How to create an educational subject as a student

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Introduction

In order to achieve your project, it is important to read this document in its entirety before you start.

Please read before continuing

Please note that any content officially integrated into the 42 curriculum by the central teaching team becomes the exclusive property of 42.

Guidelines

Here are the instructions to follow in order to propose a subject::

- In order to propose a subject, it is mandatory to write everything that is asked in English..
- You must follow each step with no exceptions.
- The assignment you may propose will be implemented on the second part of the curriculum only. Namely the POST-CC.
- You need to think about the audience for your project. Is this subject only for your campus or is there a desire to offer this project to all campuses? Be careful not to take this question lightly.
- If you have any doubts or problems, you should contact a member of the pedagogical team on your campus first (pedago@campus).

Warning: *A feedback is **mandatory** between each step with a review of a staff from your campus (pedago@campus) and/or sometimes with a link to 42. If a step is not reviewed then your subject creation request will simply be ignored.*

I. First step

1. Objective

Before writing any line on a subject, it is necessary to define a clear and precise objective for the scope of the subject. To define an objective, you must know the theme on which you are working. We will not suggest a topic on a field that is not properly mastered since the biggest risk would be to highlight bad practices. An objective can be

relatively broad but must be limited to the skills that will be brought by the realization of the subject that we wish to set up. Nevertheless, one must be careful: one may want to propose the creation of a game for example, but if the game in question does not bring any new skill, then the interest of the subject will be limited and therefore automatically refused. It is necessary to value a new skill that is not available in the curriculum of 42 as a priority.

Warning: *Be careful not to duplicate existing projects.*

2. Technology

Once you have defined the expected objectives, you will need to list the technologies that you will use to carry out the project. It is important to keep in mind that all projects must be achievable by a student on a campus with a hardware limit. It is therefore necessary to be realistic and to verify that on the one hand the project does not depend on a precise and limited technology (such as the precise version of a library for example) nor on resources that a student could not have on a computer in your campus. If you want to make content available to several campuses, you have to take into account the feasibility in relation to the technical limits of the campuses (if you ask for the creation of a mobile game, is it wise to propose the OS specifically, knowing that the campuses do not necessarily all have Apple configs (I am thinking of IoS here). It is also necessary to pay attention to the maintenance of the project according to the technologies used. Finally, a specific technology should not be a pretext for a project. A project must be an expression of a customer need (see the storytelling below), it is up to the student to use the appropriate technology (or to surprise with an unconventional approach).

Info: *Project maintenance will be performed through the student's campus staff.*

The last point will be mainly related to the technological choice proposed by the subject. It may be wise, depending on the subject, to let the student choose the appropriate technology (such as the language) within the limits of the project's capabilities, of course.

3. Storytelling

When you try to create a topic, you have to think about the method you want to use to validate the objectives you would like to set up. We do not want to have a project that imposes the use of certain things without the student having a research base to do. If tomorrow we want the student to learn a blockchain library, we won't just say "use this library without any precise or even realistic use". We have to put a structure on top of it. The structure will be the program that the student will have to realize. There should be no magic formula that tells the student to develop an algorithm if the algorithm in question is never used. We need to think of the problem in reverse. Ask when a student

is required to use that algorithm so that the student can discover and experiment with it. I will take a simple example if we want a student to learn a path traversal algorithm such as Dijkstra. We're not going to tell him explicitly "Use a dijkstra" but rather we're going to tell him "Develop a tool whose goal will be to go from point A to point B through point X. This program must display the fastest and optimal path with a list of specified conditions".

To summarize, you must have a project that proposes a problem to solve. By giving the minimum of indications, the student should be able to find solutions by himself without any guide. When the project is completed, the student will have acquired the expected skills.

4. Difficulty

Make an estimation of the difficulty according to the target audience. Is the project aimed at beginners or is a prerequisite expected in a given field? What would be the ideal average time to complete this project? Is this project designed for a group or a single person? This kind of question must be answered before the realization of the POC, it is important to be able to better calibrate the project during the creation of the subject. Be careful to avoid creating too complex topics. Indeed, statistics show us that the longer the project is, the less students will do it.

