TUTORIAL

You have been awarded the contract to implement a mobile bus tracker system for the Speedy Transport Company. The initial project description is given below. Study it, and then answer the questions that follow.

Mobile Bus Tracker System for the Speedy Transport Company

The Speed Transport Company requires a Bus Tracker System which uses real-time Global Positioning System (GPS) based tool to give bus riders the current position of their bus. The location position should be given by the system with an accuracy of 5 meters. Bus riders should be able to view the Bus Tracker mapping function on a desktop computer, a laptop, a tablet, or an internet-ready mobile phone. Bus Riders with non-internet phones should also be able to use the system via the text messaging function.

The Bus Tracker System should have a Trip Planner feature that should help riders determine the best routing to get them to their desired destination. While the Trip Planner feature gives riders bus information per the published bus schedule, the Bus Tracker feature gives actual bus location information. The combination of these two powerful tools will give Speedy Transport Company customers accurate, up to the minute information designed to make the public transit experience easier and more enjoyable.

The Bus Tracker mapping function should be very simple to use. The Bus Tracker tool should display a map showing all Speedy Transport Company buses currently in service. To find a particular bus, the user click on the route he wants to see from the list of routes. A Google Maps based map for the route should appear, showing all buses currently providing service on that route. The Bus Tracker system should be developed on the Android platform.

The Bus Tracker texting function will allow bus riders using non-internet mobile phones to use the system. To see when the next bus will arrive at a particular bus stop, the user simply sends a text message to the Bus Tracker system for his bus stop and the system will text him back the estimated time for his bus to arrive. The message is sent back within 3 minutes.

(a) Why should a number of system stakeholders be consulted during the requirements engineering process for a computer-based system? List three possible stakeholders for the Bus Tracker System.

[2 marks]

(b) Write down three functional requirements and three non–functional requirements of Bus Tracker System, derived from the case-study.

[6 marks]

(c) Requirements are usually written in natural languages. Describe three problems with using natural languages to specify requirements. Briefly describe two alternative techniques for specifying requirements.

[3+2 marks]

(d) The use of the Incremental Delivery Model for the development of the Bus Tracker System is being considered. Describe the Incremental Delivery Model. Give two advantages and two disadvantages of the Incremental Delivery Model.

[2+2+2 marks]

(e) After a careful evaluation of the different agile methods, the SCRUM methodology has been chosen for the development of the Bus Tracker System. You have been requested by the management of Speedy Transport Company to advise on the SCRUM process.

(i) Describe the role of the product owner.

[2 Marks]

(ii) Explain the purpose of the daily scrum meeting.

[2 Marks]

(iii)   Describe the purpose of the sprint planning meeting.

[2 Marks]