Agile Design and SCRUM

Brent M. Dingle, Ph.D.

"For the last few centuries, … science has been attempting to
break matter down into ever smaller bits, in the pursuit of understanding.
And this works, to some extent...
but putting things back together in order to understand them is harder,
and typically comes later in the development of a scientist
or in the development of science."

- Nicholas A. Christakis, M.D., Ph.D.

Setup

- Agile Design and SCRUM
  - There are many books and theories and strategies on this
  - Read them if you have time

- A simplified overview follows
  - Detailed for this course
    - Every business manages things *the same but different*
      - This course is no exception

Main Points and Goals of Teamwork

- Everyone must work
- Communication must exist
- Team Progress must be measurable
- Individual Progress must be measurable
- Everyone is accountable
- Deadlines must be met
  - Product must be delivered

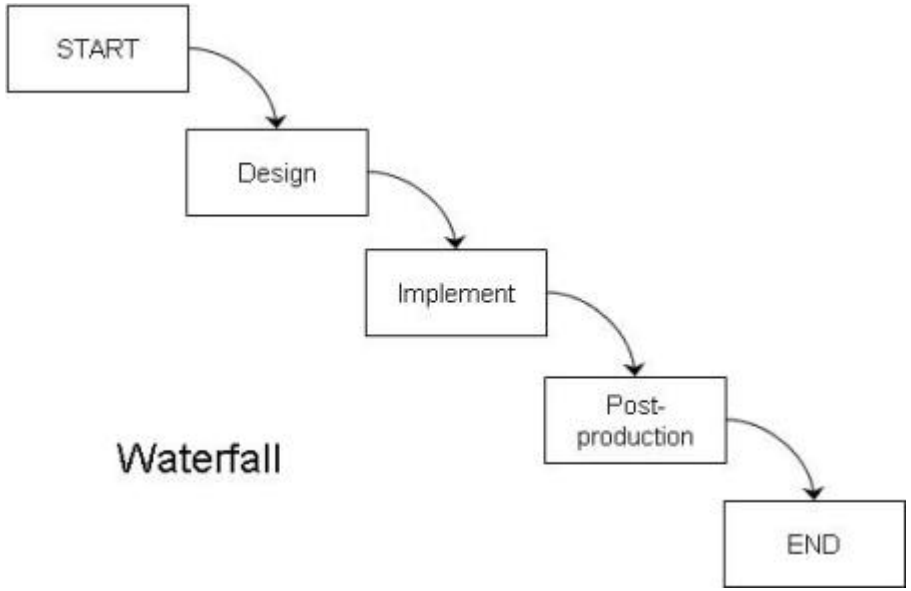
Traditional vs Scrum Comparison

Traditional

- Command and Control
- Plan what you expect
- Enforce the plan, sometimes regardless of changing conditions
- Estimate everything up front
- Delivery at end (of contract)

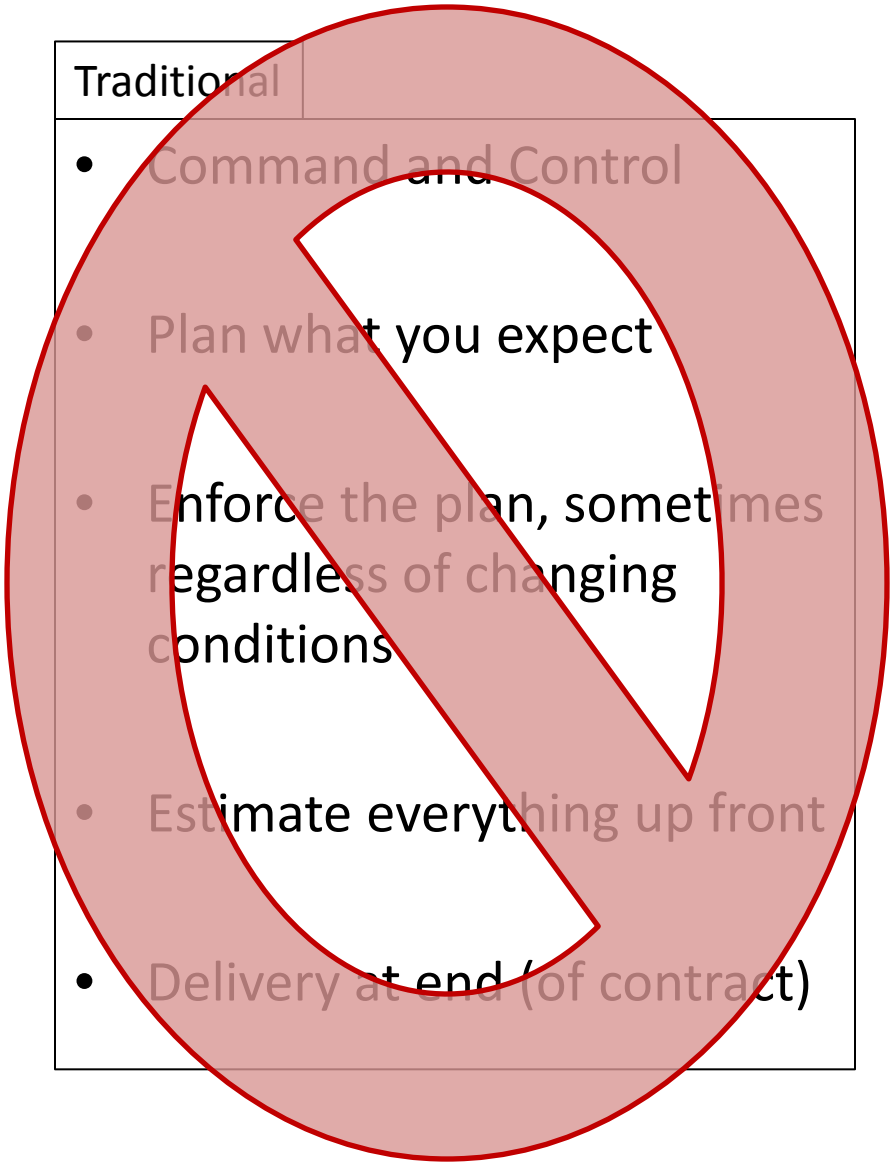
Old project management concepts were not very adaptive

