



Introduction to Software Engineering Practice FE Exam

Introduction to Software Engineering (FPT University)

Student should carefully read the context of "**An Online Booking Tool**" to answer questions in the test.

An Online Booking Tool (OBT) will offer companies the opportunity to book business trips efficiently and manage all associated processes. This solution allows companies to organize, manage and map the entire business travel process in a transparent manner. OBT provides companies with straightforward business travel management software and supports ones in optimizing processes and travel costs.

The key features of the system are:

Travel planning: In travel planning, among other things, corporate rates and other rules defined via the rules definition are taken into account. Here it is not necessarily about finding the least expensive option but determining the best individual connection. The search results are based on personal preferences and specific company policies. If the trip requires approval, then the designated approver will be asked to give their confirmation.

Travel booking: Specified data is checked in the background when booking a trip. The system independently prompts the user to complete their profile if certain data is missing. Automatically defined remarks are entered in the booking, frequent-flyer cards are actively displayed and included, and seats are reserved. Ticketing can also be carried out via the system or alternatively via the existing workflow of a ticketing queue. Automatic background processes are defined with the travel agency in relation to waitlisting or other possible service options. To conclude this stage of the process, the traveling party receives a booking confirmation and a corresponding calendar entry containing the most important travel information.

Pre-trip/on-trip: The traveling party may receive additional information about their trip if required. Furthermore, changes can be made at any time. The latest exchange and refund methods have also been integrated and ancillary services have been added.

Travel expenses: Booking details about the business trip can be transferred directly via the import and export function or indirectly via the corporate card provider to the preferred travel expense report system. All data is transferred during the trip and duplicate entries are removed.

Report: Comprehensive reporting functions, including predefined standard reports, support the responsible travel manager in analyzing and optimizing the business travel process.

There are 2 types of users that may make use of the OBT system:

1. The managers: manager interact directly with the system, organize plan and modify the information of the trip. They are particularly concerned with assigning employees who take part in the trip (for business or for holiday travel), the duration, route, departure, and destination. The manager also view the cost calculation of the trips as well as the number of employees in charge, the number of locations that the trip go over

2. The employees: employees could give a request for absence in the trip that he or she is assigned. They have received the notification for the next trip 3 days in advance. If they take part in the trip, they also view the calculation of cost in the trip, the route they go on, and the detail every day including meeting time, meeting location, the hotel they will check-in,...

3. The Administrative department: booking the trip basing on the plan, including airplane tickets, hotel, meeting room, and all of the services concerning the trip. They also cancel the booking in some urgent situations such as the weather, the decline from partners. They also in charge of the payment process of these bookings.

The business travel process will execute automatically through the procedures definition in company. Real-time reporting plus profile and rights management ensure that manager can control the costs and travel policies at all times.

To start with, the team working on this project consists of 4 developers, 2 QAs, and a Team Leader. The development team will be supported from the company to understand the terms of this business but rarely."

QUESTIONS:

1. List out 6 functional requirements (Aministrative department: 2; Managers: 4)

and 2 non-functional requirements of the system. (2 points)

2. Write 2 user stories for the Employees

(Ex: As a [customer], I want [shopping cart feature] so that [I can easily purchase items online].)

3. Suggest the most suitable software development model to build this system and clarify why you choose this model by the following criteria: (3 points)

a. Requirements characteristics

- reliability
- types and number of requirements
- how often the requirements can change

can the requirements be defined at an early stage

b. Development team:

- team size
- level of understanding of user requirements by the developers

c. User involvement in the project (Small/Average/Large)

4. Draw a story map (at least 3 levels) for the "Travel planning" feature.(3 points)

Bài làm :

- Two functional requirements of Administrative department are:
 - They can book the trip basing on the plan, including airplane tickets, hotel, meeting room, and all of the services concerning the trip.
 - They also cancel the booking in some urgent situations such as the weather, the decline from partners.

Four functional requirements of Managers are:

- They interact directly with the system, organize plan and modify the information of the trip.
- They are particularly concerned with assigning employees who take part in the trip (for business or for holiday travel), the duration, route, departure, and destination.
- They also view the cost calculation of the trips as well as the number of employees in charge, the number of locations that the trip go over.
- Managers can analyze and optimize the business travel process by using comprehensive reporting functions to generate predefined standard reports.

Two non-functional requirements of the system are:

- In travel expenses feature, all data is transferred during the trip and duplicate entries are removed.

- In travel planning, the search results are based on personal preferences and specific company policies.
- Two user stories for Employees:
 - As an employees, I want to give the request for absence in the trip that I am assigned so that I can inform the company about my absence in the trip to further handle my situation.
 - As an employees, I want to view the calculation of cost in the trip so that I can see what things I have to pay and then I can consider if I can afford to book the trip.
- Requirements characteristics:
 - Reliability: the requirements are clear, and this project is possible to run. The requirements are high reliable.
 - types and number of requirements: the requirements contains both non-functional and functional requirements (list above), the requirements are clear and not ambiguous. They know user need, know solution because the list 5 key features of the system and they also know two types of user that may make use of the OBT system. They list more than 8 number of requirements including 6 functional requirements and 2 non-functional requirements.
 - How often the requirements can change: Because they define requirements very well, and the IT team has experience and knowledge of business terms because in the context, it mentions : “The development team will be supported from the company to understand the terms of this business but rarely.” so that the requirements can be describe as predictive and the requirements will not be change on a regular basis.
 - Can the requirements be defined at an early stage: As I mentioned above, the requirements are expressed in great details, everything is fine and clear enough. The requirements are easy to understand, so that the requirements are defined at an early stage.
- Development team:
 - team size: the context mentioned above: “the team working on this project consists of 4 developers , 2 QAs and 1 Team leaders”. So, we can conclude that this project is average size not too big and the team size is not too big.
 - level of understanding of user requirements by the developers: The IT team may understand enough of this project because they don’t need the company support to understand the terms of business regularly.
- User involvement in the project:
 - Small because the requirements are define very well and in the context they don’t mention about the user involvement in project to test the system or check if the IT team building this tool fit their requirements because as I mention above the requirements expressed in great detail.

To conclude, because the system is defined in 5 key features, so that we can build in

parts.

If the company want this tool to be delivered earlier to use quickly, to get feedback, then apply necessary change for anther parts then they can use the Incremental Model for the most suitable software development model to build this Online Booking Tool.

- A story map for the “Travel planning” feature: