic 5: Web Application

Story	Task	Story Points
USN11	Develop Flask Web App	5

Total Story Points (Sprint 2)

2 + 2 + 2 + 4 + 5 + 5 = 20

Total Story Points & Velocity

Total Story Points = 12 + 20 = 32
Number of Sprints = 2

Velocity = Total Story Points / Number of Sprints
Velocity = 32 / 2 = 16 Story Points per Sprint