[EN] Project File

Book of Specifications for the preparation of the IT project

Christophe BOULLAY, Martin VAN LAERE, Klervi LE COLLEN

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After reading this file, you will have all information in hand to get the highest grade possible. The only thing left to say is good luck and above all. . . Keep truckin' !

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1 Responsibles of book of specifications

- **Christophe “Krisboul” BOULLAY**
- **Martin “GolluM” VAN LAERE**
- **Klervi LE COLLEN**

2 Introduction

As part of your first year at EPITA, you are asked to carry out a computer science project. This work is long-term, throughout your year of study. It will be the result of your collaboration with 4 other students in your class. Your group will therefore be made up of 5 students.

Your group will therefore have to organize itself in order to carry out this mission. There are two main parts to the specifications. The functional part and the technical part.

For the technical part, you will need to answer and fill in the two pages of information provided in the technical part of this file and corresponding to the different project options chosen by your group (type of game, graphic definition, etc.). In addition, for the complete specifications, you will need to provide a separate PDF of these two pages.

For the functional dimension, you will be supported by the teachers of the Methodology course. You will discover new tools and acquire new skills.

It is during the methodology workshop of week 1 (week of September 25) that you can form your team. Your teacher will help you to divide up yourselves during this course. An update on the organization of the project and the BoS will be carried out during this same course as well as during the next B1 courses.

The information presented in this document corresponds to the first stage of your project. These are the specifications including the functional specifications and the technical specifications.

2.1 Details for the constitution of groups

During your first methodology course, your teacher will help you organize the distribution of groups. Group members will be in the same class. Similarly, the number of students per class is different and will impose a distribution which will be as follows:

- Class of 39 students: 7 groups of 5studens and 1 group of 4 students
- Class of 40 students: 8 groups of 5 students
- Class of 41 students: 5 groups of 5 students and 4 groups of 4 students
- Class of 42 students: 6 groups of 5 students and 3 groups of 4 students

2.2 Particular cases

For students who do not have to validate the TE of S1, you will be distributed in a group made up of students who do not have to pass the TE of S1, you will just have to propose the technical part of the specifications (ie the double-sided sheet).

For students not having to validate S2-IP-PROJ: you will be distributed into a group made up of students who do not have to pass S2-IP-PROJ. You will have to propose specifications on a fictitious but feasible project OR on a problem imposed by Christophe Boullay and Martin Van Laere, taking into account the different elements to be treated and cited in this guide.

3 The IT project

3.1 Objectives

Allowing you to put into practice all knowledge acquired in lectures, tutorials and practicals, but also to improve personal skills, which you have acquired for the project you have chosen, but which cannot be put into practice during the course.

3.2 Framework

The project is to be carried out in groups of five (and only five). Its duration is about seven months (from October to June). The content is open, that is to say, you choose the subject. But it has to be a game.

Of course, it must be accepted by Christophe BOULLAY and/or Martin VAN LAERE for the students in Paris and with their referents for the students in Rennes, Strasbourg, Lyon and Toulouse. They may refuse a topic or decide to add, delete or modify some elements (including during the year, depending on the progression of the project).

3.3 Restrictions

The project is developed in c# and/or caml (possibly f#). The mandatory platform is WINDOWS, but nothing is stopping you from working cross-platform. You are free to choose any type of game project. For this latter, the framework GODOT Engine or Unity is required. For any other choice, you must get the permission of Christophe BOULLAY and/or Martin VAN LAERE for the students in Paris and with your referents for the students in Rennes, Strasbourg, Lyon and Toulouse.

3.4 Protocol

You have to find a group of five people, pick a name for the group, for your project and, choose a project subject. Then you have to submit the group name, the name and login of each group member, the project name and the name of the member you designated as a project leader (see deadline for choice of group). A project leader is required, among other things, as a contact for the jury.

You must provide a book of specifications. (See deadline for handing in the book of specifications.) It will be read ! If it is not suitable for any reason (incomplete, unclear, uninteresting, etc.) it will be rejected or you will be asked to modify it.

It will be produced on LaTeX which is a language and a document composition system.

In this case, you must provide a new one that takes into account all the remarks. The procedure is repeated until your book of specifications is accepted. (See deadline for validation of the book of specifications.)

Subsequently, the project will go through a series of presentations : a first one, an intermediate one and a final one, all of which are graded.

4 The Book of Specifications

You have just arrived at EPITA and most of you are discovering a new world. Few of you have mastered the programming languages and techniques that will enable you to take your project forward. Therefore, the first part, the functional specifications, will be more important than the technical specifications in terms of number of pages and content, in this particular context.

