

Project Management



Lecture 2

Agile & Scrum Framework, Story Prioritisation, Story Estimation

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Agenda

- Agile & Scrum Framework
- Story Prioritisation
- Story Estimation
- Assessment 1 Discussion



Agile & Scrum

- Agile
- Scrum



Why Agile?

- Who wants to be rigid?
- User/Customer focused.
- Early, continuous & frequent delivery.
- Becoming a mainstream Project Management (PM) method.



Values of Agile Development

Individuals and
Interactions

over

Process and Tools

Working Product

over

Comprehensive
Documentation

Customer
Collaboration

over

Contract Negotiation

Responding to
Change

over

Following a Plan

Source: www.agilemanifesto.org

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Some Agile Wisdom

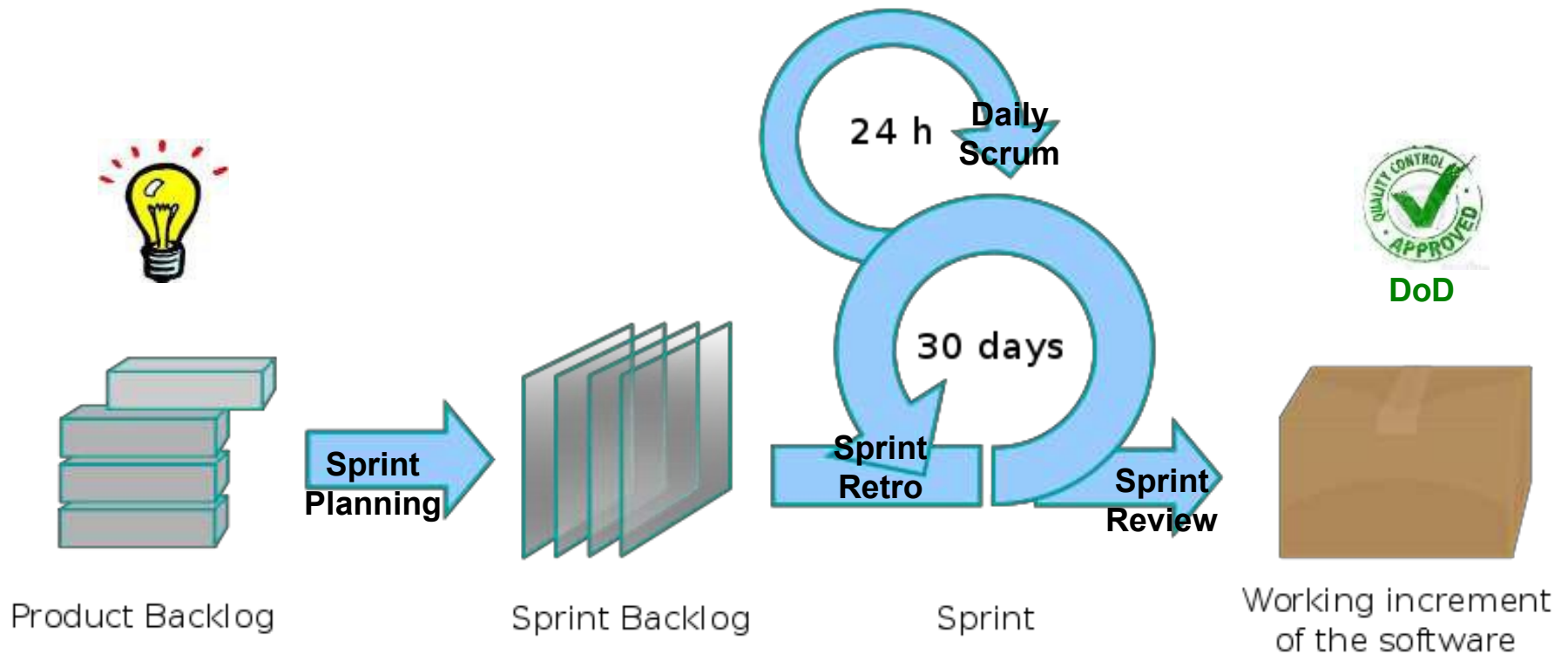
- Embrace change!
 - Requirements are never, ever, ever, fixed
 - Stop pretending, and get used to it
- Deliver early and deliver often
 - A working system delivers value
 - ♦ telephone book scale documentation does not
 - A deployed system generates revenue
 - ♦ 80:20 rule



Scrum



Scrum



Scrum Principles

Developing and Sustaining Complex Products

PRINCIPLE #1

Incrementally deliver
Value each 30 Days (or
less)

Optimise Value

PRINCIPLE #2

Foster
Self-Organising
Teams
[6 +/- 3 People]

**Optimise
Productivity**

PRINCIPLE #3

Use Empirical Process
Control

**Optimise
Predictability**

Agile Manifesto

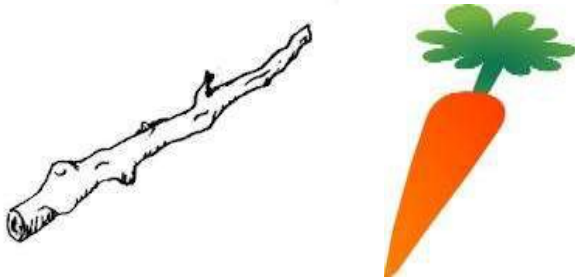


Optimise Value



Optimise Productivity

Extrinsic
Motivation



Simple
Tasks



Intrinsic
Motivation



Knowledge
Work



Directed Team

Project Management Behaviours

- Prepare detailed staffing plan
- Negotiate for part-time specialists
- Command & control individuals
- Conduct individual performance reviews

Team Behaviours

- Take direction
- Seek individual reward
- Focus on low-level objectives
- Compete
- Comply with processes
- Avoid conflicts

