Tutorial #5 – Scrum

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Scrum

What is Scrum?

Scrum is an agile method that focuses on managing iterative development rather than specific agile practices.

Three phases in Scrum:
- Outline planning phase: establish the general objectives for the project and design the software architecture.
- A series of sprint cycles: each cycle develops an increment of the system.
- The project closure phase: wraps up the project, completes required documentation such as system help frames and user manuals and assesses the lessons learned from the project.

Question 1

What are the considerations crucial to deciding whether to adopt Agile/Scrum development in a project?

Question 1 - Answer

What are the considerations crucial to deciding whether to adopt Agile/Scrum development in a project?

1. Team Experience & capability
   - Matured developers that can take multiple roles in the Development Team (cross functional) or other valid justifications.
   - Agile Development should be built on motivated individuals. Having the right people is essential for agile projects since it depend on the individuals' capability.
2. Customer involvement & commitment
   - Customers can provide continuous feedback to the developer team which help them to deliver frequent releases of working software to customers.
3. Requirement definition
   - Constantly changing or other valid justifications

Question 1 - Answer

What are the considerations crucial to deciding whether to adopt Agile/Scrum development in a project?

4. Change
   - Frequent fluctuation of change or other valid justifications
5. Organizational Culture
   - Having a dynamic culture to respond to frequent changes during the agile development lifecycle
   - An organizational mindset shift on developing a project with frequent engagement and interaction from customers.
6. Documentation
   - More flexibility to streamline minimum documentation or other valid justifications

Question 2

Discuss the different ways of estimating Velocity in Scrum.

Question 2

Velocity

An estimate of how much <u>product backlog</u> effort that a team can cover in <u>a single sprint</u>. Understanding a team's velocity helps them estimate what can be covered in a sprint and provides a basis for measuring improving performance.

Question 2 - Answer

Discuss the different ways of estimating Velocity in Scrum.

Three ways to estimate velocity:

- Use a Proxy Project

  Take a similar recent project to estimate the size of items in Product Backlog and the velocity.

- Best Case / Worst Case

  Simulate the number of sprints required based on best and worst case scenario to derive the estimated velocity.

- Simulate three sprints (capacity-based sprint planning)

 Simulate 2-3 sprints to understand the realistic capacity of the team so as to derive the estimated velocity.

Question 3

What are the characteristics of a good product backlog (PB)?

Question 3 - Answer

What are the characteristics of a good product backlog (PB)?

- **D**etailed appropriately

  Not all items in a PB will be at the same level of detail at the same time. PB items that we plan to work on soon should be at the top of the backlog, small in size and very detailed so that they can be worked on in the near sprint. Product backlog items (PBIs) that will be worked on later can be larger and less detailed.

- **E**mergent

  The product backlog is never complete or frozen. Instead, it is continuously updated based on a stream of economically valuable information that is constantly arriving.

