Instructions:

Dear students,

We have published the first homework which is the following:

Review the RASD available on Webeep, direct link:

https://webeep.polimi.it/pluginfile.php/1302807/mod\_folder/content/0/ProjectToBeReviewed/RASD.pdf

It refers to the assignment described in this document:https://webeep.polimi.it/pluginfile.php/1302807/mod\_folder/content/0/ProjectToBeReviewed/Assignment\_RDD\_2023-2024.pdf

Then answer to the questionnaire here (one set of answers per group)

https://forms.office.com/e/fXseHm1Wjj

If you are doing the R&DD project , keep the same groups as for R&DD projects

If you are not doing the R&DD project, you can create a new group (even cross-class), but you will have to keep the same group also for the DD homework

We will assign up to 1 point to clear and convincing answers

Deadline: October 30th at 23.59 (Rome time)

Answers will be used as basis for discussion during the lab of October 31st

Recommendations

•Focus more on content rather than structure

•Your critical review should identify weaknesses and strengths especially considering our “target qualities for a RASD”

•Pure AI-generated content will not be considered acceptable. Value your reasoning and expressive capabilities! You are the ones who will build machines, not vice versa!

Cheers

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Questions:

11.Identify exactly three aspects in **Section 1** and **Section 2** that represent either strengths or weaknesses (e.g., 1 strength and 2 weaknesses, or 3 weakness, etc.). Support each identified aspect with proper arguments (one or two sentences) motivating your selection.

11. **Answer to the 1st question:**

**Strength 1:** Domain Class diagram is well prepared and explained.

* Thorough description of the domain class diagram. It has all the parts that are not able to be put on the diagram and their explanations. Comprehensive text below the diagram, easy to read and understand. The only minor remark is that Student and Educator can realistically be an extension of a user class, since their data is almost identical.

**Weakness 1:** Product perspective -> Scenarios are missing the scenario of registering the users

* There should be a scenario that explains the first interaction between the user and the software. The document should have a scenario of registering or login of different users (educators and student) and forgot password section. I believe that the mentioned part is skipped.

**Weakness 2:** Assumptions, dependencies and constraints -> Domain Assumptions; Github constant availability and connectivity is skipped

* It should be added that Github has to be available all the time while the battle is in progress. The Github interaction is stated, but I believe that connection and availability are also something that should be mentioned. Without that assumption fulfillment the battles cannot be hosted.

**Weakness 3:** Product perspective -> Scenarios; Scenario of student teams not meeting the criteria for the minimum number of participants per team and cancellation of the participation

* It should be added what happens if the number of students in the group is below the minimum at the deadline. Furthermore, the part for the cancelation of the participation in the tournament when the student realizes that he is not able to participate should be added. Obviously, that scenario can happen, however it is not stated in the document.

12. Identify exactly three aspects in **Section 3** that represent either strengths or weaknesses (e.g., 1 strength and 2 weaknesses, or 3 weakness, etc.). Support each identified aspect with proper arguments (one or two sentences) motivating your selection.

Strength 1 -> Comprehensive Coverage of Functional Requirements

The functional requirements thoroughly address the needs of each actor within the application. They are also well-aligned with the use case diagram in section 3.2.1, and the listed use cases provide clear traceability.

Weakness 1 -> Conflicting Arguments & Lack of Specificity in Hardware Interfaces/Requirements (Sections 3.1.2. Hardware Interfaces & 3.4.2. Hardware Limitations)

A conflict exists between the information provided in sections 3.1.2 and 3.4.2 regarding hardware requirements for the application. Section 3.1.2 states that any device with a web browser should be capable of using the application; however, section 3.4.2 lists specific hardware requirements, which are somewhat ambiguous. For instance, “i5 or i7” is a broad term covering Intel’s 14 generations of i-series processors. Additionally, if such hardware specifications were deemed necessary, it raises the question of why architectures like ARM weren’t considered. Another inconsistency arises in section 3.5.5, which, despite the apparent desktop orientation of the application, includes smartphones in the list of supported devices.

Weakness 2 -> Omission of Alternative Flows in Use Case Diagrams

Certain alternative flows are missing from the use case diagrams, such as scenarios for user login failures, GitHub server downtime (affecting login or repository creation), unavailability of the Static Analysis Tool, or an educator’s inability to access uploaded code. For example, UC11 lacks details on communication with GitHub servers, which would be essential given that code is stored on GitHub. While the use case diagrams effectively represent common system flows, they overlook valid alternative scenarios.

Weakness 3 -> Insufficiently Defined Requirements in Sections 3.5.3 and 3.5.4

Section 3.5.3 (Security) raises concerns about storing passwords in a personal database when GitHub could manage the entire account system, thereby reducing risks for all parties through integrated authentication (similar to “Login with Google”). Section 3.5.4 also lacks clarity. Beyond the specified 75% test coverage, there is no clear definition of what constitutes a “good level of maintainability.” Additionally, no specifications are provided regarding refactoring, technical debt management, or adapting the system to evolving best practices.

13. Identify exactly three aspects in **Section 4** that represent either strengths or weaknesses (e.g., 1 strength and 2 weaknesses, or 3 weakness, etc.). Support each identified aspect with proper arguments (one or two sentences) motivating your selection.

**13. Answer to the 3rd question:**

**Strength 1: Constraints**

* All constraints that are significant are included in the Alloy model. Some of them are the ban on the participation of one student in several groups during the same battle and the fact that there is no submission at the beginning.

**Strength 2: Declarations and cardinalities**

* The declarations of all entities, including the cardinalities of their attributes, are correctly coded. For example, each group can have several students and participate in exactly one battle. Also, each submission was made by exactly one group and assigned exactly one score.

**Strength 3: Examples**

* The examples shown to illustrate the operation of the Alloy model are very clear and from them it is clearly concluded that certain functionalities work correctly.

**Weakness 1: Facts and explanations**

* Although the complete model and some scenarios of its use are presented, it seems that not all the facts that could be proven have been mentioned. It is also not explicitly mentioned how this evidence is relevant to the given problem (although it is possible to infer it).

**Weakness 2: Badges**

* The presented Alloy model should contain badges as separate entities, given that they appear in the problem description and that their role and potential ways to assign them are clearly explained.