NAME   : EDWARD   Course   : Agile Software Development
NIM   : 2201741971   Course Code   : COMP6107
CLASS : LB-08   Faculty / Department : School of Computer Science

I.   Case (100%)

You and your team are going to develop a system for a High School. The main objective is for assigning tasks to the students such as assignments or projects.

Teacher:

- Story 1: As a teacher I want to be able to input all assignments or projects into the system.
- Story 2: As a teacher I want to be able to upload teaching material for the students.
- Story 3: As a teacher I want to be able to input students' grades.
- Story 4: As a teacher I want to be able to print the report cards of each student.
- Story 5: As a teacher I need to be able to see my students per class.

Students:

- Story 1: As a student I want to be able upload my assignments.
- Story 2: As a student I want to be able to see my grades.
- Story 3: As a student I want to be able to download all materials given by the teacher.
- Story 4: As a student I want to be able to contact/chat with my teacher for consultation.

Questions

1. There should be a School's Administrator, the School's IT Manager, and the Principal. Write down 3 user stories each for the School Administrator, the School's IT Manager, and the Principal. **[15%]**

   Answer:

   ### School Administrator

   - As a school administrator I want to be able to add a new faculty member to the system and give him/her applicable privileges.
   - As a school administrator I want to be able to assign the teacher to various classes and assign students of a class to a particular student.
   - As a school administrator I want to be able to give the rights to teacher to upload the assignments.

School IT Manager

- As a school IT manager I want to be able to Ensure that all the entities involved have the proper privileges and there should not be any information leakage due to inappropriate privileges.

- As a school IT manager I want to be able to Ensure the network traffic on the system in manageable and system runs smooth with a good performance.

- As a school IT manager I want to be able to Develop a backup mechanism in case of database inconsistency or database failures.

The Principal

- As a principal I want to be able to post new announcement or any change in policy to the system.

- As a principal I want to be able can directly talk to any teacher or student related to any school matter.

- As a principal I want to be able to view the reports corresponding to each teacher, class, and student. At all three levels, there should be report with certain performance metrics in report.

2. Who is the product owner of this software? Describe the responsibilities of the Scrum Master, the Development Team, and the Product Owner. **[15%]**

Answer:

Product Owner will be School IT Manager as he would be **aware about the software development process**.

Scrum Master role is **to make the team process oriented**. All the activities of the Agile Software Development Life Cycle are followed with due diligence are taken care be Scrum Master.

Development team is **responsible for developing the core system with technical development**. It converts the user stories in the usable software.

Product owner's role is to **define the user stories and create a process as to how we will be developing the software/system**. Also takes the lead in defining the core features that the system should have.

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3. Based on the User stories (including the ones that you wrote in question 1), Prepare the product Backlog. **[25%]**

Answer:

- Report generation at teacher, class and student level which includes such as grades, report, and personal data.
- Get the report of all activities that happen in the school such as graduation day, school festival and so on.
- Creating a backup Database for the purpose of 100% availability of the system.
- Announcement to student or teacher or both for the important message needed such as an accident in the school.
- See the report of all student for certain semester.
- See overall grade from the start of the year until end of the year.
- Add a new faculty member to the system and give him/her applicable privileges.
- Able to assign the teacher to various classes and assign students of a class to a particular student.
- Able to give the rights to teacher to upload the assignments.

4. Based on the Product backlog, prepare the Sprint, including the estimation of each task in the sprint.**[25%]**

Answer:

- There will be sprints for the backlog items.
- Each sprint will be 3 weeks long (120 hours) → 15 days.

First Sprint

- Proof of Concept (Feasibility Check) will be done for both the outstanding items.
- Any impediment or blockers will be resolved to start the actual development.

Second Sprint

- 3 days → Making of faculty level reports.
- 3 days → Making of class level reports.
- 3 days → Making of student level reports.
- 2 day → Doing an integration testing for all those reports.

Third Sprint

- 3 Days → Creation of new database as a backup of existing.
- 4 Days → Establishing the connection between primary and backup database.
- 5 Days → Testing the backup database by manually failing the primary one.

Fourth Sprint

- 3 Days → System to be able print all student in a class report card for teacher.
- 2 Days → Report all student for certain semester for teacher.
- 2 Days → Download one file given by the teacher.
- 3 Days → Able to see overall grades from the very first semester.
- 4 Days → Testing all development.

Fifth Sprint

- 4 Days → Making an announcement for the resident of school.
- 3 Days → report of all the student and teacher data.
- 2 Days → Report all activities in school.
- 5 Days → Testing all development.

Six Sprint

- 5 Days → report of all activities that happen in the school such as graduation day, school festival and so on.
- 1 Days → School Administrator can add a new faculty member to the system and give him/her applicable privileges.
- 3 Days → School Administrator able to assign the teacher to various classes and assign students of a class to a particular student.
- 1 Days → Teacher able to give the rights to teacher to upload the assignments.
- 5 Days → Testing all development.

5. What could be foreseen as a possible cause of a technical debt? Provide 3 possible causes and give your reasons. **[20%]**

Answer:

Technical debt accrues when software design and implementation decisions bump up against or straight-up collide with business goals and deadlines. If always waited until every line of code was perfect before deployed, well, organization probably wouldn't be around for long.

Three possible causes of technical debt:

1. **Deadlines**
   - ➔ Client and the service company will put a deadline for the project to get accomplish. If the service company doesn't able to meet the deadline then the problem of technical debt arises. This is one of the main technical debt problems faced by most of the organizations.

2. **Inappropriate planning**
   - ➔ If planning of the project is not at all good or fails to execute the process. Then this will lead to technical debt.

3. **Lack of knowledge**
   - ➔ All the teammates working in the project should have the knowledge of resource, technology, project requirements etc. Failing to understand the project knowledge will affect the project itself.