Self-Organising Team

Project Management Behaviours

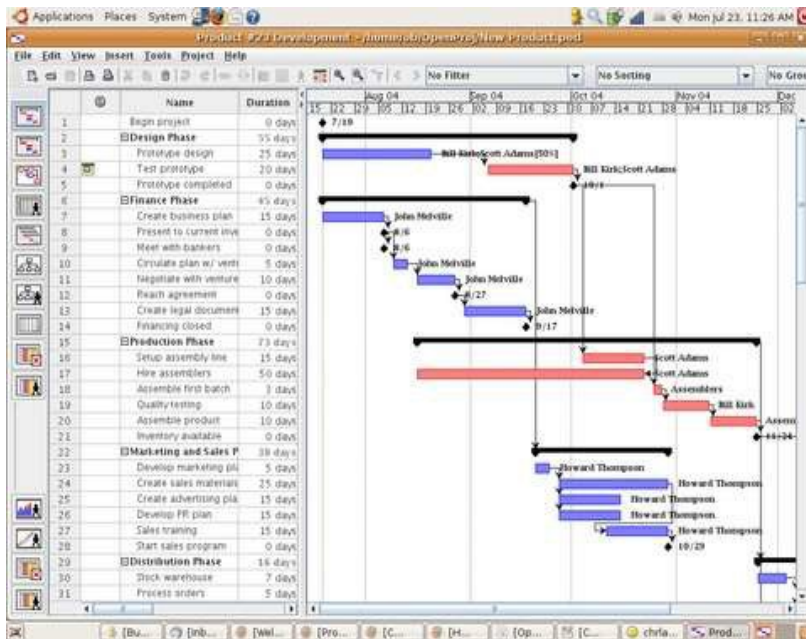
- Gather cross-functional team
- Negotiate for full-time generalists
- Facilitate teams & remove impediments
- Conduct team retrospectives

Team Behaviours

- Take initiative
- Focus on team contributions
- Concentrate on solutions Collaborate
- Continuously improve
- Navigate conflicts

Optimise Predictability

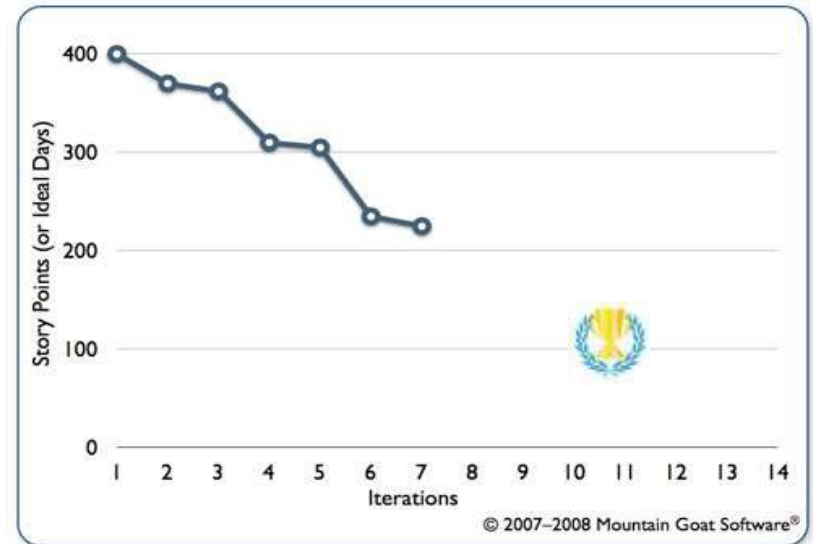
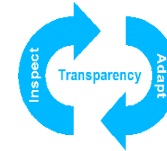
Defined Process Control



Gantt
Chart



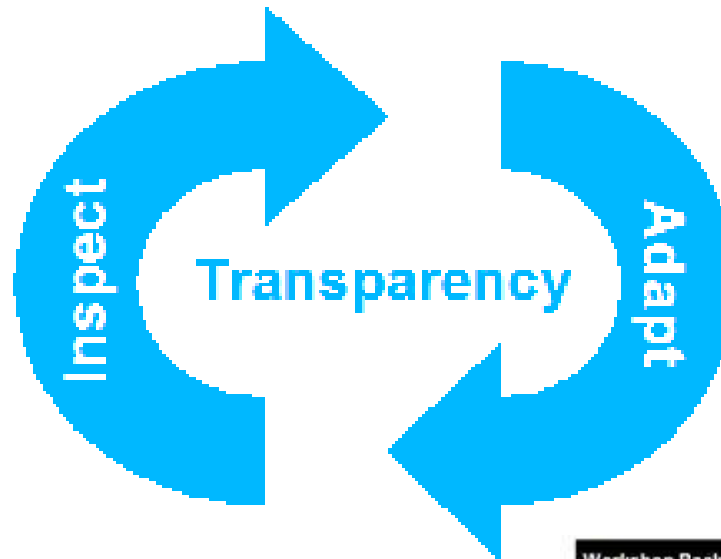
Empirical Process Control



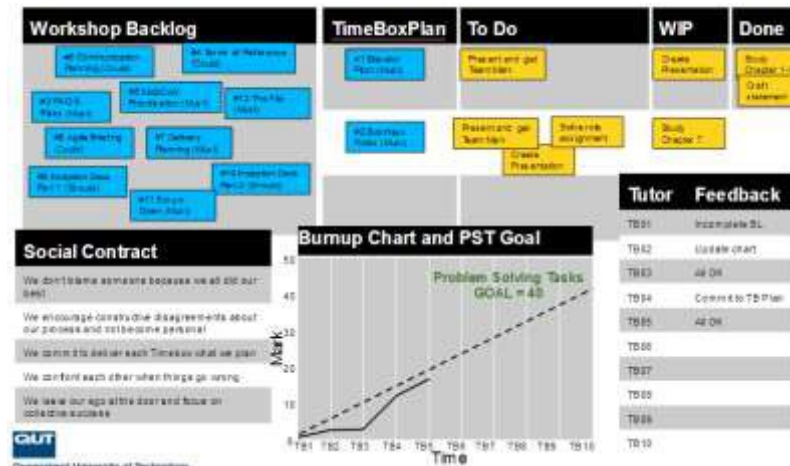
Burndown
Chart



Empirical Process Control



HOME 47
AWAY 25



Roles



Product Owner

Optimise Value
Product Backlog
Product Increment



Development Team

Self-Organising
Cross-Functional
Sprint Backlog



Scrum Master

Coach & Trainer
Servant Leader
Change Manager



Scrum Roles

Product Owner

Responsible for maximising the value of the Increments delivered by the Development Team