II. Second step

Reminder: *To continue in this step, you must have at least one feedback from your campus staff (pedago@campus). When the previous step is validated, you can continue.*

1. Creation of a POC

Now that we have a clear and validated vision of what we want to do, we need to make a realistic POC. By realistic we mean that it is not necessarily perfect but advanced enough so that this POC can prove that the subject is functional before going further. This step is very important. We cannot set up a project that will not be realized beforehand. The clear and precise interest will be especially at first on the feasibility of the project as we imagine it. During the development of the POC one can realize the problems that a student will be confronted with. It will be necessary to write down the problems encountered as well as the different tools used to achieve this POC. You should also write down the time used to complete this POC. If the POC takes too much time, then you will have to think about making the POC simpler and limiting the additional features that could waste time. The goal of this POC is to achieve the project in its strict minimum without thinking about the bonuses.

2. Adapt the POC

You now have to adjust the POC for a computer in a cluster and thus prove the feasibility of this project by a student with the tools available on the dumps.

Warning: You must of course notify a staff of your campus to realize this POC.

3. Difficulty

Redo a time estimate following the creation of the POC as in the previous step and adapt as needed according to the desired difficulty.

4. Reflection on evaluation

Now that we have a functional POC, we need to think about the things we want to verify after this project. We are not asking here for a clear and precise formalization but a forecast of what must be validated in this project to confirm that the skills have been acquired.

III. Third step

Reminder: *To continue in this step, you must have at least one feedback from your campus staff (pedago@campus). When the previous step is validated, you can continue.*

Since we have a clear and precise vision following the POC, we can start creating the subject. Of course, all the previous steps must be validated and reviewed by a member of the pedagogical team on your campus (pedago@campus).

1. Subject creation

Now you have to write the subject following these conditions:

- A subject title.
  - A title related to the project..
- A prelude.
  - An image or a text of your choice that is not offensive. By non-offensive we mean that it does not incriminate a gender or a nationality or even a religion.
- An introduction.
  - A simple introduction of the project.
- The objectives.
  - The objectives of the project.
- The general instructions.

- General guidelines such as compilation rules or authorized languages. Libraries used or mandatory software.
- The mandatory part.
  - The part dedicated to the realization of the project. The structure is free but be careful not to use the " formula " principle. It is necessary to indicate clearly the things requested that will be evaluated afterwards. At this point, important keywords can be introduced to guide the student's research.
- The bonus part (which is not mandatory).
  - The part dedicated to bonuses must be interesting to deepen the skills acquired by the mandatory part. You have to be careful not to propose too complex/long bonuses.
- The annex (which is not mandatory).
  - With examples or specifications to summarize.
- The Reporting and Peer Evaluation section.
  - The part that must describe how to submit the project. The requirements such as the rendering format if needed and the prohibitions.
- A description.
  - A simple description of one line max.
- A list of keyword.
  - A list of 2-3 keywords showing the field and specializations of the project.
- Additional resources (not mandatory).
  - A list of resources such as images or specific files to be used in the project. These are the links visible in the projects page of your intra.

Warning: Links to external resources not maintained by 42 are forbidden. Anything that is MOOC or equivalent will be removed.

2. Creation of the evaluation grid

You must now write the evaluation grid which must only ask for features requested by the subject and thus avoid surprises. To do so, you must fulfill these conditions:

- A title for each question.
  - Related to the skill to be assessed.
- A description for each question.
  - description for each question. The description of the question and the things to do to validate the question. Don't forget to specify if the validation is done via a Yes/No button or a ladder from 1 to 5. You should not forget to specify if the fact of validating this section is blocking or not with regard to the following section of the evaluation

- ○ It is better not to propose tests that are too precise, in fact, the evaluator must be able to test the features requested in the subject without having a series of tests that are too specific in this description. It is necessary to leave some freedom during the verification and the actions that the evaluator can perform.
- A grade assigned for each question.
  - ○ If you wish, you can validate the project at 80, but you must have at least a final grade of 100 in total.
  - ○ A bonus section of 25 points will be possible if desired.
- You can indicate under each question 2 or 3 skills related to the questions.
  - ○ This last indication is not a requirement..

IV. Fourth step

This step is a basic check of everything that is requested as well as a validation of 42 of the project. An exchange will take place at this point to set up the subject if there are no issues.

V. Last step

In order to obtain the XP for the subject you have created you will of course have to complete and defend it during evaluation.