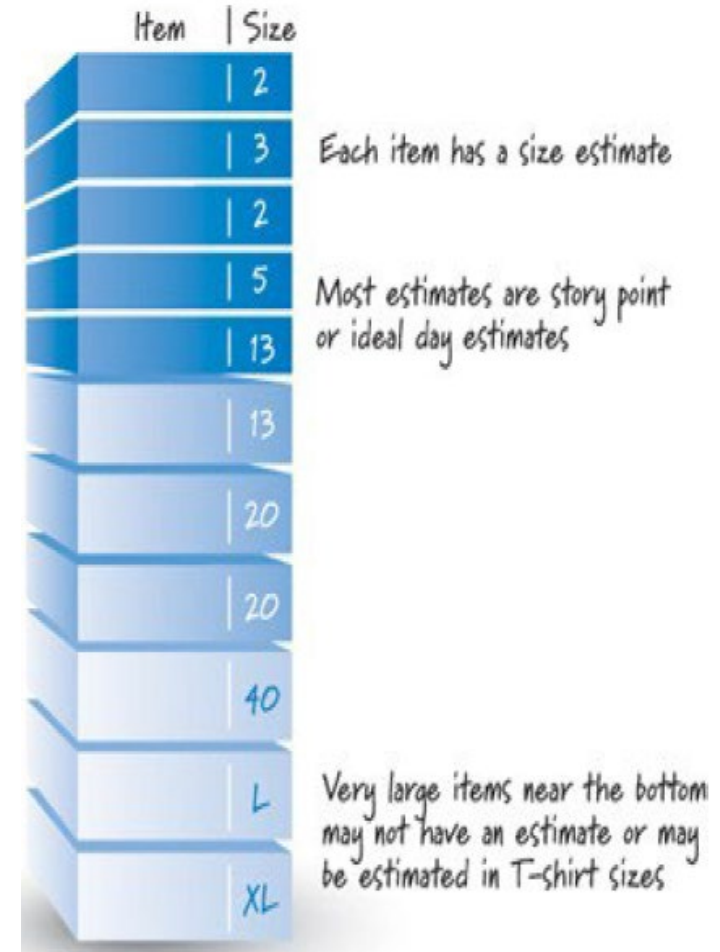Product backlog items

Small size
Lots of details — Worked on soon

Large size
Few details — Not worked on soon
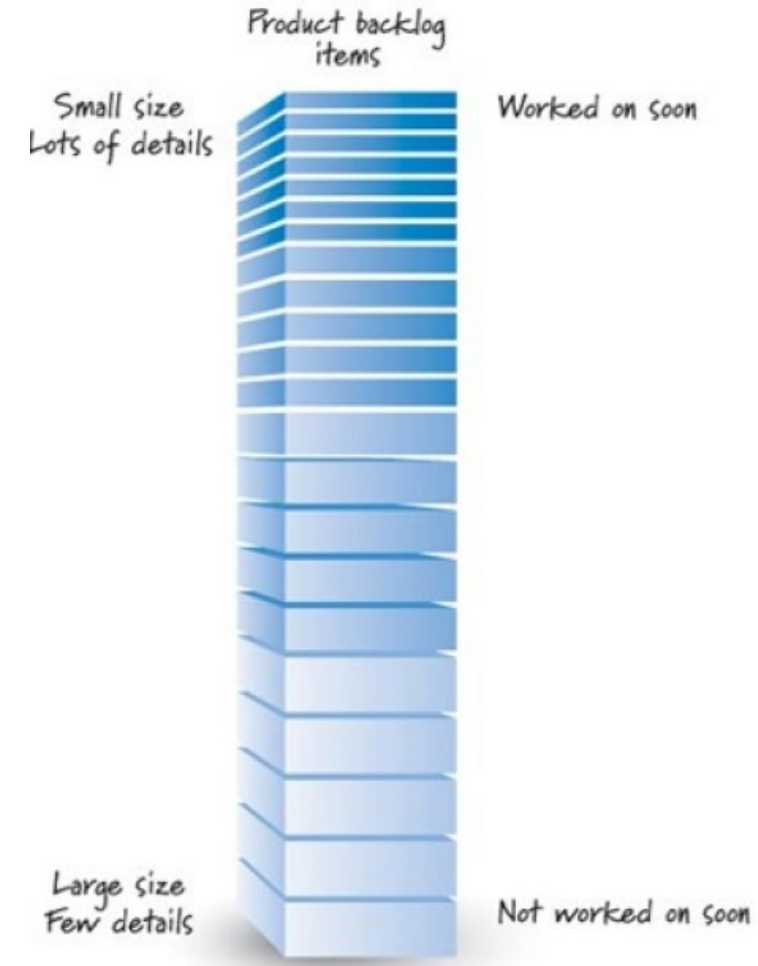
What are the characteristics of a good product backlog (PB)?

- **E**stimated
  Each product backlog item (PBI) has a size estimate corresponding to the effort required to develop the item. Product owner uses these estimates as one of several inputs to help determine a PBI's priority (and therefore position) in the PB.


Item | Size

| 2   Each item has a size estimate
| 3
| 2
| 5   Most estimates are story point
| 13   or ideal day estimates
| 13
| 20
| 20
| 40
| L   Very large items near the bottom
| XL   may not have an estimate or may be estimated in T-shirt sizes

Question 3 - Answer

What are the characteristics of a good product backlog (PB)?

- **P**rioritized
  Useful to prioritize the near-term items that are destined for the next few Sprints.
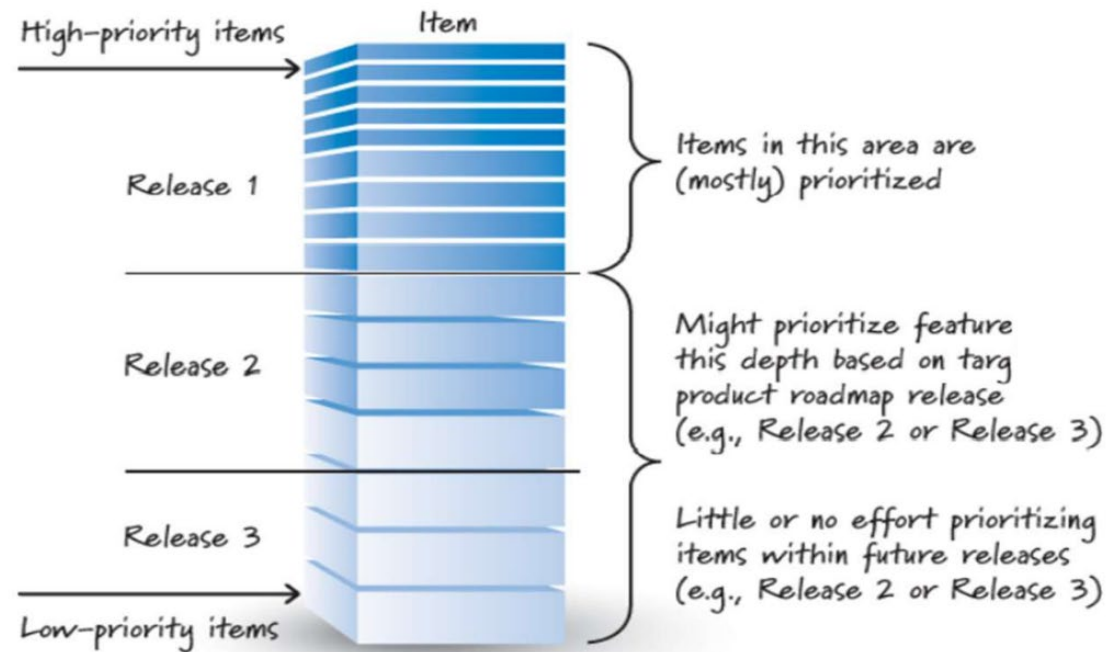
Question 4

