

SOFTWARE PROJECT MANAGEMENT

PART-A

1. A project requires the transfer of paper documents into a computer based document retrieval system and their subsequent indexing so that they can be accessed via key words. Optical character readers are to be used for the initial transfer but the text then needs to be clerically checked and corrected by staff. The project is currently scheduled to take twelve months using permanent staff. Identify the stake holders for this project.

Stakeholders are people who have stakes or interests in a project. These stakeholders have a primary role in decision making of these projects. The stakeholders are

- Customers (eg: teachers who use the product for student answer evaluation).
- Senior manager of the project.
- Organization (eg: college).

2. Identify the actions that could prevent the following risks from materialising or could reduce the impact if it did occur.

- A. Many users are coming with changes if their requirements after system design is over.
- B. The government changes the income tax calculation rules.

A) The risks can be avoided by

- Getting adequate information about the project from the customer

- Getting the scope and doubts about the project verified well before the design stage.
- Making a design prototype.

B) The tax calculation model should be made as generalised as possible that allows flexibility to change the method calculations as and when needed. A bespoke software could be made to make immediate changes.

3. At what stage of a system development project would a prototype be useful as a means of reducing the following uncertainty?

Students can access details of available placements via in intranet. When there is a placement opportunity for which they wish to be considered, they would be able to apply for it electronically. This would cause a copy of their Curriculum Vitae (CV), which would also be held online, to be sent to the potential employer. Details of interviews and placement offers would all be sent by email.

Prototypes are used when requirements are not clearly mentioned. A basic prototype before the design stage and after the specification stage would be very helpful since students can review the model and give valuable feedback at the initial stages which would lead to great cost reduction.

4. Which process model is suitable for development of the given project specifications?
 - (a) A system to administer a student loans scheme.
 - (b) A system which calculates the amount of a drug that should be administered to a patient who has a particular complaint.

A) Spiral process model can be used since the project is money sensitive and every information should be thoroughly checked with minute details.

B) V-process model can be used since it directly deals with the life of patients, high verification and validation is needed.

5. If you were asked as an expert to provide an estimate of the effort needed to make certain changes to an existing piece of software, what information would you like to have to hand to assist you in making that estimate?

It is important to clearly understand the changes that need to be done which may include,

- Nature of change
- Reason for change and alternative suggestions
- Structure of software to be changed
- Who and when the changes can be made

6. Railway Reservation System is normally available to users from 8.00am to 8.00pm on all days. During the month of March, 2003, the system was unavailable for two days, because of problems with a disc drive and was not available on two other days until 10.00am in the morning, because of network problems. What were the availability and the MTBF of the service?

Total time = 12 hrs x 31 days = 372 hrs

Down time = $(12 \times 2) + (2 \times 2) = 28$ hrs

Up time = (total time) - (down time) = 344 hrs

Number of breakdown = 4

MTBF = $(344)/4 = 86$ hrs

Availability = $344/372 = 92.47\%$

7. How can you shorten the project duration?

1. Fast-tracking a project compresses the schedule by running tasks concurrently instead of in sequence. Fast-tracking can introduce risk because you start some tasks before their predecessors finish.
2. Crashing is a technique in which you spend additional money to reduce duration. The trick is to reduce the duration as much as possible for the least amount of money.
3. Reducing scope. If stakeholders decide to reduce the project scope, you might think that the solution is simply to delete the tasks for the scope you're removing.

8. Adding personnel to a project that is behind schedule might make the project completion date even later. Why?

It takes some time for the people added to a project to become productive. The ramp up time generally decreases the productivity of the project. Communication overhead increases as the number of people increases. Everyone working on the same task needs to keep in sync, so as more people are added they spend more time trying to find out what everyone else is doing.

9. Sometimes part of a system may be built quickly to demonstrate feasibility or functionality to a customer. This prototype system is usually incomplete; the real system is constructed after the customer and developer evaluate the prototype. Should the system requirements document be written before or after a prototype is developed? Why?

A prototype and software requirement specification go hand in hand. They are mutually dependent. A prototype lets you visualise what is expected. It helps you to play around and understand the justification for the software requirements. Just the software requirement on its own can tend to be verbose. On the other hand just having the prototype will not necessarily mean you would understand the alternative flows. This is especially important when you have an audience that is trying to understand the software few years down the line.

10. Draw an activity diagram using Precedence network conventions for the project details given below:

ACTIVITY	DURATION (WEEKS)	PRECEDENTS
A - Hardware Selection	4	
B - Software Design	4	
C - Install Hardware	1	A
D - Code Software	4	B, C
E - Test Software	2	D
F - Write User Manual	2	