- One person with a vision
- Maximise Return on Investment (ROI) and minimise Total Cost of Ownership (TCO)
- Decide on release date and content
- First point of contact for stakeholders
- Accept or reject work results
- Accountable for managing the Product Backlog
 - Clearly express Product Backlog Items (PBI)
 - Order PBI to best achieve goals
 - Make Product Backlog transparent and understandable to all
- Knowledgeable, empowered and engaged
- Motivates team and celebrates success
- Often full-time role

Development Team

Committed to delivering a potentially releasable Increment of “Done” product at the end of each sprint

- Typically 6 +/- 3 people
- Self-organising and empowered – only the team estimates PBI's and determines how to turn the Sprint Backlog into an Increment
- Cross-functional – the team collectively possesses all of the skills to create a Potentially Shippable Product Increment
- Shared responsibility – although team members may have specialised skills, responsibility is shared
- Full-time members – exceptions are possible (eg. DB admin)
- No titles – all members are “Developer”
- No sub-teams – no sub-teams for particular domains like business analysis or testing
- Delivers in small chunks
- Builds-in quality

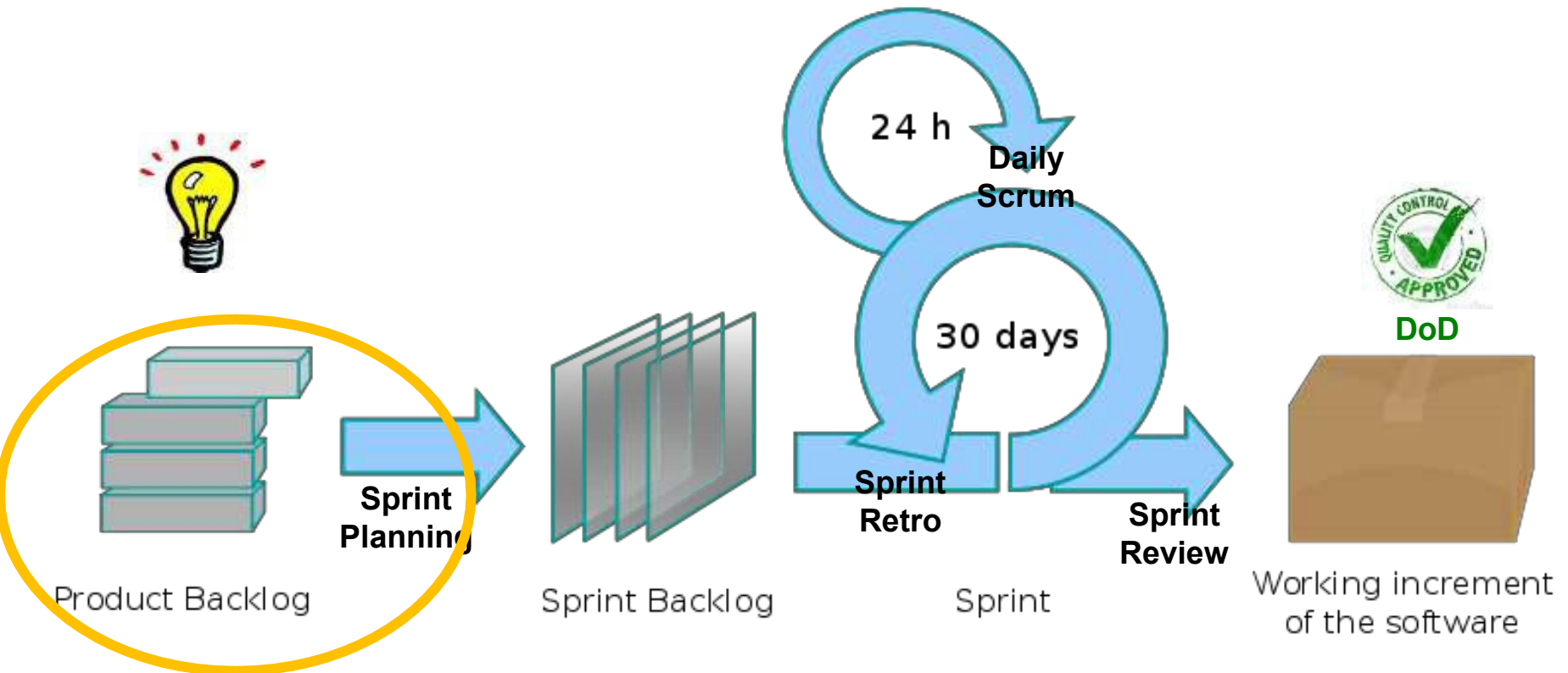
Scrum Master

Responsible for maximising the value of the Increments delivered by the Development Team

- Coach and trainer for the Product Owner
- Servant Leader for the Development Team:
 - Team:
 - Helps building self organising teams
 - Removes impediments
 - Empowers the Team
- Manager in the Organisation:
 - Causing change to interactions with the Scrum Team to maximise the value created by the Scrum Team
 - Represents management to the project
 - Leading and coaching in Scrum adoption
 - Plans and implements Scrum
 - Works together with other Scrum Masters to increase effectiveness of the application of Scrum in the organisation



