II.1102 Project Algorithmics and Java Programming

2024-2025

1. General Information

Module II.1102 offers students the opportunity to work on a Java development project. This year, the project will focus on developing an application that manages collaborative tasks with all the required features. More information on this topic in section 2. Before describing the needs of this project, here are some general instructions:

1. 1. You will need to form teams of 2 or 3 students by filling out the form for each teaching group in the 'Java Project' section of the Moodle course space (**Teams are formed within the same teaching groups**).
2. The source codes of your projects will be compared to detect any attempt at code sharing. If there is even the slightest suspicion of cheating, you will be interviewed by your teachers to prove that you are the authors of your own projects.
3. It is absolutely forbidden to use code generation tools. This will be considered as plagiarism.
4. Bonuses may be awarded for original features of your choice.

2. Project presentation: Collaborative task management application

A company specializing in consulting and developing IT solutions is based in Paris. The company is expanding and wants to introduce new mechanisms for project management. The management has decided to incorporate a collaborative task management tool into the company's information system. Such a tool is effective for organizing project tasks, sharing responsibilities, and tracking the progress of deliverables. It allows team members to work together in real time, while having a clear view of the progress of each task.

A collaborative task management application will enable the company to achieve the following objectives:

- **Create an intuitive environment for task management,** suitable for teams of different sizes and sectors,
- **Facilitate collaboration** by allowing users to share information, files and updates in real time,
- **Improve productivity** by integrating automation and communication features between project members,
- **Allow advanced customization** to adapt to users' specific workflows.

3. Project features

3.1. Excpected features

- **Personnel management :**
  - Create, edit and delete employees,
  - View employee information,
  - View employee history on projects already completed.
- **Project management:**
  - Create, edit and delete projects,
  - Compose a project into a set of tasks,
  - Set deadlines for validating project deliverables,
  - Place project members from the staff list by assigning roles
- **Task management (For each project)**
  - Create, edit and delete tasks.
  - Assign tasks to specific members.
  - Set priorities, due dates and categories.
  - Add comments and detailed descriptions to tasks..
- **Project Monitoring :**
  - Kanban view (task board to move between columns like "To do", "In progress", "Done").
  - Calendar view to visualize deadlines.
- **User-friendly interface:**
  - Graphical interface allowing easy and intuitive use of the application.
  - Smooth navigation between the different functionalities.

3.2. Advanced features

- **Report generation:**
  - Generation of reports on project progress, delays in task delivery, budget for each project, etc.
  - Possibility to print or export reports in different formats (PDF, CSV, etc.).
- **Advanced charts:**
  - Progress charts to measure the progress of projects,
  - Use of a Java API for an ergonomic calendar,
  - Possibility of having notifications on the progress of projects.

4. Technical constraints

- The application must be developed in Java using object-oriented programming concepts,
- Use of appropriate data structures for storing information (tables, lists, etc.),
- Use of JavaFX for creating application interfaces,
- Possible use of databases for persistent data storage (optional).

5. Deliverables

Several deliverables will be submitted on Moodle during the semester:

- A first concerning the UML modeling of your project. It is important to model your project well in order to then design a more robust program that is easier to modify if necessary **(Friday, January 10, 2025)**.
- At the end of the semester, you will have to submit a technical document describing the implementation of your project as well as the source code of the project.
- A defense will be planned in the last session of the semester **(Friday, January 17, 2025**) during which you will have to explain the design of your project and demonstrate it.

More information will be communicated to you as it becomes available on Moodle.