Testing Agile Based Software   cont …

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Scrum

Introduction

- Scrum is an Agile framework which concentrates on how team members should function to produce system flexibly in a constantly changing environment.

- Scrum is concerned with the product owner, project lead, and the team working together in an intensive and interdependent manner.
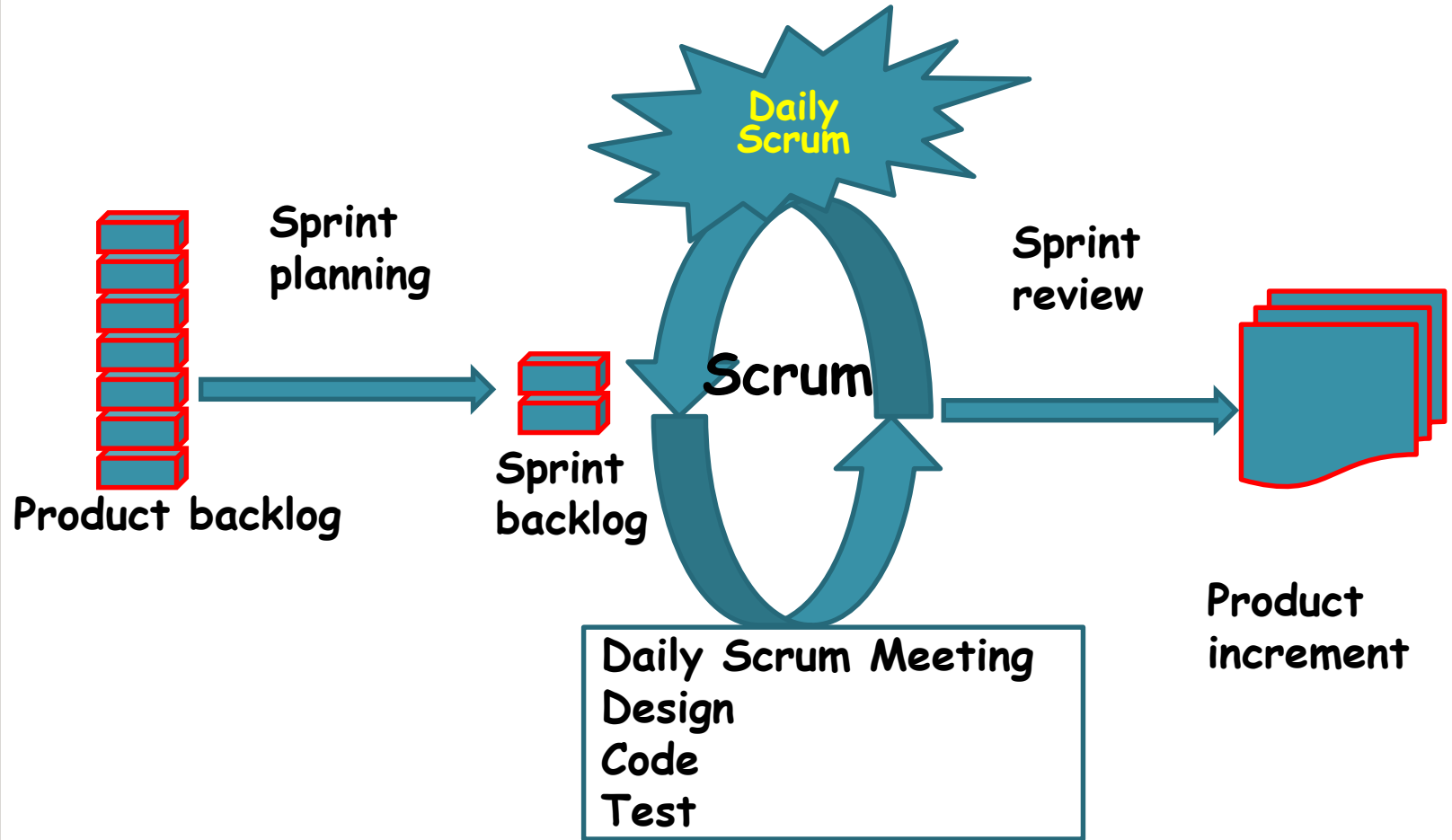
Introduction   cont …

- Scrum process includes three phases: Pre-game, Development, and Post-game.

- There are six identifiable roles in Scrum that have different tasks and purposes during the process and its practices: Scrum master, Product owner, Scrum team, Customer, User, and Management

Scrum: Characteristics

- Self-organizing teams

- Product progresses in a series of month-long **sprints** (iterations or runs or development cycles)

- Requirements are captured as items in a list, called **product backlog**

- One of the agile processes

Scrum Life Cycle

Daily Scrum

Sprint planning

Product backlog

Sprint backlog

Scrum

Sprint review

Daily Scrum Meeting
Design
Code
Test

Product increment

Sprint

- Scrum projects progress in a series of "sprints"

  ◦ Analogous to XP iterations or time boxes

  ◦ Target duration is one month

- Software increment is designed, coded, and tested during the sprint

- No changes entertained during a sprint

Scrum Framework

- **Roles** : Product Owner, Scrum Master, Scrum Team, Customer, End User, Management

- **Ceremonies** : Sprint Planning, Sprint Review, Sprint Retrospective, and Daily Scrum Meeting

- **Artifacts** : Product Backlog, Sprint Backlog, and Burndown Chart

Key Roles and Responsibilities in a Scrum Team

- **Product Owner**
  - Represents customers' views and interests.

- **Development Team**
  - Team of five-nine people with cross-functional skill sets.

- **Scrum Master (aka Project Manager)**
  - Facilitates scrum process and resolves impediments at the team and organization level by acting as a buffer between the team and outside interference.

Product Owner

- Defines the features of the product

- Decides on release date and content

- Prioritizes features according to usefullness

- Adjusts features and priority every iteration, as needed

- Accepts or reject work results.

The Scrum Master

- Represents management in the project

- Removes impediments

- Ensures that the team is fully functional and productive

- Enables close cooperation across all roles and functions

- Shields the team from external interferences

Scrum Team

- Typically 5-10 people

- Cross-functional

  ○ QA, Programmers, UI Designers, etc.

- Teams are self-organizing

- Membership can change only between sprints

Sprint

- Fundamental process flow of Scrum

- It is usually a month-long iteration:

  ◦ during this time an incremental product functionality completed

- No outside influence is allowed to interfere with the Scrum team during the Sprint

- Each day begins with the Daily Scrum Meeting

Ceremonies

- Sprint Planning Meeting

- Daily Scrum

- Sprint Review Meeting

Sprint Planning

- Goal is to produce Sprint Backlog

- Product owner works with the Team to negotiate what Backlog Items

- Scrum Master ensures Team agrees to realistic goals

Daily Scrum

- Daily

- 15-minutes

- Stand-up meeting

- Not for problem solving

- Three questions:
  1. What did you do yesterday?
  2. What will you do today?
  3. What obstacles are in your way?

- Is NOT a problem solving session

- Is NOT a way to collect information about WHO is behind the schedule

- Is a meeting in which team members review what is done and make informal commitments to each other and to the Scrum Master

- Is a good way for a Scrum Master to track the progress of the Team

- Team presents what it accomplished during the sprint
- Typically takes the form of a demo of new features
- Informal
  - 2-hour prep time rule
- Participants
  - Customers
  - Management
  - Product Owner
  - Other team members

Sprint Review Meeting

Product Backlog

- A list of all desired work on the project

  ◦ Usually a combination of

    • story-based work ("let user search and replace")

    • task-based work ("improve exception handling")

- List is prioritized by the Product Owner

  ◦ Typically a Product Manager, Marketing, Internal Customer, etc.

Product Backlog

- Requirements for a system, expressed as a prioritized list of Backlog Items

  ◦ Managed and owned by Product Owner

  ◦ Spreadsheet (typically)

Sample Product Backlog

Item #	Description	Est	By
Very High			
1	**Finish database versioning**	16	KH
2	**Get rid of unneeded shared Java in database**	8	KH
-	**Add licensing**	-	-
3	Concurrent user licensing	16	TG
4	Demo / Eval licensing	16	TG
	Analysis Manager		
5	File formats we support are out of date	160	TG
6	Round-trip Analyses	250	MC
High			
-	**Enforce unique names**	-	-
7	In main application	24	KH
8	In import	24	AM
-	**Admin Program**	-	-
9	Delete users	4	JM
-	**Analysis Manager**	-	-
10	When items are removed from an analysis, they should show up again in the pick list in lower 1/2 of the analysis tab	8	TG
-	**Query**	-	-
11	Support for wildcards when searching	16	T&A
12	Sorting of number attributes to handle negative numbers	16	T&A
13	Horizontal scrolling	12	T&A
-	**Population Genetics**	-	-
14	Frequency Manager	400	T&M
15	Query Tool	400	T&M
16	Additional Editors (which ones)	240	T&M
17	Study Variable Manager	240	T&M
18	Haplotypes	320	T&M
19	**Add icons for v1.1 or 2.0**	-	-
-	**Pedigree Manager**	-	-
20	Validate Derived kindred	4	KH
Medium			
-	**Explorer**	-	-
21	Launch tab synchronization (only show queries/analyses for logged in users)	8	T&A
22	Delete settings (?)	4	T&A

