DANIELA TRIPON Homework week 5/6

TASK 1 (Agile Techniques)

## Question 1

### SCRUM CEREMONIES

* Product backlog refinement
  + This is the result of the continual collaboration between the Development Team and Product Owner on estimates, details, and order of items in the Backlog. It has the scope to ensure the details are correct by continually revising and reviewing the product backlog. During the process, the items are analysed and agreed, prioritised based on their importance, and estimate according to their complexity and size. In a few words, we can say that is a way that everyone understands the scope of the product, agree on things that will do or not, the order in which the items will be implemented based on their importance, and the effort involved for each item. The meeting can be one- two hours long.
* Sprint planning.
  + Scrum runs in iterations or sprints that are usually short in length (about two weeks long). This ceremony is a meeting where the whole team participates, together with the product owner and the scrum master and plans the next sprint. Product owner brings user stories from the product backlog to be debated with the development team, to estimate the time required for each item, and to understand the effort that will take to complete. User stories are discussed in detail to ensure a good understanding, and the stories agreed for the sprint will be written on a scrum board. The meeting can be an hour long.
* Daily scrum.
  + This is a meeting that takes place daily and helps to understand each person’s progress with the task. Here, there are usually three questions asked. First one is about the progress done in the previous day, second one about the task to be done on the current day, and last question is asked to understand if there are any things that block the progress. The meeting is short and to the object.
* Sprint review.
  + This is a meeting that can take as long as is required. During this meeting, the development team, scrum master, product owner and even other stakeholders will participate to review the sprint completed and to review the work done. The sprint must be completed to the level of quality agreed, and this is the time when people give and receive feedback.
* Sprint retrospective
  + Once the sprint is finished and a sprint review meeting has been completed, there is another meeting, usually around an hour long, where product owner, development team, and scrum master review the product development and the way the sprint was completed. Its purpose is to understand what went wrong and how to improve it for the next sprint, but also to congratulate the team upon a sprint completion without issues.

SCRUM ROLES

* Scrum Master
  + This is a leader in an Agile development team that ensures the team and the organisation understand and practice the Scrum theory and follow the Scrum Guide. Scrum Master helps the team members to be more effective, to stay focus on producing successful increments within the timeframe and helps to resolve any blocked items. He/she collaborates with the product owner as well to ensure an accurate product backlog and correct product definition. Also, the Scrum Master acts like a link between development team, product owner, organisation, and stakeholders, ensuring everyone understands and implements Scrum and enacts solutions for intricate work.
* Product Owner
  + This is the person responsible for the product backlog management and for the improvement of the product coming from the development team. He/she ensures the product goal is understood, creates product backlog items and presents them to the team in a clear way, and orders the items in the product backlog. Product owner is responsible for the project and has the power of decision.
* Development Team
  + They are the developers responsible for writing the code for each sprint, in working increments. The team will create and adhere to a sprint backlog and ensure the quality of a sprint follows a “Definition of Done”. They will work in a flexible way, incorporating changes daily, if necessary, to ensure the Sprint Goal is achieved. Each team member is accountable for their part.

## Question 2

New Yoga Booking System

**Tasks:**

1. Design database
2. Create database tables
3. Test database
4. Design backend system
5. Implement backend
6. Test backend
7. Connect backend to database and test it
8. Design user interface
9. Implement user interface
10. Test user interface
11. Connect frontend to the program and test it
12. Test the program

**Team members:** Sara, Mandy, Josh, Simon

I have written the tasks in the order they need to be carried out. The tasks that can be worked on in parallel, are listed below. Based on the product backlog and the sprint review meeting, team members understand the design of the project so is easy to implement. They also have a clear overview of the booking app and know exactly what to do.

**Tasks that can run in parallel:**

1. Design database - Assignee Mandy
2. Design backend system - Assignee Josh
3. Design user interface – Assignee Sara
4. Create database tables - Assignee Simon
5. Implement backend - Assignee Sara
6. Implement user interface - Assignee Mandy
7. Test database - Assignee Josh
8. Test backend - Assignee Simon
9. Test user interface - Assignee Mandy

**Tasks that must follow an order:**

Tasks 2, 5, 9 cannot be carried out until tasks 1, 4, 8 are finished. Once tasks 2, 5, 9 are also finished, we can proceed to the following tasks 3, 6, 10. The remaining task must be done in order: 7 (Assignee Sara), 11(Assignee Josh), 12(Assignee Simon).

TASK 2 (SQL)

## Question 1

**Cinema Booking System**

Key requirements – high level approach:

* We need a simple user interface which accepts user input and displays movies
* We need a database to store movies, clients, cinema rooms, orders, tickets, seats, payments.
* We need a backend written in Python that handles the logic.

In terms of main considerations, we know that a cinema can run multiple movies, in many rooms, that run based on a schedule. These movies can be seen by one or more clients. Each client can book one or more movies and can purchase one or more tickets. Each room has several seats, and each seat can be allocated to none or one client.

So, our database must have tables that are connected via relationships between them (one-to-one, one-to-many, many-to-many, and many-to-one). These tables must have primary keys and foreign keys, however, if the design of the database is wrong, it will be very difficult to retrieve data from the database. At the same time, there will be tables that will get populated only during purchasing a ticket for example. A ticket will contain information cumulated from multiple tables, for example client, movies, room, seat, and it should be produced only upon successful payment. Python (or backend) must query correctly all these tables in to return the appropriate data. There could be issues in database design implementation, backend querying.

In terms of components and tools, probably will be wise to consider implementing a payment gateway system.

Process flow: a client accesses the cinema’s interface. From here, he can choose a movie, a seat, and login to checkout, register, or login as a guest. Cinema UI checks the details of the movie and the client with the database. If server is ok with the details retrieved from the database and can follow the logic, send the response back to it. Based on this confirmation, the user can make the payment using a third-party system. If the payment was successful, the response is sent back to the database which stores this information and back to the client with the confirmation.

Diagram

Description automatically generated