Thesis Topic: GPT-powered Requirements Engineering and Design: From Domain Object Identification to Use Case Specifications, Issue Tracking Integration, and Diagram Generation

In modern software engineering, ensuring that user requirements are efficiently translated into actionable development tasks, clear use cases, and robust test cases is crucial for a successful project. However, this process often involves repetitive manual effort, which can lead to inconsistencies, errors, and misalignment between various project artifacts. This thesis aims to explore an automated approach where a custom GPT-based tool can assist in identifying domain objects, generating user stories and use cases, and converting these into actionable tasks, along with the automated creation of wireframes and UML diagrams.

Objectives and Deliverables:

This project aims to develop a **custom GPT-based tool** that automates key parts of the **requirements engineering and design process**. Specifically, the tool will:

1. **Identify domain objects** from natural language inputs.
2. **Generate user stories** and **use case specifications** using extended CRUD (Create, Read, Update, Delete) and Notify functions.
3. **Translate use case specifications into tasks** in a project management or issue-tracking tool, such as **Jira**.
4. **Automatically generate UML diagrams** (e.g., Use Case Diagrams, Class Diagrams, Sequence Diagrams) and **wireframes**.
5. **Generate test cases** from use case specifications to ensure that all flows (main, alternate, and exception) are covered for each feature.
6. Ensure the tool dynamically **updates tasks, diagrams, and wireframes** as requirements evolve, providing real-time support in an Agile development environment.

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