Sprint Backlog

- A subset of Product Backlog Items, which defines the work for a Sprint

  ◦ Created by Team members

  ◦ Each Item has it's own status

  ◦ Updated daily

Sprint Backlog during the Sprint

- Changes occur:

  ◦ Team adds new tasks whenever they need to in order to meet the Sprint Goal

  ◦ Team can remove unnecessary tasks

  ◦ But: Sprint Backlog can only be updated by the team

- Estimates are updated whenever there's new information
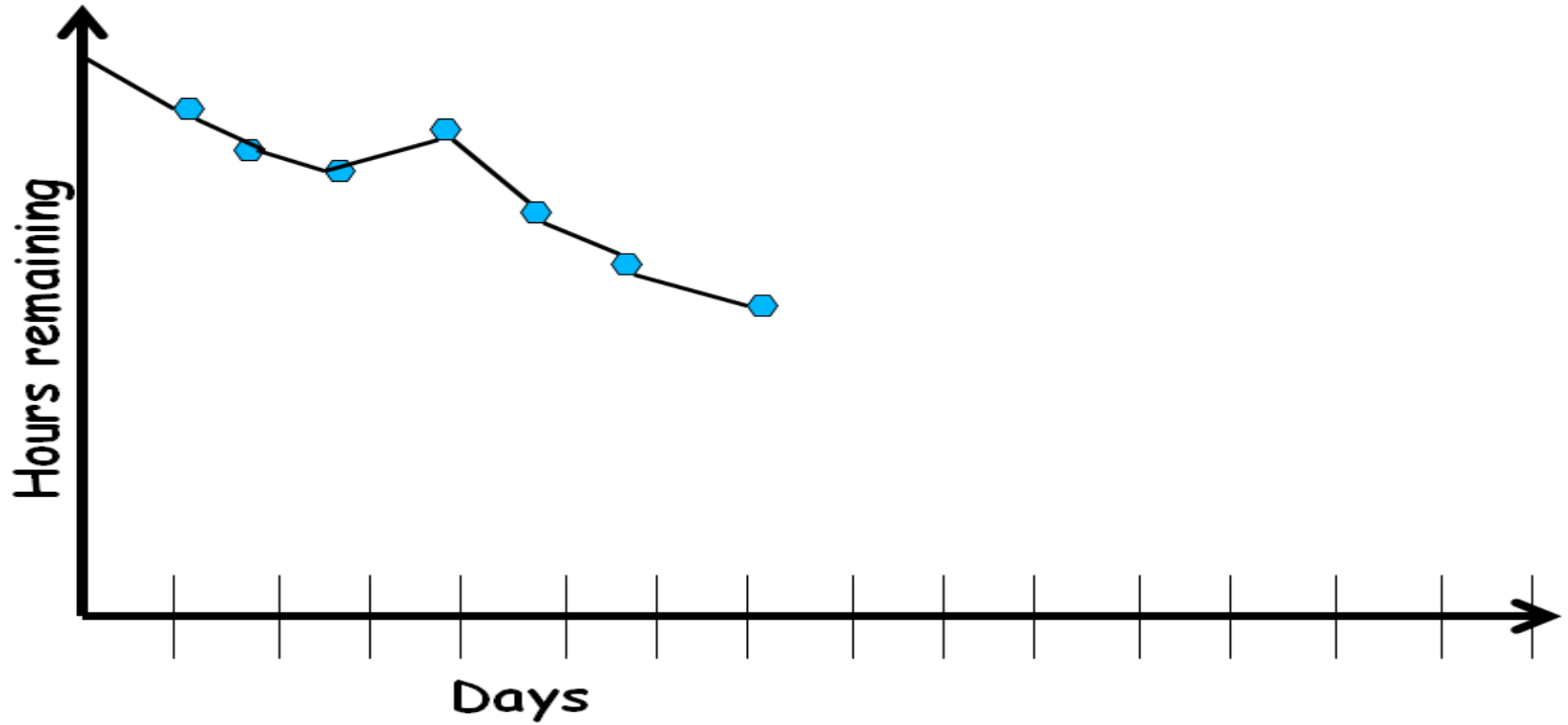
Burn down Charts

- Are used to represent "work done".