Product Backlog



Product Backlog Example

Backlog item	Estimate
Allow a guest to make a reservation.	3
As a guest, I want to cancel a reservation.	5
As a guest, I want to change the dates of a reservation.	3
As a hotel employee, I can run RevPAR reports (revenue-per-available-room).	8
Improve exception handling	8
...	30
...	50

Product Backlog

Detailed
appropriately

Emerging

Estimated

Prioritised (Ordered)

Product
Owner

Sprint Ceremonies

Sprint: 1-4 Weeks

Sprint
Planning
Part 1:
1-4
Hours

Sprint
Planning
Part 2:
1-4
Hours

Sprint
Review:
1-4
Hours

Sprint
Retro:
1-3
Hours

Daily
Scrum:
15 Mins

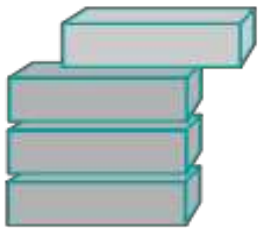
X Week Sprint = X Hour Meeting



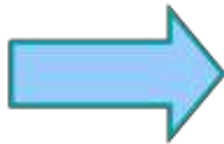
Sprint Planning



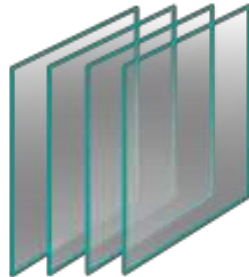
**Part One:
What?**



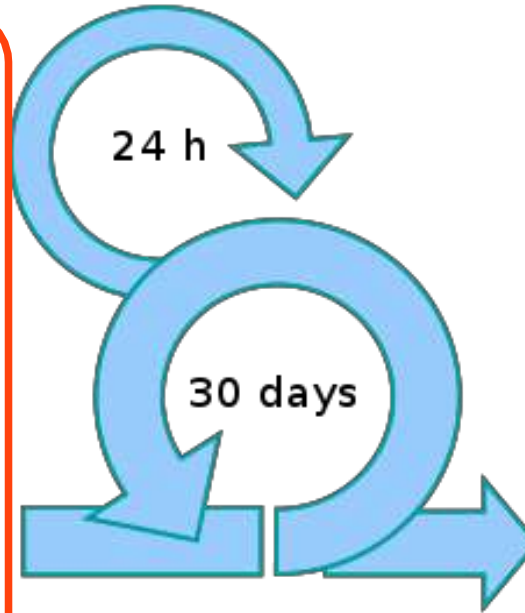
Product Backlog



**Part Two:
How?**



Sprint Backlog



Sprint



DoD



Working increment
of the software



Sprint Backlog (& Goal)

Story	To Do		In Process	To Verify	Done
As a user, I... 8 points	Code the... 9	Test the... 8	Code the... DC 4	Test the... SC 6	Code the... D Test the... SC 8 Test the... SC Test the... SC Test the... SC 6
As a user, I... 5 points	Code the... 8	Test the... 8	Code the... DC 8		Test the... SC Test the... SC Test the... SC 6



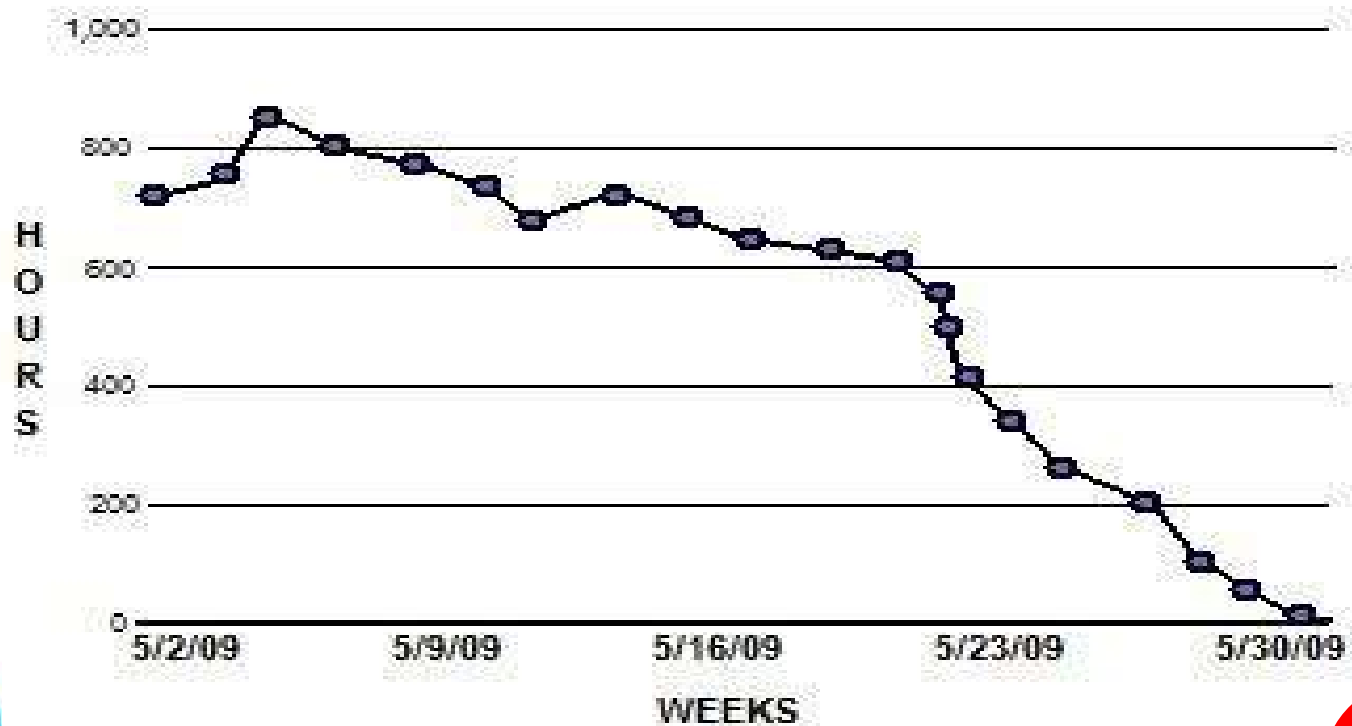
Daily Scrum

1. What did I do yesterday that help the Development Team meet the Sprint Goal?
2. What will I do today to help the Development Team meet the Sprint Goal?
3. Do I see any impediment that prevents me or the Development Team from meeting the Sprint goal?

