**HOMEWORK WEEK 5-6**

(handout for students)

**TASK 1 (Agile Techniques)**

**Question 1**

**Complete definitions for Scrum related key terminology provided below**.

SCRUM CEREMONIES

· Product backlog refinement

Product Backlog Refinement is the act of adding detail, estimates, and order to items in the Product Backlog. This is an ongoing process in which the Product Owner and the Development Team collaborate on the details of Product Backlog items. During Product Backlog refinement, items are reviewed and revised. The Scrum Team decides how and when refinement is done.

· Sprint planning

Sprint Planning initiates the Sprint by laying out the work to be performed for the Sprint. This resulting plan is created by the collaborative work of the entire Scrum Team.

The Product Owner ensures that attendees are prepared to discuss the most important Product Backlog items and how they map to the Product Goal. The Scrum Team may also invite other people to attend Sprint Planning to provide advice.

· Daily scrum.

The purpose of the Daily Scrum is to inspect progress toward the Sprint Goal and adapt the Sprint Backlog as necessary, adjusting the upcoming planned work.

The Developers can select whatever structure and techniques they want, as long as their Daily Scrum focuses on progress toward the Sprint Goal and produces an actionable plan for the next day of work. This creates focus and improves self-management.Daily Scrums improve communications, identify impediments, promote quick decision-making, and consequently eliminate the need for other meetings.

· Sprint review.

The sprint review is one of the most important ceremonies in Scrum where the team gathers to review completed work and determine whether additional changes are needed.

· Sprint retrospective

The sprint retrospective is a recurring meeting held at the end of a sprint used to discuss what went well during the previous sprint cycle and what can be improved for the next sprint. The Agile sprint retrospective is an essential part of the Scrum framework for developing, delivering, and managing complex projects.

SCRUM ROLES

· ScrumMaster

A Scrum Master is a facilitator for an Agile development team. They are responsible for managing the exchange of information between team members.

· Product Owner

A Scrum Product Owner is accountable for maximizing the value of the product resulting from the work of the Scrum Team. How this is done may vary widely across organizations, Scrum Teams, and individuals.

· Development Team.

A development team in Scrum is a self-organizing, cross-functional team collectively responsible for produce working, validated assets.

**Question 2**

You are leading a development team that was given a task to create a new yoga booking system.

High level description of the system is as follows:

· It has a very simple interface to accept user input (bookings) and display classes information

· All bookings, appointments, schedules etc should be stored in a SQL database.

· There is a ‘backend’ system that should be written in Python to handle the logic and manage the data flow.

Your team has two weeks to build a simple prototype that will be shown to the client to seek their feedback and discuss further enhancements.

TASK

· Break this task into smaller stories (chunks of work) for the team to work on.

· Assume that one person works on one task.

· Mark tasks that can be worked on in parallel and perhaps those that need to be worked on in particular order.

My answer (simplify different people as different letters):

Firstly, they should build the database and design the input code in Python.

A should build a SQL program to create the table of the total booking and appointment schedule on different days during the period, including different types, date, time, coach.

B should create the tables of different people’s individual booking and appointment schedules, including the type, date, time, coach’s name, possible improvement, and feedback.

C should design the input and available output code in Python.

Secondly,

D should connect the Python with SQL by mysql.connector and flask.

E should design the log in and log out screen.

F should design the backend system, in order to check if those schedules are occupied or available.

G should work on how to make the data in Python could be send back to SQL.

Thirdly,

H should create some expectations, such as the coach is off work.

I should add more details in Python and SQL, do debugging, and polish the website.

**TASK 2 (SQL)**

***Question 1***

**Design a cinema booking system.**

Think how you would approach the problem and what are potential ways of solving it?

You do not need to write actual code, but describe the high-level approach:

· Draw a list of key requirements

· What are your main considerations?

· What would be your common or biggest problems?

· What components or tools would you potentially use?

· You are welcome to draw a diagram (a very simple one) for the process flow to explain how it is going to work.

**Key requirements:**

1. **Customers should be allowed to choose the films and seats.**
2. **Customers should have methods to pay.**

**Main considerations:**

1. **Time --- If the film is available, which means you can’t let customers buy the tickets of films which has been finished.**
2. **Seats --- Which seats have been occupied and which are available.**
3. **Price --- Different kinds of people (students or adults) should have different prices.**
4. **Login --- There should be login screen.**

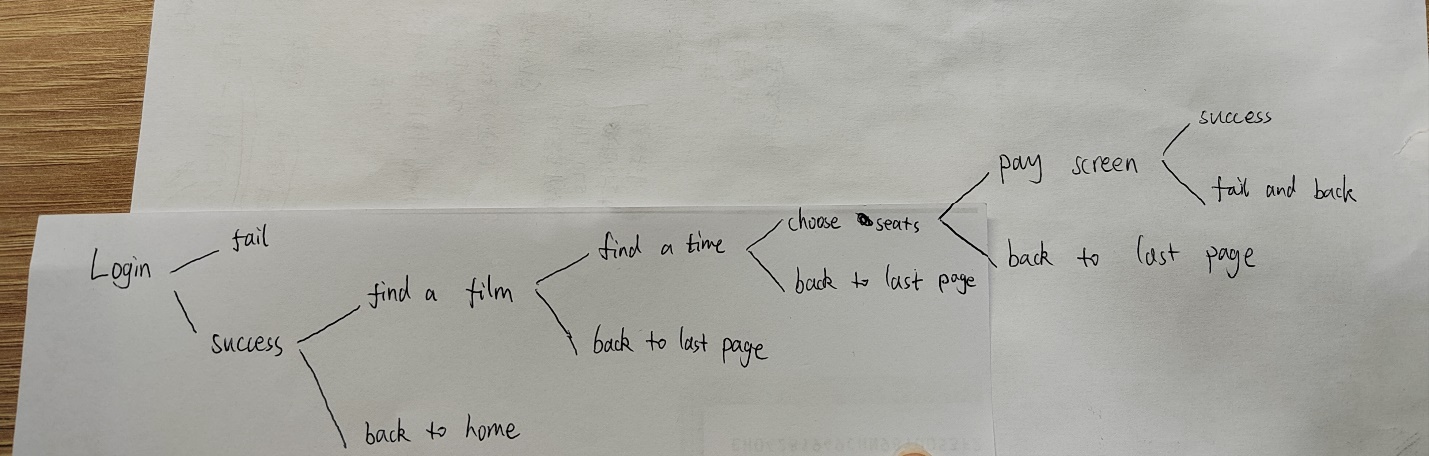
**Problems:**

**Can’t update films on time; Can’t log in or can’t pay; System bugs; Expectations (such as what if different customers chose the same seats)**

**Tools:**

**Python, Mysql, Jire Software, ATLASSIAN, POWER BI**

**Diagram:**

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