- Are remarkably simple but effective Information disseminators

- 3 Types:

  ◦ Sprint Burn down Chart (progress of the Sprint)

  ◦ Release Burn down Chart (progress of release)

  ◦ Product Burn down chart (progress of the Product)
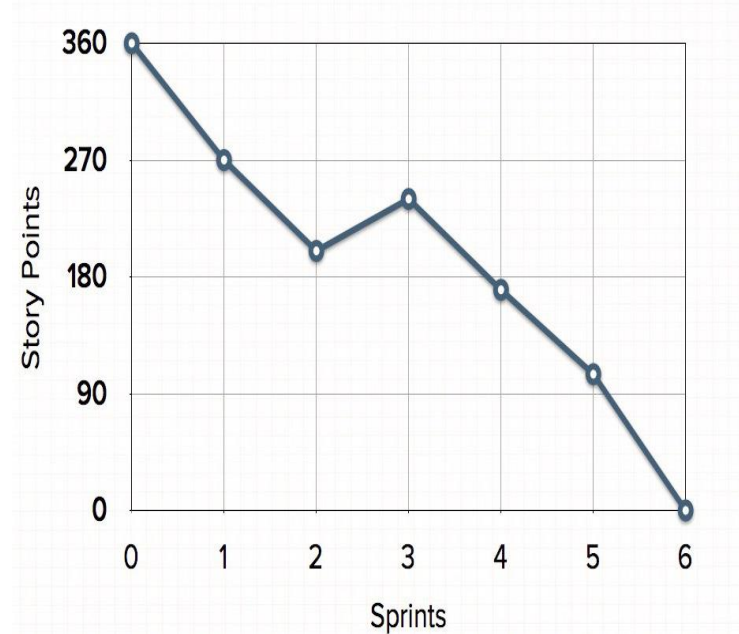
Sprint Burn down Chart

- Depicts the total Sprint Backlog hours remaining per day

- Shows the estimated amount of time to complete

- Ideally should burn down to zero to the end of the Sprint

- Actually is not a straight line
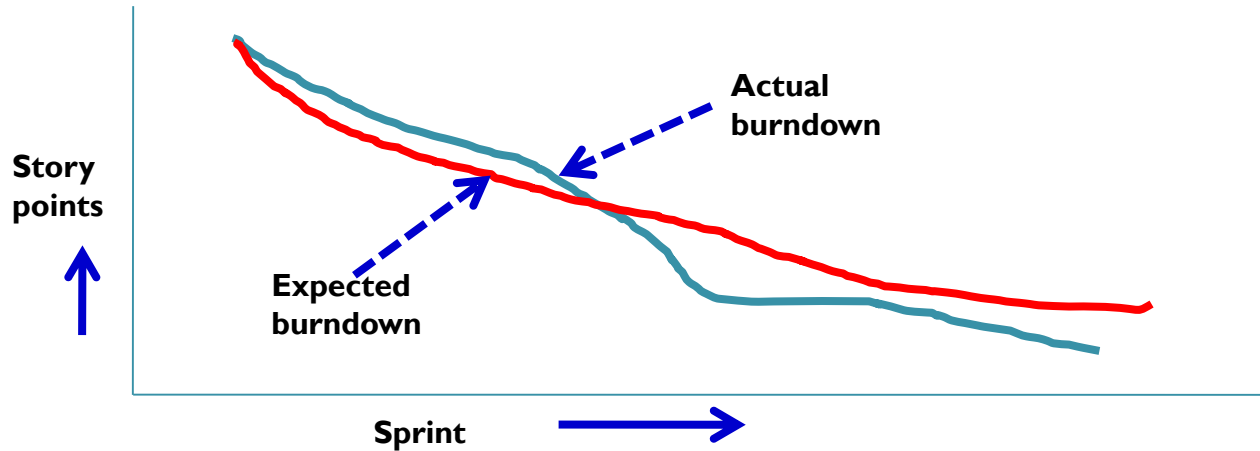
Sprint Burndown Chart

Release Burndown Chart

- Will the release be done on right time?

- How many more sprints?

- X-axis: sprints

- Y-axis: amount of story points remaining

Product Burndown Chart

- It is a "big picture" view of project's progress (all the releases)

Scalability of Scrum

- A typical Scrum team is 6-10 people

- Jeff Sutherland - up to over 800 people

- "Scrum of Scrums" or "Meta-Scrum"

Thank You