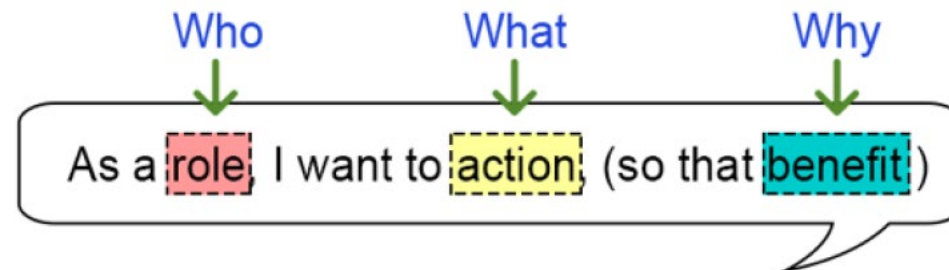**What does the INVEST mnemonic of Agile software development stand for?**

Question 4

What does the INVEST mnemonic of Agile software development stand for?

The INVEST mnemonic for agile software development projects is a reminder of the characteristics of a good quality Product Backlog Item (commonly written in user story format).

User Story

User Stories are expressed in everyday language and describe a specific goal (what) from the perspective of a user (who) along with the reason (why) he/she wants it.

Who   What   Why

As a role, I want to action (so that benefit)

What does the INVEST mnemonic of Agile software development stand for?

- **I**ndependent

  The requirement is still meaningful on its own. This allows for user stories to be freely re-arranged.

- **N**egotiable

  User stories should also be general enough for the development team and client to work around their implementation. They should capture the essence of what is desired, while remembering that requirements could change.

- **V**aluable

  User stories should bring value to the client as indicated in the "so that <value>" clause (of the user story).

- **E**stimable

  It should be possible to estimate how much time it would take to design and implement the requirement in the user story so that it can be properly prioritized.

- **S**mall

  A user story should be small because it is meant to be developed in a short time period.

- **T**estable

  User stories should be verifiable against a set of criteria in order to determine if it is "done", meaning that the user story has accomplished what it set out to do. This is usually accomplished with acceptance tests.

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Question 5

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Question 5 - Answer

Under Scrum methodology, a Product Increment is a piece of software that is both complete and potentially shippable. Why is it important to have a working software delivered at the end of each Sprint?

Possible benefits:

- Working software encourages feedback

  A team can collect more and better feedback if it shows (or better, gives) a functioning though partial product (i.e.: system) to users than producing a documentation about the product will do. This working software is to be demonstrated to the stakeholders at the end of each Sprint during the Sprint Review Meeting.

- Working software helps a team to gauge its progress

  One of the risks of a project is not knowing how much work remains to be done. When too much of a system is in an unfinished state, it is very difficult to know how much effort will be required to bring the system to a shippable state. By emphasizing working software in each Sprint, Scrum Team avoid this problem.

- Working software allows the product to release early if desired

  In today's competitive and rapidly changing world, the option to release early (even if delivering fewer features) can be very valuable for customers.

Question 6

The total size (in points) of a list of product backlog items is _64_. The Scrum Team consists of _Product Owner_, _Scrum Master_ and _6 members in the Development team_. The cost of _each member_ in the Scrum Team for _each Sprint_ is _$2K_. _Eight Sprints_ is determined to be needed to complete the project. Calculate the velocity and cost of this project.

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- Velocity = 64 / 8 = 8
- Cost per sprint = (1 + 1 + 6) x $2K = $16K
- Cost of project = $16K x 8 = $128K