**Development
Team**



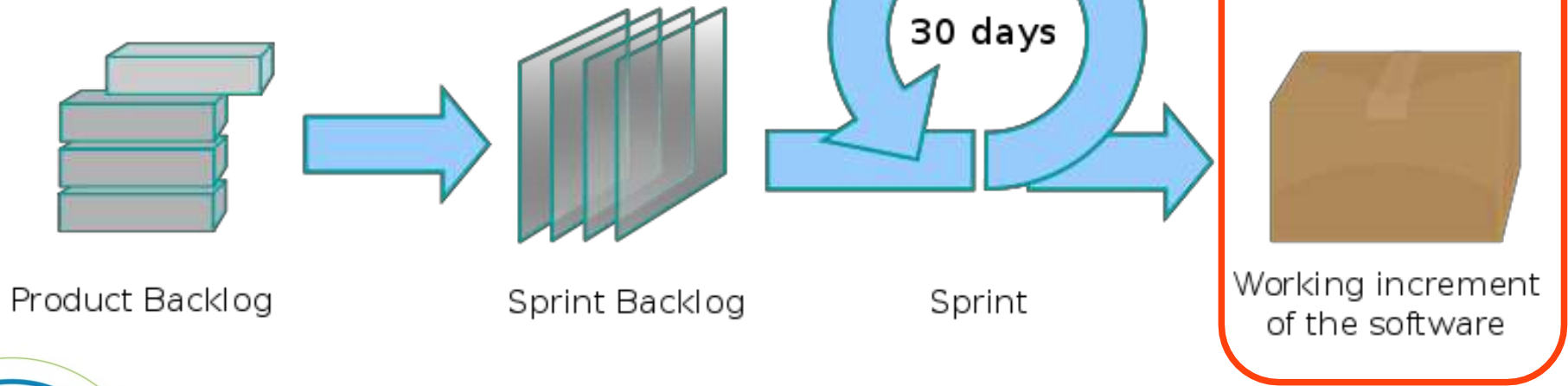
Daily Scrum & Sprint Burn-Down



Development Team

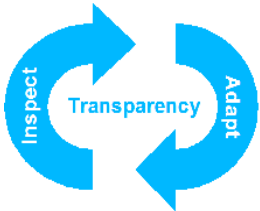
Sprint Review

Product Owner



Sprint Review: Product Increment

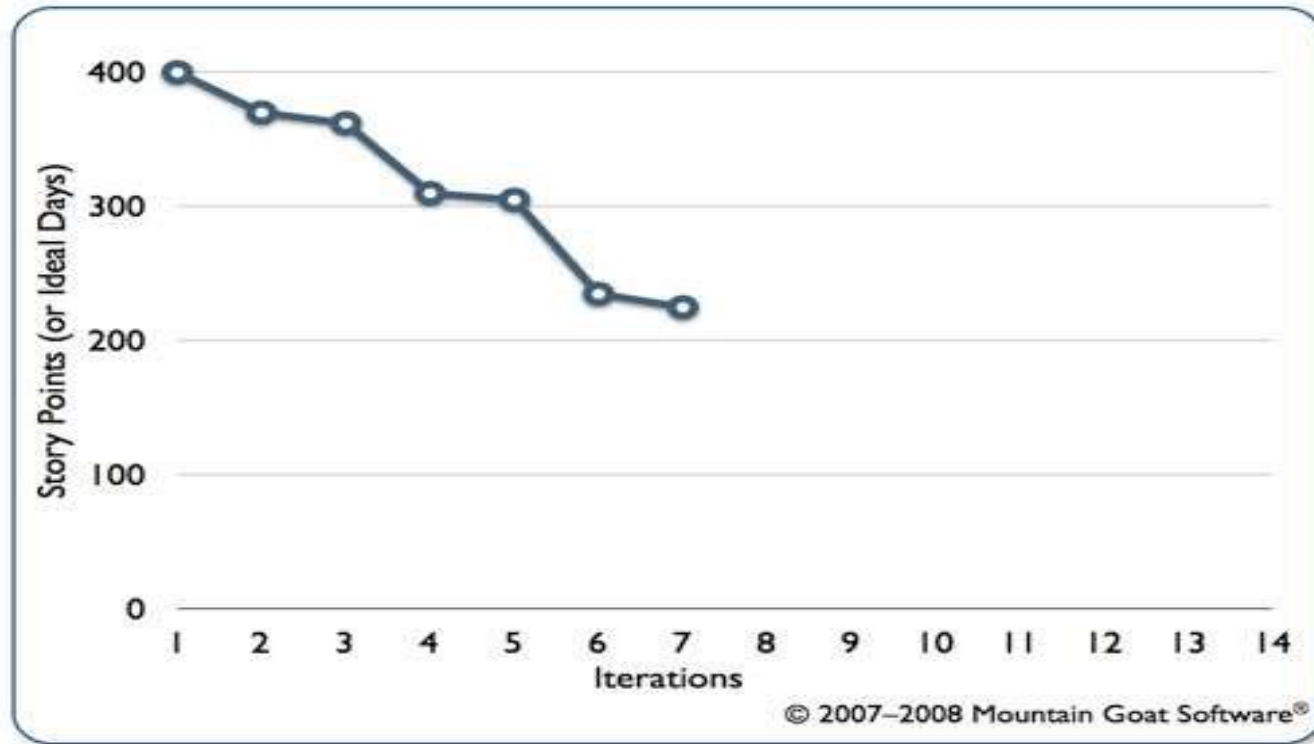
- Sum of all Completed Product Backlog Items
- Potentially Shippable
- Complies with Definition of Done
- Minimal Marketable Features



