

SOFTWARE PATTERNS

Laboratory

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1. OBJECTIVE

The objective of the practice is for the student to propose, design and implement an application in which they apply the concepts exposed in the theoretical part of the subject.

2. CHARACTERISTICS

The practice must be done in groups of two students, exceptionally individually or in groups of three.

The student must propose the application they want (the originality of this will be assessed), design it and implement it (see section 3. Deliverables and assessment).

To solve the practice, it is mandatory to use Design Patterns, among those included in the subject syllabus; the Fundamental Patterns can be used, but they will not count. **At a minimum, two creation patterns, two structural patterns, and two behavior patterns should be used in the resolution.** For groups of **two students**, a minimum of 8 patterns will have to be used, that is, the 6 mentioned above and 2 more from the families that are desired. For groups **of three students**, at least 10 patterns **will have to be applied**.

3. DELIVERABLES AND ASSESSMENT

The practice will be valued on a maximum of 5 points. Taking into account the maximum scores indicated in each section.

The final score may be "rewarded" or "punished" for particularly brilliant solutions, serious programming errors, failure to meet all the requirements, etc.

■ **Documentation.** It is necessary to submit a document that includes the following sections:

- Cover: Name and surname of each participant in the group, ID and email.
Title of the system developed.
- Statement and requirements (0.3 points): Approach of the application to be developed and requirements that must be met. The originality of the application and the clarity of its approach will be valued above all.
- User manual (0.7 points): Detailed steps of the installation and execution of the application for its correct operation, with an explanatory user manual.
- Complete Application Design (UML) and Patterns Used (2 points):
Explanation of system design using UML diagrams, especially class diagrams and use cases for system requirements specification and any other to detail certain parts of the system. The quality of the design will be assessed.

Detailed documentation of the patterns used and their justification. The largest possible number of patterns used and their suitability to the partial solution of the proposed application are assessed.

■ **Application. (2 points).** The deliverable must include the following requirements:

- Application source code: Class design, package structure, libraries used, etc. The quality of the implementation will be assessed. The code must be properly documented (javadoc).
- Application Execution: Ease of use of the app, as well as the overall design and its interaction. The type of application developed will be assessed: console, desktop, web, etc.

The above deliverables will be compressed with the following nomenclature:

[Last Name First Student_Last Name Second Student]_Patterns_year[.rar|.zip]

The compressed file will have the following directory structure:

-Doc (will include the deliverable document).

-App (will include the source code of the application).

4. STEPS TO DELIVERY

The student may choose one of the following options:

Option a) Continuous evaluation

- Step 1. The student must present to the teacher and send through the Blackboard Assignments section a document with:
 - Approach to the application you want to make: cover, statement and requirements of the application (first two sections of the documentation).
 - The teacher will give his approval to the practice or it will include variations.
 - Once the practice is approved, the student will be able to start its design and development. *During this phase, the application requirements can be extended or redefined.*
 - Deadline: ***until November 18.***
- Step 2. The student must (month of January):
 - Send through the Blackboard Assignments section the compressed deliverable with the nomenclature and contents indicated in section 3.
 - Internships that have not been previously approved will not be admitted (Step 1).
- Step 3. The student must defend his/her work before the teacher through an interview.
- Step 4. Students will be able to check their grades on Blackboard.

The delivery will be made in Blackboard in the Assignments section where you will find two activities, one for the delivery of the requirements specification and the other for the delivery of the final practice.

Option b) Final evaluation

- If the student opts for the final evaluation, they will have to follow the same steps as for the continuous evaluation, with the difference that they will make the delivery and interview on the date established for said evaluation.