Planning was assumed to be absolutely correct at the beginning and nothing would go wrong



Traditional vs Scrum Comparison

We will be using a SCRUM based Agile Design Approach



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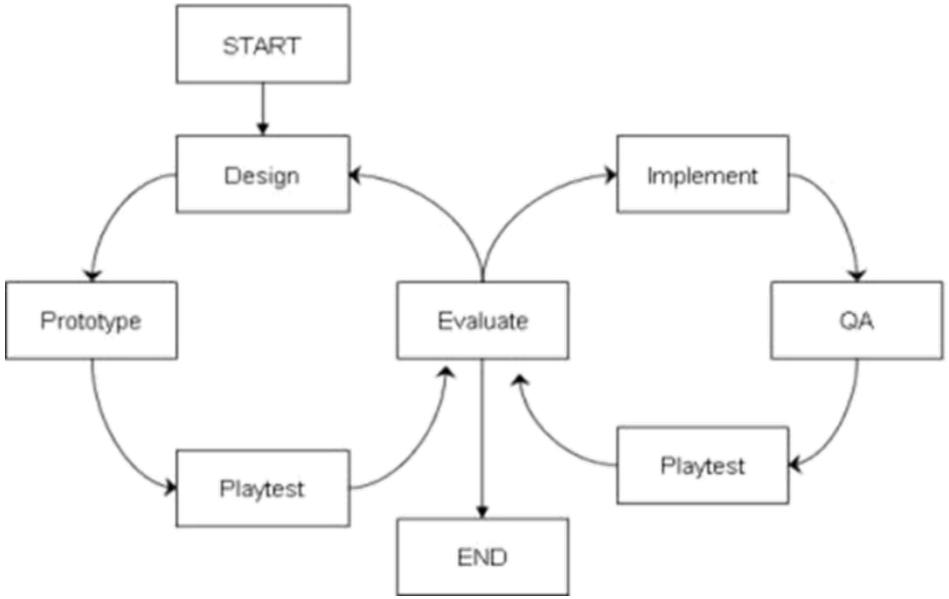
Scrum

- Self-directed teams
- Learn as we go
- Plan for changes
- Embrace change to deliver best product
- Use Inspect and Adapt
- Continuous delivery of working functionality

Traditional vs Scrum Comparison

This is consistent with Iterative and Rapid Prototyping Design



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Sprints

- Our application of **SCRUMs** and Agile Design
  - **Divides time into Sprints**
    - Typically each sprint is 2 weeks long

- Team sizes range from 4 to 8 people
  - Depending on enrollment

Simple Summary

- Develop from Success to Success

Continually thinking:

What did you get done?

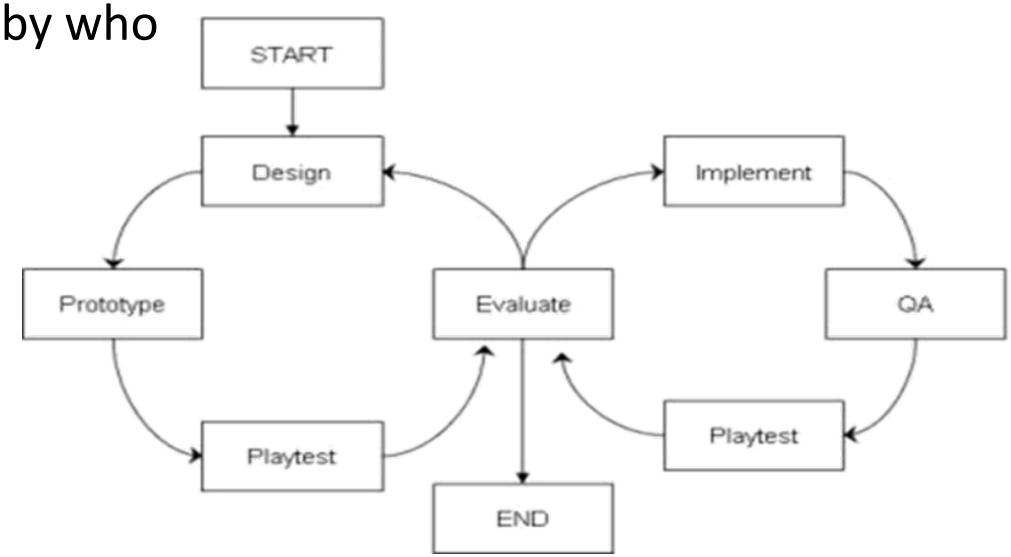
What will you do next?

