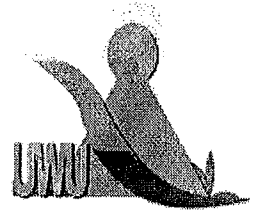


Uva Wellassa University, Sri Lanka  
End Semester Examination – June/July 2010  
CST 305-3 Rapid Application Development



Time: Three (03) hours

Total 05 Questions  
Answer all questions

Q1. Mr. Nimal Silva is a Project Manager (PM) in ABC Software Corporation. The company was offered a project, last year, to develop a system to automate the work done by helpdesk of an accounting firm named XYZ (Pvt) Ltd.

He selected Mr. Asiri Fernando as the Technical Lead and asked him to write a proposal. Asiri wrote the proposal and submitted to the PM with 1 year estimation for the project. PM discussed the proposal with the company executive team and they decided to shrink the schedule to 6 months. Though Asiri was asked to attend those meetings, he failed to attend due to the sickness of his wife. Hence, he was not aware of the changes done to the proposal.

Asiri together with the PM selected Dilini, Ravi and Rashmi as developers and Andrew as the QA Lead. Dilini is an expert with Java GUI and Ravi is an expert with DBMS. Rashmi was a new staff member who had joined the organization just after the graduation. Ravi, as a member of the interview board, had strongly dis-agreed in selecting Rashmi as a staff member.

They all got-together and discussed about ways to shorten the schedule with the resources given. To increase the speed of the development, they all agreed to use Intelligent IDEA as an IDE. Rashmi proposed a report-building tool, that she knew, which would cut the development time in half though she was not experienced with it. As the system had a lot of reports, they all agreed to use that tool in report generating part.

Team gathered requirements quickly, finished design and started coding. The project went smoothly until Ravi complained that Rashmi was not showing her code to others. The PM called a meeting with Rashmi and thoroughly advised on that matter.

After few weeks, the actuarial department of XYZ (Pvt) Ltd released the rates for the next year, and the team discovered that they had to accommodate an entirely new payment structure. They had to change the input dialogs, database design, database access, and communications objects to accommodate the new structure.

At the same time, QA lead started to complain that a build of the first milestone has not been released for testing as scheduled. Asiri was worried because he knew that they are 2 months behind the schedule. He went around the table one by one and asked the developers if they could completely finish their assignments in three weeks.

After a long, uncomfortable discussion, Asiri and Nimal agreed to slip the schedule three weeks. After 2 weeks, they could release their first release to the QA, and they had come up with more than 200 defects including 23 that were classified as 'Severity 1'-'Must Fix'-errors. Every one worked on bug-fixing for another 4 weeks. But for every bug they fixed, testing discovered two new errors. Nimal, the PM, gathered the team and insisted on putting all of them on a 6-day-per-week, 10-hour-per-day schedule until the software is done. And before he left for his end-of-the-year vacation to India, he asked others to work through the holidays and approved a four-week schedule slip. A week later, Reshmi submitted her resignation letter from the company saying that she was leaving the country for her higher studies and she left the project and the company.

The rest of the team members worked hard for another two weeks and released their second release to the QA. By that time, Nimal was back from his vacation, called a meeting and asked them to get the week-end leave and continue. On return, they fixed the bugs discovered with renewed energy. Finally, the completed system was released to the customer and agents at call desk greeted it with a warm if somewhat skeptical reception. The company showed its appreciation for the development team's hard work by presenting each of the developers with a Rs. 10,000 bonus.

- a.) Write down 4 categories of classic mistakes. [08 marks]
- b.) Find 10 classic mistakes given in the above case study and state the category. [10 marks]
- c.) What are the types of estimations you will use if you are Asiri Fernando? [03 marks]
- d.) Write down the Estimation Process stating the steps clearly. [04 marks]
- e.) Propose and explain two of the estimation tips you can use in this case study. [04 marks]
- f.) Write down estimate presentation styles. [02 marks]
- g.) What is meant by '*Recalibration*'? [04 marks]

Q2.

- a.) Software projects operate along four important dimensions as shown in the figure 2.1. Explain how to manage them. [08 marks]

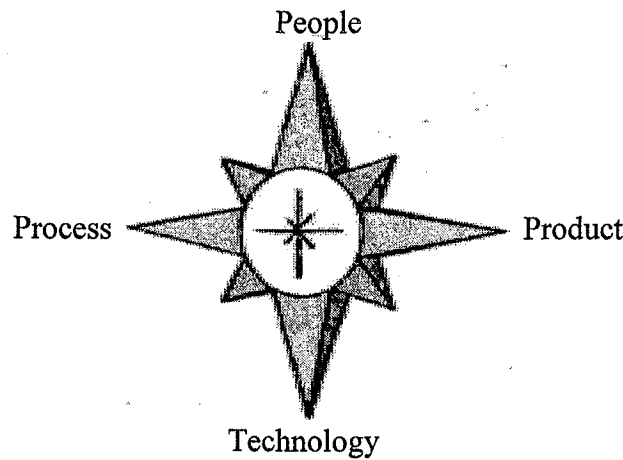


Figure 2. 1

- b.) List down the five principles for selection of staff for team projects. [05 marks]
- c.) List down the four pillars in Rapid Application Development which provides the optimum support for the best possible schedule. [04 marks]

Q3.

- a.) List 4 advantages of Customer-Oriented Practices? Explain each. [08 marks]
- b.) List 4 planning practices to build customer satisfaction into your project. [04 marks]
- c.) Explain 4 methods for creating a High-Performance Team. [08 marks]
- d.) A project manager explains a project given to his team in the following way.

*"We're going to create a database product that will take us from zero market share to 25-percent market share in 18 months. Marketing and production need absolutely reliable schedule estimates to pull this off, so we're going to make it our goal to set internal milestones and a final ship date that we can meet with 100-percent assurance."*

Criticize the above statement?

[06 marks]

Q4. In the case study given in Q1, Ravi proposed to the team to use 'ANT' as a build tool. Suppose you were asked to join the team as you are familiar with it.

- a.) Explain what is 'ANT' to the team. [02 marks]
- b.) Write a sample 'ANT' targets
- i. **clean** to delete unnecessary folders (eg: build)
  - ii. **dist** to create '*build*' folder
  - iii. **compile** to compile source files in '*src*' folder and to store the result *.class* files in build folder [06 marks]
- c.) Explain how to clean, dist and compile the project using 'ANT' to the team. [03 marks]

Q5.

- a.) What is meant by '*Daily Build*' and '*Smoke Testing*'? [04 marks]
- b.) Write a simple test class using JUnit to test the following methods. [05 marks]

```
public int add(int num1, int num2) {
    return num1 + num2;
}

public int getDiff(int num1, int num2) {
    if (num1 > num2)
        return num1 - num2;
    else
        return num2 - num1;
}
```

- c.) Write the results of the test cases with the input values 4 and 6. [02 marks]