

**CAPSTONE PROJECT REGISTER**

**Class:** SE **Duration time: From** 05/2025  **To** 08/2025

(\*) Profession: Software Engineer Specialty: SE

(\*) Kinds of person make registers: Lecturer  Students 

1. **Register information for supervisor (if have)**

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| --- | --- | --- | --- | --- |
|  | **Full name** | **Phone** | **E-Mail** | **Title** |
| Supervisor 1 | Lâm Hữu Khánh Phương | 0915353001 | [phuonglhk@fpt.edu.vn](mailto:phuonglhk@fpt.edu.vn) | Mr. |

**2.Register information for students (if have)**

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| --- | --- | --- | --- | --- | --- |
| **Student** | **Full name** | **Student code** | **Phone** | **E-mail** | **Role in Group** |
| 1 | Trần Mạnh Hiệp | SE140293 | 0927078490 | [hieptmse140293@fpt.edu.vn](mailto:hieptmse140293@fpt.edu.vn) | Leader |
| 2 | Trần Hoàng Quốc Việt | SE150328 | 0347126272 | [vietthqse150328@fpt.edu.vn](mailto:vietthqse150328@fpt.edu.vn) | Member |
| 3 | Tô Hữu Bằng | SE150471 | 0342119406 | [bangthse150471@fpt.edu.vn](mailto:bangthse150471@fpt.edu.vn) | Member |
| 4 | Hồ Quốc Thịnh | SE171797 | 0941807991 | [thinhhqse171797@fpt.edu.vn](mailto:thinhhqse171797@fpt.edu.vn) | Member |

1. **Register content of Capstone Project**

**3.1. Capstone Project name**:

* English: CapBot - Build an AI Agent for SE Capstone Submission Process at FPTU HCM Campus
* Vietnamese: CapBot- Xây dựng tác nhân AI cho quy trình nộp đồ án tốt nghiệp ngành Kỹ thuật phần mềm tại FPTU HCM
* Abbreviation: CBAI.

1. **Context**

Capstone projects are a core part of software engineering education, requiring supervisors to propose and manage project ideas that students will eventually select and develop. However, the current submission and management process for capstone projects is often **manual, unstructured, and inefficient** —especially from the supervisor's perspective.

- **Manual Work:** Supervisors currently submit project proposals through emails, forms, or spreadsheets,.... Tracking submissions, checking for duplicates, and managing approvals all require manual effort, which is time-consuming and error-prone.

- **Lack of Automation:** There is no intelligent system in place to automatically flag duplicate or overly similar project topics. Without automation, supervisors and administrators must perform repetitive checks by hand, delaying the approval process and increasing workloads.

- **Inconsistent Evaluation Criteria:** Decisions to approve or reject a project often vary between reviewers, as there’s no enforced set of evaluation rules. This leads to inconsistent standards, confusion, and in some cases, approval of low-quality or redundant projects.

- **Lack of Resources:** Supervisors don’t have access to a central system where they can see already submitted or approved project topics, leading to unintentional duplication and a lack of innovation in new proposals.

1. **Our solutions**

**CapBot** is an AI-powered agent designed to streamline the entire capstone project submission and management process, with a strong focus on improving the user experience of all stakeholders in capstone project submission processes.. It replaces manual workflows with intelligent automation, enforces consistent evaluation standards, and provides real-time support for both supervisors and administrators.

The platform ensures project quality, prevents topic duplication, and simplifies project tracking—making the capstone submission process more efficient, transparent, and scalable.

* **AI-Powered Duplicate Detection:** CapBot uses natural language processing (NLP) and semantic similarity analysis to automatically detect and flag duplicate or overly similar project proposals. This prevents supervisors from unknowingly submitting topics that have already been proposed.
* **Criteria-Based Project Evaluation:** Each project submission is evaluated against a standardized set of criteria (e.g., originality, feasibility, scope, relevance…). This ensures consistency in approval decisions and helps supervisors align their proposals with program expectations.
* **Centralized Project Index:** All submitted and approved projects are stored in a searchable, categorized database. supervisors can easily view past and current submissions to avoid redundancy and find inspiration for new ideas.
* **Supervisor submission Dashboard:** A dedicated portal where supervisors can propose new projects, check their status, receive feedback, and revise submissions if needed. This streamlines the communication loop between supervisors and admins.
* **Review Panel:** Admins can view all incoming proposals, see flagged duplicates, apply evaluation criteria, and approve or reject submissions with just a few clicks. The panel includes analytics for monitoring submission trends and supervisor activity.
* **AI Agent:** An integrated AI agent provides real-time support for both supervisors and students. It answers common questions about the capstone process, deadlines, submission rules, and how to format proposals.
* **Deadline & Notification System:** Automated reminders and alerts help supervisors and admins stay on top of important deadlines and required actions.

1. **Actors**
2. **Supervisor:** Propose and manage capstone project topics.
   * Key Actions:

* Interact with AI Agents for submit new project proposals through the supervisor dashboard.
* Track proposal status (pending, approved, rejected).
* Edit and resubmit proposals based on admin feedback.
* View the full list of approved and past projects.
* Use the chatbot for quick guidance or help.

1. **Moderator:** Oversee and evaluate all project submissions.
   * Key Actions:

* Review and evaluate proposals using predefined criteria.
* Approve or reject submissions with comments.
* View flagged duplicates detected by AI.
* Manage supervisor, students, evaluation settings, and deadlines.
* Maintain project history and generate reports/analytics.

1. **Reviewer:** Review and evaluate project submission.
   * Key Actions:

* View capstone project submission from supervisors.
* Score or comment based on predefined evaluation criteria.
* Suggest revisions or request improvements if necessary.
* Approve or reject a project proposal before Admin makes the final decision

1. **Guest:** View general information and explore approved projects (limited access).
   * Key Actions:

- View a public list of past approved capstone projects (read-only).

- Register an account (student or supervisor) to gain full access.

1. **Non-Functional:**

* **API Consistency & Compatibility:** Use RESTful API standards
* **Role-based Access Control:** Restrict features by user role (Admin, supervisor,...) to enhance security.

**3.2. Main proposal content (System Requirements and Deliverables)**

1. **Theory and practice (document):**

##### Complete software development lifecycle documentation using UML 2.0

* Produce documents including:
* User Requirements Document (URD)
* Software Requirements Specification (SRS)
* Software Architecture Document (SAD)
* Detailed Design Document (DDD)
* Implementation Documentation
* Test Documentation
* Installation Guide
* Source Code Documentation
* Deployment Package Documentation
  + Server-side technologies:
* Server: .NET Core
* Database System: SQL Server/MySQL Server/Postgre/MongoDB
* Authentication: JWT (JSON Web Tokens)
* Docker/AWS for deployment, containerization
* Third-party Services: Gemini AI/ Google Agent Dev Kit,...
  + Client-side technologies:
* React/Angular for the web application.
* Web Client: HTML5, CSS3, TypeScript, ReactJS/Angular

1. **Program:**

* RESTful API system that supports all client-server communication
* Web app: For admin and users.
* AI chatbot

**4. Other Comments (propose all relative thing if have)**

<Any additional information or constraints>

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| **Supervisor (If have)**  *(Sign and full name)* | TP HCM, April, 2025  **On behalf of the Registers**  *(Sign and full name)* |