It will be written by your group and will be submitted in paper format and in digital version (PDF only) during your methodology course, the week of October 23.

4.1 Defining the Book of Specifications: a valuable tool

The book of specifications, commonly called BoS, is THE essential document which formalizes a request, coming from a company which has a need, a project.

It can be used internally or externally. Here, the company is us, EPITA.

The BoS is therefore a document that summarises all the needs. It provides a precise definition of expectations and expected characteristics. It is used to identify the resources and constraints to be taken into account in order to successfully complete the project. It is the collection of functional and non-functional requirements, commissioned by the project owner.

The specifications include the requirements, the objectives, the people involved and their respective tasks, as well as the overall schedule.

Together with your team of 5 students, you will have to set up and plan this project, which will enable everyone’s expectations to be laid down.

In short, the BoS takes up the

- Requirements
- Objectives
- Contraints
- Expected features
- Deadlines
- Provisional budget *(the provisional budget will be fictitious for the purposes of this exercise)*

4.2 Objectives of the Book of Specifications

Why produce a BoS ?

Carrying out a project without a clear statement is complicated. It’s like playing a video game with your eyes closed: IMPOSSIBLE!

Managing a project, especially as part of a team, is a complex business. Being precise is essential.

This tool allows you to think things through and reach agreement. It is a reference document that serves as a guide to help you.

The absence of a clear presentation can lead to things getting out of hand or problems. Nobody wants that.

Don't forget that you are now part of a group and that you have the same objective: to bring your project to a successful conclusion. So you have a responsibility to yourself. But also towards the other members.

Indeed, when we have to share a lot of information between colleagues (inthis case, students), we do it in the cafeteria, by email, discord… we can no longer find the messages… the information gets lost.. . it's a mess.

By understanding and structuring your needs and constraints, the dialogue will be even simpler.

4.3 The rules for writing the Book of Specifications

There are several tried and tested methods of project management. You can find your own method for drawing up your BoS.

Are you familiar with the SMART method ?

Here, we invite you to discover and use the SMART method (introduced by George T. Doran in 1981) which will allow you to define the objectives that you must achieve in a logical and measurable way.

The SMART method is a technique used in management which consists of setting small objectives within predefined deadlines by following specific, measurable, acceptable, realistic and time-defined indicators.

Obviously, this is a project as part of your studies. Also, project management methods are part of professional careers with budgets and resources (human, technical, etc.) that you do not have (yet ☺). You will therefore have to adapt the method you have chosen to the context.

SMART Method

- `S` speciific
- `M` measurable
- `A` acceptable
- `R` realistic
- `T` temporal

Example of the SMART method for your project

- **Break down the project into activities** : establish the tasks to be carried out for each stage of the project.
- **Feasibility study** : evaluate the constraints, your acquired skills, your mastered technical knowledge and those that you will learn during your two-month courses.
- **Design and planning** : define detailed project specifications. Establish a task schedule. Distribute the missions according to the skills but also the desires of each person.
- **Completion of tasks within the allotted deadlines**
- **Test technical progress**
- **Reception of the projet**

You would have understood it. There is not just one method but many ways to achieve your project. Using a proven method allows you to structure your ideas, the steps and control the risks of your project.

4.4 What does your Book of Specifications contain ?

The BoS must be handed in the week of October 23.

You will need to hand it in to your "work methodology" teacher during your fifth course, in hard copy and bound. You must also submit a complete digital version (PDF format) on the same day on the Moodle platform.

You will also submit the two pages of the technical part of the Book of Specifications in a separate pdf file.

Each day of delay in delivery of the BoS will deduct 2 points from your grade.

The Book of Specifications contains a large amount of information and data among which there are essentially two parts: the functional Book of Specifications and the technical Book of Specifications. According to the client, you must return the two parts separately. As part of your follow-up, we ask you to return a single Book of Specifications with a precise summary and respecting the number of pages requested.

The presentation of your BoS must meet certain requirements. We must also find the summary and the development of all the parts, namely:

- The introduction (1-2 pages) which summarizes the essential points of the BoS. Your entire file is read. But the introduction must be a global overview of your vision of the project and must summarize the essential points of the BoS in order to give an overview to the jury. The interest of the subject must be indicated. The end goal must be valued.
- The FBoS (12 pages) : read the description below.
- le TBoS (2 pages) : read the description below.
- Conclusion (1 page)

Grading scale for the BoS

- You will be graded on content and form.
- You must be very clear, write short and precise sentences.
- There will be one mark for the methodology course and one mark for the TBoS.
- **If your BoS is refused, you will have to re-propose specifications in order to validate your B1 ECUE.**

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5 The Functional Book of Specifications (FBoS)

The requested FBoS will be 12 pages long. It focuses on functional needs and how we will handle the project in the allotted time.

5.1 The outline

The outline of the FBoS should highlight the following elements :

- Origin and type of project : Where did the idea for this project come from, what kind of game is it ?
- Object of study : What are the goals and interests of the project ? What can it bring you as a group or individually
- State of the art : What is the first game of this type ? What are the most famous other games of this type (name at least three of them) ? What are their strengths ? What are their specific features ?
- Your company: what is its name? What makes it special? What sector does it operate in?
- Your team: you will need to create a biography of a few lines for each member of the group and explain the role of each in the project.
- Distribution : The Book of Specifications must contain a detailed schedule of task distribution per person. You will present it in the form of a two-way table (tasks, members) with two people per task : the one in charge and his substitute.
- Progression : The Book of Specifications must contain a detailed schedule of work completion per period (time between two presentations). You will present it in the form of a two-way table (tasks, presentations) with a completion percentage.

5.2 The structure

The structure must, through the outline presented above, define your project according to the following aspects:

- Functional: what is done or what must be done. The ** WHAT** !
- Technological and methodological: what material (technological) and intellectual (tools, methods, software, etc.) resources will be used. The **HOW** !
- Operational: what economic aspects (costs, deadlines, profitability, etc.) relating to operating situations (in operation) must be taken into account ? The **HOW MUCH** !

5.3 Warning

Two parts are essential to the specifications of a game: the network (multi-player) and Artificial Intelligence. Without it, your specifications will be refused.

6 The technical Book of Specifications (TBoS)

The TBoS is 2 pages long. They are provided to you on Moodle in `.xlsx` format so that you can modify/fill them in and send them to us in `.pdf` digital format. The information you need to fill in these two pages will be provided with them on Moodle.

Cahier des charges technique : PAGE-1-EN

Group name :	
Project name :	

Names of members :

Last name :	**First name :**	**Login :**	**Class :**

Type of game :

Action/Adventure	Battle Royale	Beat them all	fighting	Simulation
FPS	MMORPG	MOBA	Party Games	Survival Horror
Platformer	Puzzles	Reflection	Rogue Like	TPS
RPG	RTS	Sandbox	Shoot them up	Racing
Others :				

General features of the game :				
IA :	Wander	Attack	escape	"Path Finder"
Multiplayer :	Cooperative	Battle (2-4)	Massive	
Network :	P2P	Lan	Online	
Graphic features :				
Dimensions :	2D	3D	Others :	
Special features :	Stereoscopy	AR	VR	
graphics :	Personal	Custom	Existing	
Details :				
Sound characteristics :				
Music :	Personal	Custom	Existing	
FX :	Personal	Custom	Existing	
Details :				
Other features :				
Website :	Personal	Custom	Prefabricated	

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Cahier des charges technique : PAGE-2-EN

Task distribution : two people per task: (R)esponsible & (S)ubstitute

Tasks	Login1	Login2	Login3	Login4	Login5

Task progress table

GANTT Chart

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7 Schedule and presentations

7.1 Book of Specifications Schedule

- **List of group members** : in Methodology course, week 1 of B1 (week of 25 September)
- **Handing in the BoS** : in Methodology course, week 5 of B1 (week of 23 October)
- **Acceptance of the BoS** : week 1 of B2 (weel of 13 november)

7.2 Presentation dates

7.2.1 First Presentaion in Methodology : weeks of 22 january and 29 january

The defense, in methodology, corresponds to a 15-minute presentation per project group, in front of a methodology teacher. Each student must speak equally and present part of the Functional book of Specifications. Your presentation will be accompanied by a presentation aid. It will be projected in a room with a video projector. This mark will validate your B2.

7.2.2 Technical Presentations

The first technical presentation will last 12 minutes and the final 20 minutes. Presentations follow one another. Any delay will reduce your allotted time ! You must, therefore, make a clear and precise presentation of the progression of your project. Consider providing significant details that correspond to our expectations. Presentations are held in rooms with a video-projector (not including computer rooms).

he time announced corresponds to the start time of the presentation, so you must be ready for it and not start setting up.

Please note : the defenses will be done face to face.l.

