# Project Plan: AI-Powered Prediction Tool

(A grade predictor-style application in a non-education sector)

Each team member will take on a specialized role to ensure efficient workflow and task division:

### Project Manager & UI/UX Lead

* Oversees project progress, deadlines, and team coordination.
* Designs the UI in JavaFX, ensuring simplicity and elegance.
* Manages user experience and usability testing.

### AI Developer

* Develops the predictive model using machine learning techniques.
* Works on training/testing datasets and model optimization.
* Integrates the model into the Java application.

### Backend Developer (Data Processing & Persistence)

* Sets up data storage (database or file-based system).
* Manages user input processing and retrieval.
* Implements APIs and data handling functions.

### Frontend Developer (JavaFX & App Logic)

* Builds the GUI and connects it to the backend.
* Implements user authentication (login/signup).
* Ensures smooth UI interaction with predictive analytics.
* Quality Assurance & Documentation
* Creates test cases and ensures functionality works as expected.
* Documents project requirements, user guides, and API usage.
* Assists in debugging and refining app logic.

## **Development Timeline & Checkpoints**

### **Phase 1: Planning & Setup**

* Define the project scope, sector, and key functionalities.
* Finalize tech stack (Java, JavaFX, ML library, database).
* Assign team roles and set up Git repository & task tracker.
* Research dataset sources & gather initial data for testing.

### **Phase 2: Core System Development**

#### Backend & Database Setup

* Design database schema for storing user data & predictions.
* Implement authentication system (sign-up/sign-in).
* Build basic backend structure with data handling functions.

#### Machine Learning Model Development

* Select ML algorithm for prediction (regression, neural networks, etc.).
* Train initial model using test dataset.
* Evaluate model accuracy & optimize as needed.

#### Frontend UI Prototyping

* Create wireframes/mock-ups for the JavaFX UI.
* Develop basic navigation flow (home screen, input forms, results display).
* Connect UI elements to backend functions.

#### Model Integration & API Handling

* Embed trained AI model into the Java application.
* Ensure real-time prediction functionality works properly.
* Test input-output flow between frontend, backend, and AI model.

### **Phase 3: Refinement & Testing**

#### UI/UX Enhancements & Feature Testing

* Improve UI elements for better user experience.
* Implement data visualization (graphs, insights).
* Conduct internal testing on core functionality.

#### Security & Performance Optimization

* Optimize database queries & ML model runtime.
* Add input validation & error handling.
* Conduct stress testing on the system.

#### Bug Fixes & Final Touches

* Fix major and minor bugs.
* Final testing with dummy users for feedback.
* Finalize documentation & user guide.

### **Phase 4: Deployment & Presentation**

* Prepare the final demo and documentation.
* Final testing before submission.
* Conduct team presentation & discuss project learnings.

### **Tools & Technologies**

* **Programming Language:** Java
* **Frontend:** JavaFX
* **Backend:** Java with database integration (SQL or NoSQL)
* **Machine Learning:** TensorFlow/Keras (or a simpler regression model if needed)
* **Version Control:** GitHub
* **Task Management:** Trello or Jira

# Project windows

* + Welcome
    - Login
    - Sign Up
  + Input past/current units
  + Edit units
  + View units
  + User profile page