**Product
Owner**

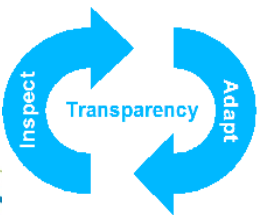


Sprint Review: Release Burn-Down

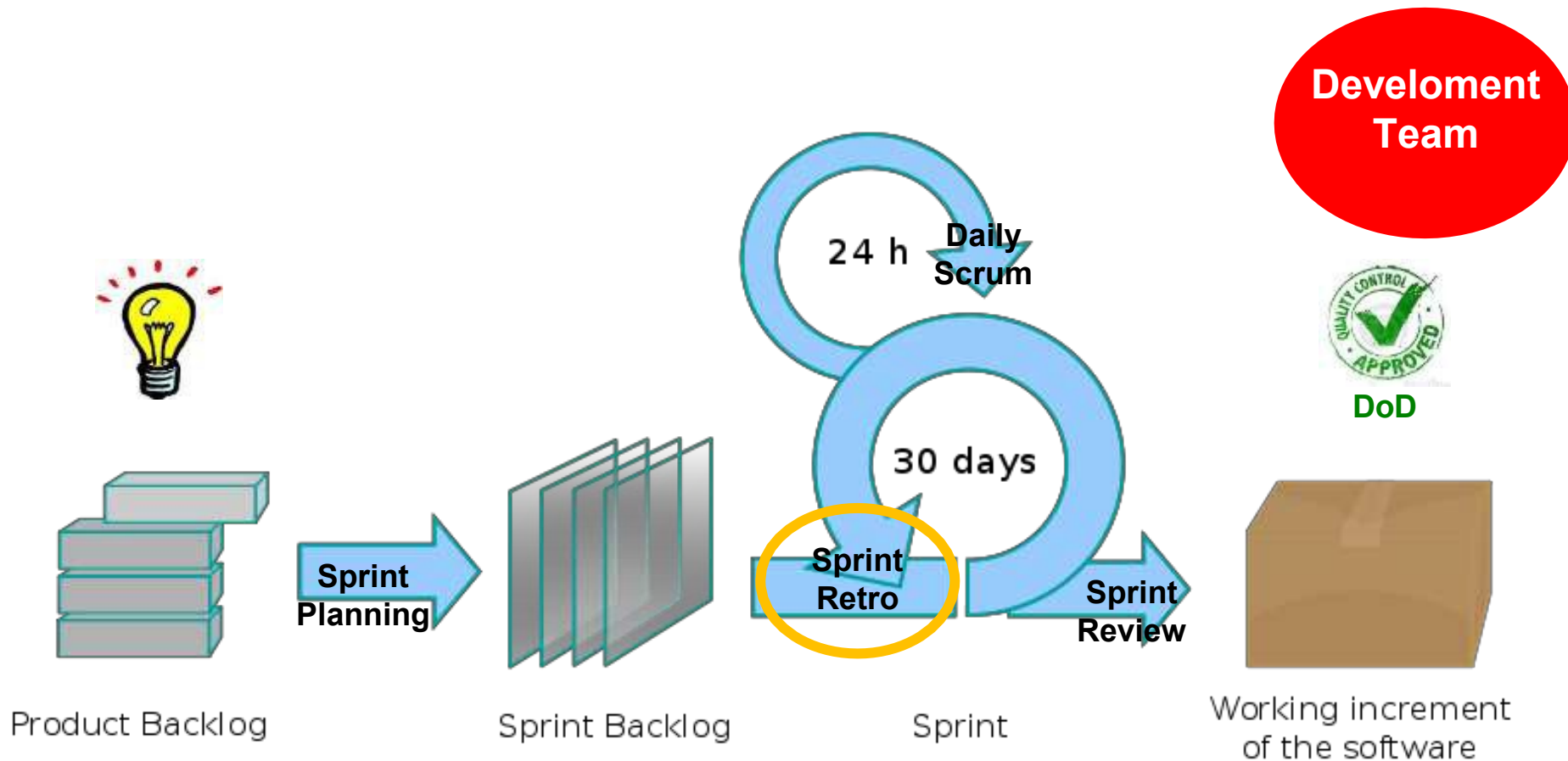


Sprints

Product
Owner



Sprint Retrospective



Sprint Retrospective

**Development
Team**

Continue
What went well?

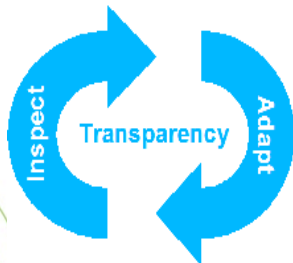
Stop
What to do
differently?

Initiate
Which lessons were
learnt?

Still Puzzling

Prime Directive

Regardless of what we discover, we must understand and truly believe that everyone did the best job he or she could, given what was known at the time, his or her skills and abilities, the resources available, and the situation at hand.



Agenda

- Agile & Scrum Framework
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Story Prioritisation Activities

- Driven by product owner.
 - may require a facilitator
 - may require few iterations
 - combat all stories being “high” priority
 - This is by far the biggest danger
- Verify results against agreed success criteria.