Technical presentation dates

- First : from March 18th to March 22nd, 2024
- Final : from June 17th to June 21st, 2024

7.2.3 Description of technical presentations

7.2.3.1 First presentation (from March 18th to March 22nd, 2024)

An example of the progression for this presentation could be :

- Presentation of the project : 1 min.
  - Description of the subject.
  - New book of specifications if, :
    - Absence of schedule,
    - Substantial modifications (Group modification for instance),
    - Various imperfections
- Presentation of the project schedule : 2 mins.
  - Description of common tasks,
  - Description of individual tasks,
- Presentation of the individual tasks : 8 mins, divided by the number of students.
  - Bibliographical research (examples, methods, algorithms, etc.),
  - Design (drawing screens, printing drafts, algorithms, interfaces, programs, etc.).
- Conclusion : 1 mn
  - Reminder of what is done
  - Reminder of what is to be done

Notes :

During the first presentation, there must be some programming code. You cannot present only research elements (bibliography) or design (algorithms) .

Therefore, in order to show what you have accomplished, have everything prepared before the presentation. Any time lost is lost for good.

The organization of the defense is free: it must, whatever the order, present all the points described. A defense outline must also be given to the jury at the start of each defense.

7.2.3.2 Final presentation (from June 17th to June 21st, 2024)

The purpose here is to show all the work done over the year. It will last 20 minutes and could be organised like this :

- Turning in the various elements of the project : 1 min.
  - USB-KEY in a case (Custom cover slipped under the USB-KEY case),
  - Project Report + appendix (on paper, bound, typed),
  - Installation Manual and Operating Manual (on paper, bound, typed)
- General overview of the project : 1 min.
  - Brief summary of subject,
  - A brief history of previous presentation,
  - Presentation of surviving members (if applicable).
- Project demonstration : 15 mins.
  - Installation (have an installed version, if it does not work properly),
  - Presentation of work done :
    - General,
    - IIndividual (Who did what).
  - Uninstallation
- Website presentation : 2 mins.
  - Quick tour of site,
  - Who did what on website.
- Conclusion : 1 min.

8 Required documents

8.1 At the first presentation you must provide or show

- An outline
- A report
- A website

8.2 At the final prsentation you must provide

- An outline
- A report
- An operating file
- The project (USB-Key),
- A website,
- An installation procedure

8.3 Details

8.3.1 An outline (for each presentation)

The outline will list every key part and show how your presentation will be conducted. This clearly means that preparation is necessary (at least for time management). The outline is handed in at the beginning of each presentation.

8.3.2 A report (for the first presentation)

twenty-page report (minimum) detailing what has been carried out since the submission of the Book of Specifications. The layout can be similar to the project report described below. It is submitted at the beginning of the presentation and details what has been achieved (ahead of or behind schedule) and by whom, but also presents what needs to be done for the next time.

8.3.3 A website (for each presentation)

It must have a home page to allow access to the following elements :

- A project presentation (history, members, completion timing, problems encountered and possible solutions),
- The links on the website (members, software, images, sounds, libraries, applets and other elements you may have used),
- A download of the report and the project including a light version (without music files, avi files or other useless elements.)

8.3.4 A project report (for the final presentation)

It must be 50 pages long excluding annexes (Project sources must be handed back outside the report). An acceptable layout can be

- Book of specifications follow-up,
- Different possible layouts :
  - Chronological (group),
  - Chronological (individual),
  - Individual (tasks distribution),
  - Others.
- Description of achievements :
  - Your joys,
  - Your sadness,
  - Etc.
- Appendices include :
  - Print examples,
  - Screen layouts,
  - Test cases,
  - Original sketches,
  - Etc.

8.3.5 An operating file (for final presentation)

- The operating document has to include the following elements :
  - Installation manual,
  - User Manual.

Contextual help should be integrated with the executable file of the project.

8.3.6 The project (for final presentation)

The project (an executable file) must be given with the following :

- Source files,
- All libraries, plugins, scripts and assets used by your project,. Celui-ci (un exécutable) doit être accompagné des éléments suivants

8.3.7 Installation and uninstallation procedure (for the final presentation)

This must allow the installation of the project, the site and all related elements. Of course, a choice of elements to be installed must be available and it goes without saying that an uninstallation procedure has to be provided. On Windows, it should be accessible directly from the menu without having to go through “Control Panel, etc”.

8.4 Remarks

Any presentation, whether written or oral, must contain an outline as well as an introduction and a conclusion.

If your site uses databases (PostgreSQL for example), you should always present a working local version.

Whatever layout chosen for the report (chronological, individual, etc.), you must describe **EXPLICITLY** who did what.

9 Presentation grading

9.1 Grade of the first presentation

See critéria grid #1 (on Moodle)

9.2 Grade of the final presentation

See critéria grid #2 (on Moodle)

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