

Project Overview

With the popularity of generative AI models and APIs, many applications are integrating Generative AI capabilities into their applications (including the [GPTutor](#) platform that we have developed). Here are some examples:

- [This AI Tool Does Things No One's Done Before | Napkin AI](#)
- [Introduction to Atlassian Intelligence in Jira | Atlassian](#)
- [Take teamwork to new heights with Mural AI + Microsoft Copilot](#)
- [Gamma: AI for presenting ideas, beautifully](#)
- [Introducing Notion AI](#)
- [How Quizizz AI works in 90 seconds](#)
- [MagicSchool - AI Built for Schools](#)

With the wide availability of GenAI APIs, hundreds of new GenAI powered apps are developed every week/month (e.g., Refer to the list of applications at <https://theresanaiforthat.com/tasks/>). In the market, there are many “GPT wrappers” where the apps simply provide a “superficial” layer of UI/UX functionality on top of GPT API but provide little additional values. Refers to the following webpages for some discussion on the issue.

- https://learnprompting.org/blog/2024/2/4/gpt_wrappers
- https://www.reddit.com/r/ChatGPT/comments/18mch6l/its_a_gpt_wrapper_have_no_value/
- https://www.reddit.com/r/SaaS/comments/17tt22f/why_do_people_keep_saying_open_ai_is_killing/

Here are some projects that people have worked on (some of the involve GenAI).

<https://www.reddit.com/r/SideProject/>

What do you think of this project?

[AI Itinerary & Tour Planner with Google Maps Integration for Your Travels](#)

Each team should develop an app/game, preferably with some innovative elements (i.e. not too standard and widely available in the market) while meeting the needs of project stakeholder. In this project, you may assume that COMP3122 lecturer is the target user of the app. Optionally, the app can integrate “Generative AI” to enhance the software product and bring extra value to the user (Note: The main features should not be a simple chatbot with some system prompts). Each group is expected to develop a prototype and through the discussion with the stakeholder (COMP3122 Lecturer) understand more about the stakeholder needs and subsequently improve your app iteratively. Just like real-world software projects, the initial requirements will often be vague initially and may change during the development process. The project is also open to any new ideas about the features of the application.

Here are some potential project topics

Topic 1

“Scrum game” (<https://scrumgame.vl.comp.polyu.edu.hk>) is a simulation game developed by our team in 2019 – 2020 which aims to introduce agile software development where the player will experience various phases in the agile development interactively. Each project team may suggest how the game can be improved and prototype the improved version with enhanced UI/features to improve the gaming/learning experience with the game. With the popularity of GenAI, we also hope to improve the game to provide a more immersive learning experience by integrating AI-powered NPC avatars and enhancing player interaction throughout the Scrum cycle. Players will engage with these avatars during team selection, explore dynamic branching scenarios, and participate in enriched sprint planning/review/retrospectives. The AI-driven NPCs will facilitate realistic conversations, respond dynamically to game status, and interact with each other during key stages of the game.

Topic 2

GPTutor (<https://gptutor.comp.polyu.edu.hk>) is a Generative AI (GenAI) powered intelligent tutoring system developed by our team at HK PolyU. Students can engage in self-directed learning by asking questions about the course content provided by instructors. Instructors and students can generate review questions and flashcards based on the instructor’s learning materials to practice and improve knowledge retention. The platform also allows instructors to create realistic simulation-based learning scenarios, such as virtual patient simulations, with 3D avatars and text-speech capabilities. You can find more details about the platform in this [page](#). Each group may propose and prototype improved /new features for GPTutor. Here are some thoughts about the potential improvement:

- Supporting flipped learning (where students can learn the lecture contents before the class, and students will perform more in-depth discussion and problem solving in class)
 - o Example features: Teacher can generate AI narrated presentation from lecture slides or generate learning activities based on external resources (e.g. YouTube video) as pre-class learning activities for students
- Features to improve students’ engagement, e.g.
 - o Provide more variety of learning activities for students to participate individually or in groups (during or outside the class) to increase student engagement in the platform,
 - o Gamification of the platform
- You are welcome to suggest other improvement to the platform.

Topic 3

In the Department of Computing at PolyU, there are many courses that require students to complete a group project. One challenge that is faced by the instructor is evaluating the performance of the students in the different groups and the collaboration among the group members. This project aims to develop a prototype of a web application that can help the instructor to track the progress of different groups in the course and the collaboration among the group members. By using the GitHub Classroom, teachers should first create an "assignment," and the team leader of each group should accept the assignment to create a project repository for the team in the course project's GitHub Organization. The team members should add the other team members to the repository. The application will analyze various student activities in GitHub repositories, such as commits, issues, and pull requests. Dashboards and statistics will be provided to the instructor to provide insights about the activities of different groups and individual students' contributions in the project over time. Here are some initial ideas about the project.

- Instructor may track the progress of different teams by summarizing the different activities in the repositories of the different groups, e.g. commit frequency, project board, issues, code changes, discussion/comments, assigned issues, pull requests, milestones, bug reporting, tasks completion, etc.
- The system should track the performance and activities and contribution of different students (e.g. identifying deadline fighters/free-riders). The system should be able to provide dashboard and generate reports for the instructor to track the progress of different groups and students' participation in the project.
- The system is expected to integrate with GitHub API to collect data from GitHub organization and repositories. You should investigate what data can be collected from GitHub API about students' activities and collaboration in the repository and how to present them to instructors.

Group Formation

Students should form a group of 3-4 members in blackboard by the end of week 3 (i.e. 8/2/2025 (SAT)). Students without a group will be randomly assigned a group after the deadline. Each group should submit your topics (one per group) shortly after the group formation deadline.

Project GitHub Repository

The GitHub classroom invitation link will be available soon. Team leader is required to accept the invitation and create the project repository for the team in our course project's GitHub organization. The repository should be private and only accessible by the team members and the instructor. The team leader will be the admin of the repository and should add the other team members to the repository for collaboration.

During the project, you should use the GitHub repository (e.g. issues, project board, etc) to manage and collaborate on your project. Your project source code and other related files (e.g. documentation) should be uploaded to your project repository in the course project's GitHub organization.

Project discussion meeting

The project meeting will be held during the lectures in week 8 or week 9. Each group will have around 8-10 minutes to discuss your project progress. You should prepare a 2-page summary of your progress, division of work, and your preliminary system prototype for discussion. We may also clarify the requirements in the meeting.

Presentation

The presentation will be held in the week 12 and week 13. Each group will have around 10 minutes (to be confirmed) to present your project. The presentation slides should cover the following aspects:

- Review of related applications, their strength/limitations/pain points
- The demo and features of your prototype/system (record a video of your demo prototype)
- Reflection on the project
 - Discuss your development process and examples of how your group collaborates
 - Reflect on what you have learnt/the findings from the project, what you have done well/not done so well, what the challenges are, etc.
- Appendix: You may include other information/screenshots that are relevant to your project.

Submission

- Presentation slide (with your code repository information), user manual and zipped version of your GitHub repository (including all the source code, etc) should be submitted to the blackboard by the end of Week 11.

Evaluation Rubrics

- Project discussion meeting (10%)
- Final presentation and deliverables
 - System design and prototype (45%)
 - Presentation, sharing and reflection 45%): Workload distribution and collaboration using GitHub, Use of GenAI in the project, reflection (e.g. challenges, findings, reflection on the project), etc