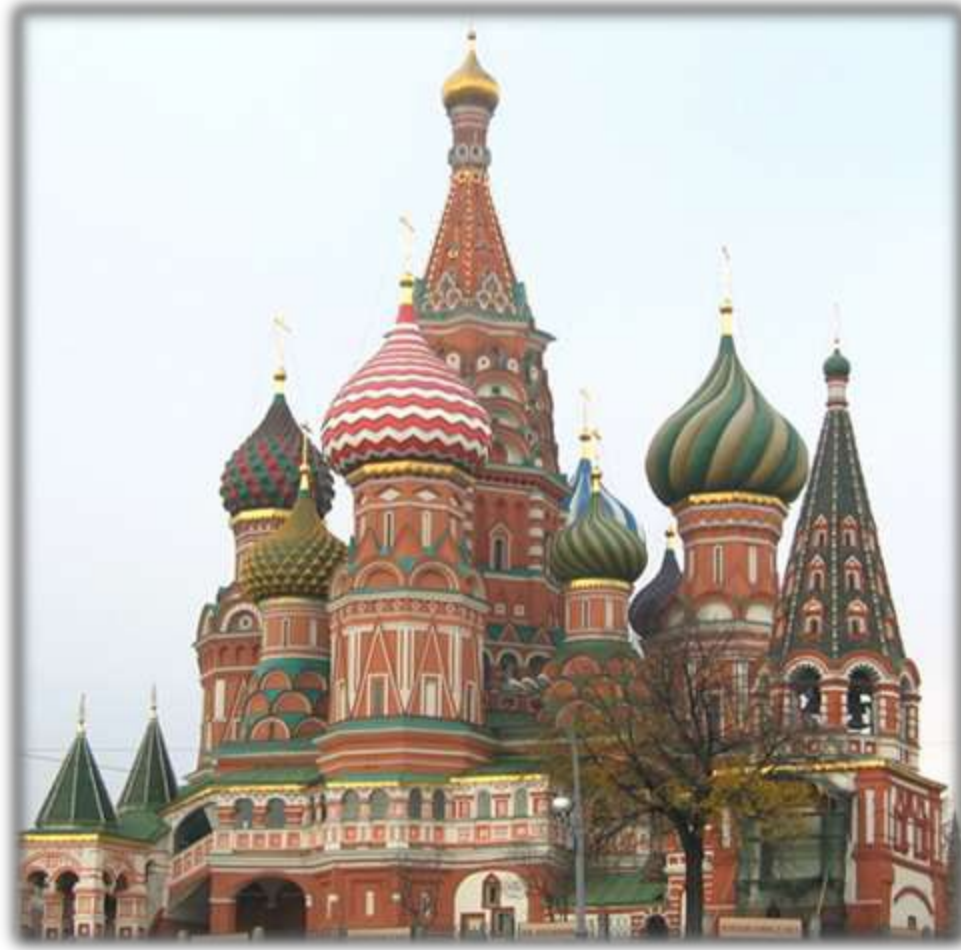
Get Your Priorities Right!

- Make the business benefit explicit – maximize ROI.
- Develop a common understanding of essentials.
- Eliminate wasted effort on non-essentials.
- Provide qualitative and quantitative measures for the project.
- Start to see the size and shape of release and sprint plans.



Setting Priorities

- MoSCoW
 - Must have
 - Should have
 - Could have
 - Won't have
- Others
 - High / Medium / Low
 - Ranking (1..n)



Prioritisation Factors

- Desirability of story to
 - broad base of users
 - small group of important stakeholders
- Cohesiveness of functionality
 - does the story relate to other high priority stories
- Impact story may have on other stories.
- Risk involved in story implementation.



Prioritisation Strategies

- Performed by the team.
 - product owner *decides* on priorities
 - developers provide input
- Write priority level on story card.
 - at this stage group by theme & priority
- Deliver important business value early.
 - don't ignore risk and infrastructure
- Focus on the Must Haves vs. the rest.
- Split stories with mixed priorities.
 - there may be higher and lower priority parts to a story



Summing Up ...

- Setting priorities develops a common understanding of the essential stories
- It eliminates wasted effort on non-essential stories
- It points to a qualitative measure of the project
 - How important is it?
 - which leads to
 - How much does it cost?
 - and then
 - When can we do it?



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Story Estimation

- Assess feasibility of achieving business benefits by producing a quantified and costed product backlog.
- Shared understanding by the project team of the estimated size of first few releases of the project.



Story Estimation

- Get initial feel for project cost.
- Determine if project is still feasible.
- Cull (Reduce/discard) and re-prioritise stories based on cost.
- Estimates are very coarse-grained.
 - this is a first pass
 - we inevitably revise these as more information arrives
- Done as a team.

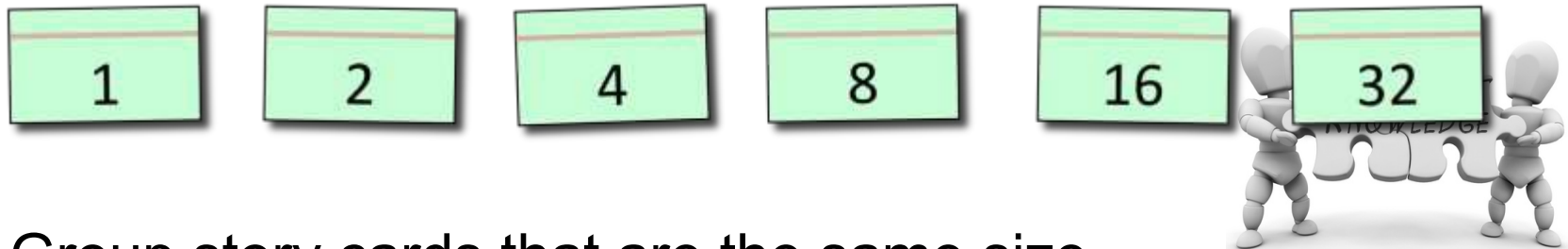


Story Points

- Are not units of time!
 - may be “ideal” days or Team days
 - IFB295 example: Team of five. Each member is supposed (i.e. assumed) to spend around 10 hours on the project each week.
 - So, 2 hours a day for ideal day /person day (How many person days in a week?)
 - 10 hours a day for team day over five days
- Consistency
 - all 2's require the same amount of effort
- Relativity
 - a 4 is twice as big as a 2
- Fungibility
 - all 4's are interchangeable



