

# INF4198: Project

## Description and deadline

Academic year: 2023-2024

Dr. Azanzi Jiomekong

### Échéances

Deadline	Label
Choice of supervisors by students	Friday, 7th of October
Subjects definition by the supervisors	Friday, 31th of October
Subject description by the students and the supervisors	Friday, 31th of October
Submission of the project description and the first version of requirements engineering and design	Friday, 15th of December
Presentation of the final version	Friday, 7th of June

### Evaluation

The project description, the requirements engineering and the design will be done three times. Each time, after each evaluation, the students can improve their documents at any moment to ameliorate the marks they will obtain. The application developed will be evaluated two times. During the first evaluation, the students will present the prototype of the application. During the second evaluation, the students will present the final version of the application. The mark obtained from the prototype counts 30% of the final mark of the application developed. Globally, the project is evaluated as presented in the table below.

### Objective of the project

The main goal of this work is to allow students of Master I to use the methodologies, methods and tools that they learned during their academic year in a real world project. This project should be solving a real world problem.

### Methodology

During this project, the students will use the Scrum process. Thus, firstly, the students must meet a lecturer that will accept to supervise the project. The lecturer can give the theme to students, or students can propose their own theme. In some cases, external people in companies can propose projects. During the project, the students will use knowledge acquired in different lectures to design and develop their solution. The supervisor of the project and the lecturer of the project will act as the product owner. The students as developers team. During the development, the lecturer responsible of INF4198 will ensure that the students are following the adapted software development process, using the right tools and will share some tips and tricks to allow them to ameliorate their solution.

The overall project is evaluated /100.

## **I- Subject definition**

**Deadline:** Friday, 31th of October

The first step of this work is the definition of the subject of the students. This work is done by the students, supervised by the lecturer and their supervisors.

## **I- Requirement engineering, Product Backlog and Sprints definition**

**Deadline:** Friday, 15th of December

The first step of this work consists of identifying and describing the problem to solve. Thereafter, to organize how the solution will be developed. This consists of requirements engineering, the definition of the Product Backlog and Sprints. The students will start with the problem to solve, make a state of the art of existing solutions (if they exist), the limits of existing solutions, and take advantage of existing solutions and the information provided by their supervisors to describe their work. In the case existing solutions didn't exist, students should work closely with their supervisor(s) to describe the problem and how they will process to provide the solution.

### **Deliverables:**

- Requirement engineering
- Design of the solution:
- Definition of the Product Backlog
- Definition of the Sprints

**NB:** Given that we are using an agile process, this work is the first version. During the project, improvement will be done progressively.

## **II. Solution development**

**Deadline:** Friday, 15th of December

During this phase, the students provide solutions to their problems. This consists of the execution of the different tasks that are described in the Product Backlog. During this phase, the requirement engineering, the design and the product backlog can be improved in accordance with the student's supervisor.

**NB:** The students should release the solutions proposed as soon as this solution is developed. Thus, the remark of the supervisors will allow them to improve their work.

## **III. Presentation of the solution**

**Deadline:** Friday, 7th of June

At the end of this work, the students will present their solution publicly. Thus, it will be a question to defend their solution, to demonstrate that this solution allows them to solve the problem that was presented at the beginning.

## Annexes

### A- Template for the project description

#### Master project Intern

Year 2022

#### Information on the student

**Information on school:** University of Yaounde I

**Department:** Computer Science

**Information on students (name, tel, fax, email):** Melie Yemelong Uriel - [uriel.melie@facsciences-uy1.cm](mailto:uriel.melie@facsciences-uy1.cm), (+237)657175545

#### Information on supervisors

**Informations on supervisor(s) (name, tel, fax, email):**

- Dr. Azanzi Jiomekong - University of Yaounde I, Yaoundé, CAMEROON - [fidel.jiomekong@facsciences-uy1.cm](mailto:fidel.jiomekong@facsciences-uy1.cm) - (+237) 694157670
- Mr. Allard Oelen - Technical Information Library, Hannover GERMANY - [Allard.Oelen@tib.eu](mailto:Allard.Oelen@tib.eu)

#### Information on internship

**Subject:**

**Context**

#### Objectives

**General objective:** Improve the visualization of Open Research Knowledge Graph

**Specific objectives:**

1. Report the different types of visualization that can be apply to the research comparisons tables of ORKG
2. Implement the following visualization features:
  - a. Make the visualization downloadable in pdf, png, jpg, etc.
  - b. Based on point 1, add other visualization methods (geochart, pie chart, etc.)
3. Recommend visualizations to users given a comparison table
  - a. Use a message to recommend to users to visualize their data
  - b. Given to data, automatically generate some visualizations and propose it to users for modification and/or validation

**Duration:** 3 months

#### Method

During the internship, the student will use the Scrum process. Thus, he will define the product backlog. This product backlog will be validated by the supervisors. Once the product backlog is validated, the different tasks will be organized in Sprints of one week each. At the end of each Sprint, a Scrum meeting will be organized to validate the work and to define the new directions. During the Scrum meeting, new task(s) may be identified, the product backlog updated and the task(s) added to existing Sprint or in a new Sprint. The student will use the gitlab repository of TIB to commit his contribution. The Google Chart library of Google is recommended as the visualization tool. A mail and Skype channel is provided if the student has any questions.

**Keywords:** ORKG, Visualization, Google Chart, ReactJS, Graph database

**Student duty:** The student should make a report at the end of the internship

#### References

<https://orkg.org/>

<https://gitlab.com/TIBHannover/orkg/orkg-frontend>

Signature of the supervisors

## **B- Structure of the requirement engineering document**

The aim of requirements engineering is to define and document the needs of users. At its end, the needs of the customers should be well understood. It analyzes the user's needs, specifying (not technically) the solution to develop. The students should provide the requirements engineering using the following sections.

### **1- Problem description, analysis of existing solution and feasibility study**

In this section, the problem the students want to solve is described. Thereafter, existing solutions are presented and analyzed. Given existing solutions, the students should demonstrate if the solution they want to provide can hold. For instance, technical feasibility may be used to define if the current skills of the students can allow them to provide the solution.

### **2- Requirements specification and analysis**

Once it is demonstrated that a solution to the problem can be provided, the students should provide and analyze the specifications of this solution. It consists of gathering requirements from the customers or using existing Systems analyzed previously. Thereafter, the requirements are analyzed in order to be in the same way of its development with the customer. During this work, inconsistencies, defects, omission, etc. are identified. The use of language such as UML can be very helpful during this step.

The following sections should be clearly visible: Actors, Use cases, Use cases description, etc.

At the end of this section, 2 tables, one presenting the requirements in terms of Functional requirements with a small description and Non-functional requirements with a small description should be provided.

**C- Structure of the design document**

In this Section, the students should demonstrate how they are going to transform specifications into suitable form so that any programmer can implement it.

The system is defined as a set of components or modules which is used to clearly determine different aspects of the solution and the environment to use for its development and deployment. The following elements should be present in software design: Physical design, logical design, description of complex aspects of the system, description of some algorithms and pseudo code, the development environment.

