Book Questions
Chapters 3
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1. 3.2
   Explain how the principles underlying agile methods lead to the accelerated development and deployment of software.

   Ans: An important factor which increased the popularity of Agile methodology's usage in the late 1990s was embracing the quick pace of change surrounding software development. Agile methods focus more on the people's needs over contracts or careful software development planning. During the development phase, more emphasis is laid on Agile team members working directly with each other. This reduces time spent on formal, written communication and development of unnecessary work. More importance is given to the end user's direct feedback regarding their experience using the software, and therefore the need for extensive usage analysis and documentation is prevented.

2. 3.4
   Explain why test-first development helps the programmer to develop a better understanding of the system requirements. What are the potential difficulties with test-first development?

   Ans: **Test-first development**:
   In test-first development, tests for the specific requirements are written first, followed by writing code. This type of development has the following features:

   Advantages:
   1. Allows discovery of issues outside the core programming framework. Besides bugs or errors in the code, issues such as not fully meeting the end user's requirements may also be found.

   2. This method encourages writing tests which specify the exact functionality being developed.

   Disadvantages:
   1. A predominant number of software developers are not thoroughly trained in quality assurance. Without adequate training, test-first development might not be very effective if the programmers focus primarily on their expertise - developing the code.

   2. Several sets of very specific tests do not necessarily translate into meeting system requirements. A holistic overview is required to orchestrate the efforts of developing several tests to ensure that the end-user's requirements remain as the core objective.

3. 3.6
   Compare and contrast the Scrum approach to project management with conventional plan-based approaches as discussed in Chapter 23. Your comparison should be based on the effectiveness of each approach for planning the allocation of people to projects, estimating the cost of projects, maintaining team cohesion, and managing changes in project team membership.

Ans:

Factor	Scrum Approach	Conventional Plan-based Approach
1. Allocation of people to projects	a. In the Scrum Approach, either the Scum Master initiates and guides the Scrum team along the different stages of the project or all the team members collaborate to choose, highlight specific expertise requirements and work on aspects of the project without a formal hierarchy of position based seniority. b. The task of people, skill and expertise allocation is predominantly informal. c. Example: Such an approach may be found in smaller startup tech companies. Number of members range between 10 – 30 (full stack developers) depending upon the type and delivery requirements of the software.	a. In the Conventional Plan-based Approach, a project manager and/or other managerial figures explicitly guide other members and sections of a project. b. Thoroughly detailed specifications requirements documents are finalized before the start of any form of development. Based on the above factors, members of the project are assigned specified roles and specific expertise is sourced as evaluated to be suitable. c. Example: Such as approach may be found in multinational software solutions provides or consultants. The upper limit of members in a project may surpass the thousands.
2. Estimating the cost of projects	a. Project costs are usually only divided between the immediate members of the team plus additional expenses for the team location's maintenance. Hence, the initial cost estimation provides a reliable estimate in most projects. b. A quicker software delivery turn-around time may also increase project costs as additional skill, expertise and work hours would be implemented. In many cases such as this, direct customer involvement in regards to project costs and budgeting is possible.	a. Project costs are accounted for and divided between several team members, across different levels of position seniority. b. Additional factors such as costs derived from the specifications requirements documentation also account into project costs. Hence, comparably large projects would provide a cost underestimation. c. Like, the Scrum based approach project costs are dependent on the delivery schedule of the project.
3. Maintaining team cohesion	a. Team cohesion is strong as a formal, hierarchical approach to team management is usually not present.	a. Team cohesion may be strong, but definitive boundaries are observed and maintained. The 'boss is always right' mantra may be seen in this approach.

	b. A non-hierarchical management approach leads to more informal, personable conversations and discussions regarding project development.	b. Project Managers plan and lead discussion panels and meetings with a goal to steer the team towards the objectives set forth by him or his superiors.
4. Managing changes in Project team membership	a. Even though change may be observed along every step of a Scrum based approach, it does not necessarily translate to smooth transitions when it comes to the changing dynamics within this model. The level of informality is high and the exit of a team member may lead to a process slow down. This is because much of the communication is verbal and having a new member fill in may be difficult.	a. Plan based approaches frequently 'hire and fire' in accordance to the project's needs and requirements. Project progress is very carefully detailed in the form of reports and documentation to allow for smooth transition of employee replacements.

4. 3.7
   To reduce costs and the environmental impact of commuting, your company decides to close a number of offices and to provide support for staff to work from home. However, the senior management who introduce the policy are unaware that software is developed using Scrum. Explain how you could use technology to support Scrum in a distributed environment to make this possible. What problems are you likely to encounter using this approach?

   Ans:
   Several companies, small to mid-size corporations and organizations are providing their options to 'tele-commute' to work. In our case scenario, several viable technologies supporting distributive computing environments are available, such as IBM Systems ®, AutoDesk ® and others.

   Certain drawbacks of the Scrum Approach, which will almost be magnified in their deleterious effects are:
   a. Lack of adequate documentation pertaining to the development processes may be experienced.

   b. Face-to-face communication, the hallmark of the Scrum approach's methodology may be lost over telephoning in team members, client and other professionals.

5. 3.8
   Why is it necessary to introduce some methods and documentation from plan-based approaches when scaling agile methods to larger projects that are developed by distributed development teams?

   Ans:

Both Agile and Plan-based approaches have their strengths and weaknesses. In the case of large scale projects, a combination of both approaches is observed to be advisable. The following plan-based method factors may strengthen the project planning, development and execution phases:

1. As we learned from the comparison between Plan-based and Scrum approaches, larger projects may have several team members guided by project managers. Even though different teams would focus on their specific goals, the initial requirements specification documentation would strive to outline the connections between the different teams within the project. This holistic outline would help steer each team to towards the primary project objective.

2. Large projects would strive to achieve wide-encompassing goals which invariably would attract larger risks. A detailed requirements specification documentation would acquaint each team with not only their roles but also the relative risk they may pose to other team's processes if appropriate guidelines are not followed. Hence, the attainment of a broader perspective from the Plan-based approach may help in the risk management process.

3. Also, abidance of a Plan-based approach would help allocate employees with adequate qualifications for a specified project task.