Tally Board

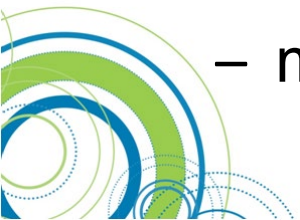


- Group story cards that are the same size in columns.
- Limited numbers make it easier to get consensus
 - emphasises that larger estimates are “fuzzy”
 - conveys lack of precision in estimates



Technology Grid

- It is easy to miss aspects of a story.
- Draw a grid with a row for each technology
 - or complex system interaction
- Use as a cross-reference when discussing stories
 - helps ensure complete scope of story is understood
- First pass
 - select 10 highest priority stories
 - discuss each story's scope and high-level acceptance criteria
 - with product owner
 - mark each needed technology on the grid



Technology Grid

Stories

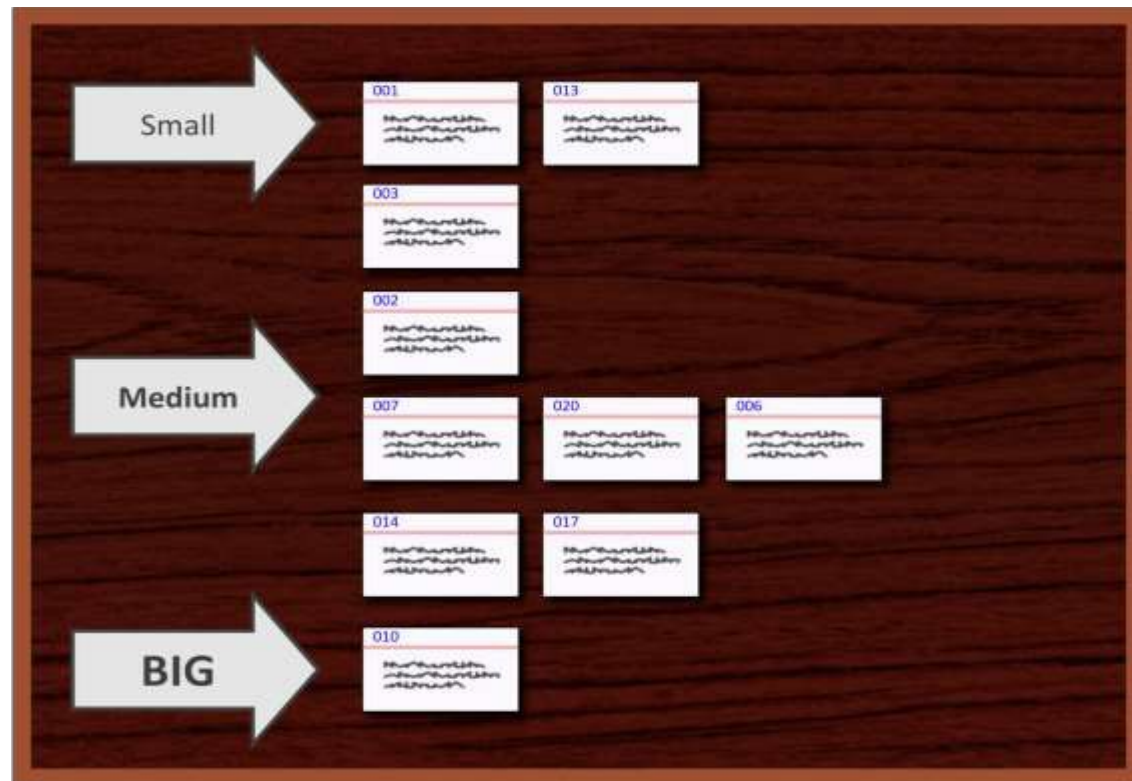


	001	003	002	004
HTML	X	X	X	
JS			X	X
AJAX			X	X
DB	X	X		
XML	X			
Msg.	X			

Things to Count

First Pass Estimation (T-Shirt Sizes)

- Sort stories into intuitive relative size.
- Discuss any disagreement about sizes.
- Do this quickly.



Planning Poker

- Each player has a set of cards
 - labelled 1, 2, 4, 8, 16, 32
- One team member reads the story.
- Estimate the size in story points
 - put a card with this value face down on the table
- When all cards are down they are revealed.



Agreeing on Estimate

1. Consensus

- holders of outlying estimates explain their reasons
- others ask any clarifying questions
- Re-vote based on new information



2. Most votes wins.

3. Maximum wins.

Place card on tally board for next user story.

Write down story estimates for the story.



Poker Variations

- Optional control cards
 - “!” – statements are heard immediately
 - “?” – questions are queued
 - “∞” – story can’t be estimated at this time



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Assessment 1 Discussion

- Product Backlog
 - Set of User stories of the product you are developing.
 - Product Backlog grooming is the process to ensure that each user story meets the INVEST criteria as discussed in Lecture 1.
 - Assessment 1 criteria “Story Cards” applies to Product Backlog



Week 3 Preparation

- **Tutorial**
 - Ensure you are in a team.
 - You know the case study details.
 - Aware/Read Week 1 and Week 2 Lectures
 - You/your team has written a good set of user stories for the given case study.
- **Week 3 Lecture**
 - Release and Sprint Plan

