



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

**SECJ2203-01**

**SOFTWARE ENGINEERING**

**PROBLEM SOLVING :**

**SOFTWARE PROCESS MODEL AND AGILE**

**COURSE LECTURER :**

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### Question 1:

Due to the COVID-19 pandemic outbreak, most Malaysians choose virtual shopping to meet their daily needs. Assume you have to develop an online shopping application called OSA. Customers need to provide the following details in purchasing items added by sellers:

- Upon selecting the type and number of items that need to be purchased, OSA will request customer's personal details (name, address, phone number) for sellers.
- Before confirming any purchase, the customer will be allowed to do any changes on the selected items.
- During the transaction, the customer will have a chance to use any available vouchers or redeemable virtual shop's coins to get certain discounts either on shipping fees or purchased items.
- The customer who prompts to repurchase the similar item from the similar virtual shop via OSA is entitled to gain some benefits in the form of a small gift or discount on designated items.
- Upon receiving the purchased items, the customer will be allowed to give any feedback regarding the sellers or items, but the seller will select the most appropriate comments to display to the public.

**Choose** the most suitable Software Process Model (SPM) and **explain** why you made the choice (a single model or combination of models) by referring to the given details.

**10 marks**

The most suitable model is to use the combination of prototype, reuse-oriented and incremental development.

Firstly, prototyping model takes place between developer and client in an iterative, trial and error method. It is also a straightforward model and helps gaining better understanding of the user's needs. Besides, the users are actively involved and give satisfaction to them. This model also serves as the basis operational specifications which have stable requirements and allow changes at the same time. For reuse-oriented, it is chosen because there are existing/available components that can be reused. For example, when the users want to repurchase. Lastly, incremental development already has stable requirements but allows changes at the same time. It also allows users to give feedback and quick responses. Furthermore, users are able to use and gain value from the software as rapid delivery and deployment of useful software towards them is possible.

## Question 2:

Based on the case study from Question 1 with the additional description as below, consider how to **scale up** and **scale out** so the team can apply Agile methodology in developing a large project with more features besides what OSA offers.

*Additional Description: Global Online Shopping Application (GOSA) has been developed by a multinational company that targets big stores and franchises from all over the world as their clients to supply the shopping products through the application. In order to secure partnerships with big companies that expect more features in GOSA that could be unique to them, procurement documentations and contracts must be drawn from the beginning. It means all scope and features must be clearly stated and finalized before the development starts. Then, during the development, a lot of risks could occur. Therefore, the company needs to do frequent releases every cycle to get continuous feedbacks from the clients. The stakeholders involve not only in large size that come from different expertise such as testers, development team, domain experts and maintenance team but some of the teams are working across the countries.*

- a) Suggest **TWO (2) Agile methods** for scaling up and **ONE (1)** for scaling out, then **explain** how the methods can be used in the case of developing GOSA by the multinational company.

**6 marks**

Agile methods that can be used for scaling up is Scrum method. Scrum method is used because it focuses on managing iterative development rather than specific agile practices. In Scrum, there is a Scrum master which is a facilitator who arranges meetings, tracks of work that needs to be done, records decisions and communicate with customers. Because the documentations and contracts must be drawn from the beginning, the Scrum master must organise the meeting to make sure that everyone in the team knows what needs to do before development starts. Then, from time to time, the Scrum master needs to consult with the client to make sure that the client is satisfied with what they get.

Other than scrum they can also use extreme programming method. It is a very influential agile method that introduced a range of agile development techniques. It is a method that takes an extreme approach to iterative development. It is used here because the stakeholders involved not only in large size teams but also some smaller teams that are working across the countries. Extreme programming principle is effective in this case study because the incremental development is supported through small, frequent system release. Other than that, the team must get involved with the customer so that the team knows what the client wants. Because the team is in close contact with the client, any change during the development is supported through regular system releases.

- b) Based on the case study above, draw a Task Board comprising at least **FIVE (5) user stories only** for the first Sprint of two weeks. Assume that your team is assigned to the tasks. On the task board, each user story must be distributed and classified into “To do”, “Doing” and “Done” to show your team’s progress at the end of the first week in the first Sprint. The order of organizing the user stories should be decided by your team by prioritizing the user stories. **Explain** your team’s decision to prioritize.

**14 marks**

The task board must at least have **one user story in each classification**. In this question, you are expected to focus on user stories as the given tasks besides other possible development tasks that are not required to be stated for this question. You may use any drawing tools such as draw.io or you may sketch them in the Word file itself.

| To Do   | Doing | Done   |
|---|-------|--|
| <b>User 1:</b><br><br>As a customer, I want to message the seller personally so that I can ask about the things that I want to purchase privately.  |       |  |
|   |       | <b>User 2:</b><br><br>As a user, I want to freely cancel the orders without getting charged so that I don’t lose my money if anything happens. |
| <b>User 3:</b><br><br>As a personal shopper, I want to request the purchase invoice so that I can trace the particular amount that was paid for it. |       |  |

|  |  |   |
|--|--|---|
|  | <p><b>User 4:</b></p> <p>As a customer that is searching for a product, I want to be presented with the most appropriate choices, so that I am likely to find what I am looking for.</p> |   |
|  |  | <p><b>User 5:</b></p> <p>As a seller, I want to review the total of orders purchased by the customers so that I can track when I should restock the products.</p> |