Thesis Topic: An LLM-Powered Requirements Elicitation Tool for AI-Assisted Persona, Scenario, and User Story Creation

In software engineering, understanding user needs is critical, but manually creating detailed user personas, scenarios, and user stories is a time-consuming process prone to inconsistencies, omissions, and ambiguity. This thesis aims to address this challenge by developing a specialized tool that utilizes Large Language Models (LLMs) to automate and optimize these core requirements elicitation tasks.

Objectives and Deliverables

This project aims to develop an LLM-powered tool that automates key parts of the requirements elicitation process. Specifically, the tool will:

- Generate detailed **personas** based on inputs from predefined categories such as demographics, goals, and pain points.
- Generate one or more customizable **scenarios** for each created persona, which simulate typical user interactions and can be manually refined.
- Automatically draft **user stories** in the standard format ("As a [persona], I want [goal], so that [benefit]"), derived directly from the personas and scenarios.
- Provide an integrated **dashboard** to visualize and manage the relationships between personas, scenarios, and user stories.
- Enable the **export** of generated user stories to common project management tools (e.g., Jira, Trello) to integrate with development workflows.

Note on Scope

The project's scope is flexible and can be scaled according to the level of studies (bachelor's or master's).

References

[1] Aher, G., V. K. L. Chiang, and S. C. Lee. (2025). "The Impostor is Among Us: Can Large Language Models Capture the Complexity of Human Personas?" *arXiv preprint arXiv:2501.04543*.

[2] Rahman, T., and Y. Zhu. (2024). "Automated User Story Generation with Test Case Specification Using Large Language Model." *arXiv preprint arXiv:2404.01558*.

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