

**Aim:** To develop a railway prediction system that predicts train schedules, arrival/departure times, and provides real-time updates to passengers.

**Description:** The Railway Prediction System is designed to assist passengers in obtaining accurate train information. It will provide predictions for train schedules, arrival/departure times, and any delays or changes in real-time. The system will utilize historical data, machine learning algorithms, and live train data to generate accurate predictions and updates.

**Functionality:**

1. User registration and authentication
2. Train schedule management
3. Real-time train tracking and prediction
4. Notification system for delays and changes
5. Passenger feedback and ratings

**Complexity Assessment:** To estimate the effort using the FP model, we need to evaluate the complexity of each functionality based on the following factors: data inputs/outputs, logical operations, external interfaces, external inquiries, and internal data.

1. User registration and authentication:
  - Inputs/Outputs: Moderate
  - Logical Operations: Low
  - External Interfaces: Low
  - External Inquiries: Low
  - Internal Data: Moderate
2. Train schedule management:
  - Inputs/Outputs: High
  - Logical Operations: Moderate
  - External Interfaces: Moderate
  - External Inquiries: Moderate
  - Internal Data: High
3. Real-time train tracking and prediction:
  - Inputs/Outputs: High
  - Logical Operations: High
  - External Interfaces: High

- External Inquiries: Moderate
  - Internal Data: High
4. Notification system for delays and changes:
- Inputs/Outputs: Moderate
  - Logical Operations: Moderate
  - External Interfaces: Moderate
  - External Inquiries: Low
  - Internal Data: Moderate
5. Passenger feedback and ratings:
- Inputs/Outputs: Moderate
  - Logical Operations: Low
  - External Interfaces: Low
  - External Inquiries: Low
  - Internal Data: Moderate

Based on the complexity assessment, the Railway Prediction System has a total Function Point count of: Inputs/Outputs: High + Moderate + High + Moderate + Moderate = 4.5 Logical Operations: Low + Moderate + High + Moderate + Low = 2.5 External Interfaces: Low + Moderate + High + Moderate + Low = 2.5 External Inquiries: Low + Moderate + Moderate + Low + Low = 2.0 Internal Data: Moderate + High + High + Moderate + Moderate = 4.0

**Total Function Points:**  $4.5 + 2.5 + 2.5 + 2.0 + 4.0 = 15.5$

**Effort Estimation:** Using the FP model, we can estimate the effort required for the Railway Prediction System based on the total Function Points. The effort is typically measured in Person-Months (PM) or Person-Hours (PH). Assuming an average productivity rate of 8 Person-Hours per Function Point, the effort can be calculated as follows:

Effort (PH) = Total Function Points \* Productivity Rate  
 Effort (PH) =  $15.5 * 8 = 124$  Person-Hours

Therefore, the estimated effort for the Railway Prediction System is 124 Person-Hours.