**System Analysis & Design**

**Problem Statement & Objectives:** The primary problem addressed in this project is the high attrition rate in organizations, which affects workforce stability and operational costs. The objective is to analyze past data and predict employee turnover to help HR managers make data-driven decisions.

**Use Case Diagram & Descriptions:** The system involves HR managers as primary users, interacting with the predictive model through a Streamlit-based interface. The model processes employee data and provides attrition predictions.

**Software Architecture:** The project follows a modular design with the following components:

* **Frontend:** Streamlit-based web application.
* **Backend:** Python-based data processing and machine learning pipeline.
* **Database:** CSV-based storage with potential for database integration.
* **Machine Learning Models:** Implemented using Scikit-learn and TensorFlow.

**Deployment:**

* The application is deployed using **Streamlit**, ensuring an easy-to-use web-based interface.
* Cloud hosting or local execution options are available for deployment.

**Additional Deliverables:**

* **Testing & Validation:** The project includes unit tests for data processing and model validation steps.
* **API Documentation (if applicable):** If an API is implemented in the future, documentation will be provided.
* **Deployment Strategy:** Streamlit-based deployment with GitHub integration for version control.