starting and completing when?

What is in your way?

Early Sprints

- First/Early Sprints Should Focus on
  - Getting Organized
  - Getting reference material and rules in place
  - Planning and Testing
  - Getting to a mockup of your game quickly
  - Determining what needs tested
    - and how and when and by who
- Plan for iterations



Every Week

- Every week (roughly every Sunday night) each team MUST create a “build”
  - It must be “runnable” and testable
    - If something prevents the project from running
      - Then it is NOT done and should NOT be in the build
      - Test everything before committing
- This means
  - every Monday you have a deliverable product
    - features should increase each week

Every Sprint

- At the End of Every Sprint
  Deliverables are Due
  - Presentation/demo/video of the game (in-class)
  - Evaluations on other team members
  - Begin planning for next Sprint
  - Other tasks as needed
    - check with instructors each sprint

- Presentations should
  - Demonstrate what was done/added/improved
    - Highlight what each team member contributed for the current sprint
  - Indicate what will be done in the next sprint
  - Briefly mention anything preventing progress
  - Also
    - Every team member should speak
    - The team should look like a team and act like a team throughout the presentation

Continually think:

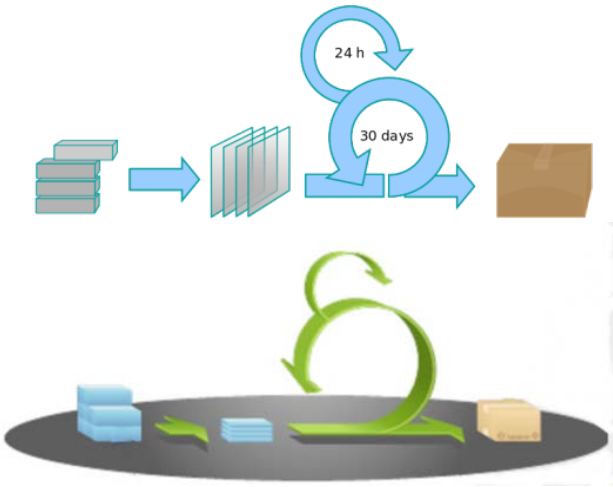
What did you get done?

What will you do next?

What is in your way?

What is SCRUM

- 1986: Scrum was first defined as
  - a flexible, *holistic* product development strategy where a development team works as a unit to reach a common goal
    - Hirotaka Takeuchi and Ikujiro Nonaka
    - Paper: *New New Product Development Game*



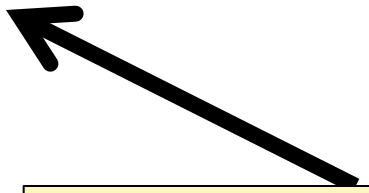
iterative incremental agile framework managing development

enables self-organizing teams by communication

ASIDE: In rugby football, a scrum refers to the manner of restarting the game after a minor infraction

How to SCRUM

- SCRUMs occur every day (every class)
  - Short status report of each team member
  - Answer 3 questions:
    - **What did you get done?** (since the previous scrum)
    - **What will you do next?**
    - **What is in your way?**



This includes
an ESTIMATE OF WHEN
it will be completed

Scrum Roles

- Who are the Participants
  - Scrum Team Members (“The Team”)
  - Scrum Master
  - Product Owner
  - Stakeholders / Everyone Else

The Students

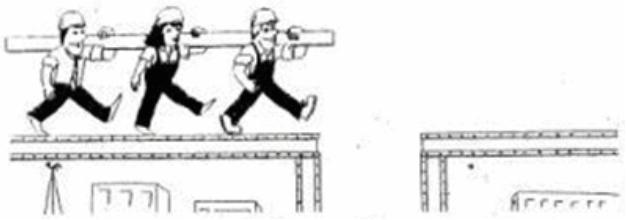
Sometimes a Student

The Instructor(s)

Scrum Roles: **Team** and Ground Rules

- The key to Scrum is
  operating as a team

- The longer a team is together,
  the more effectively it operates



- Creating a set of “ground rules”
  may help create a more collaborative environment to operate within as a team

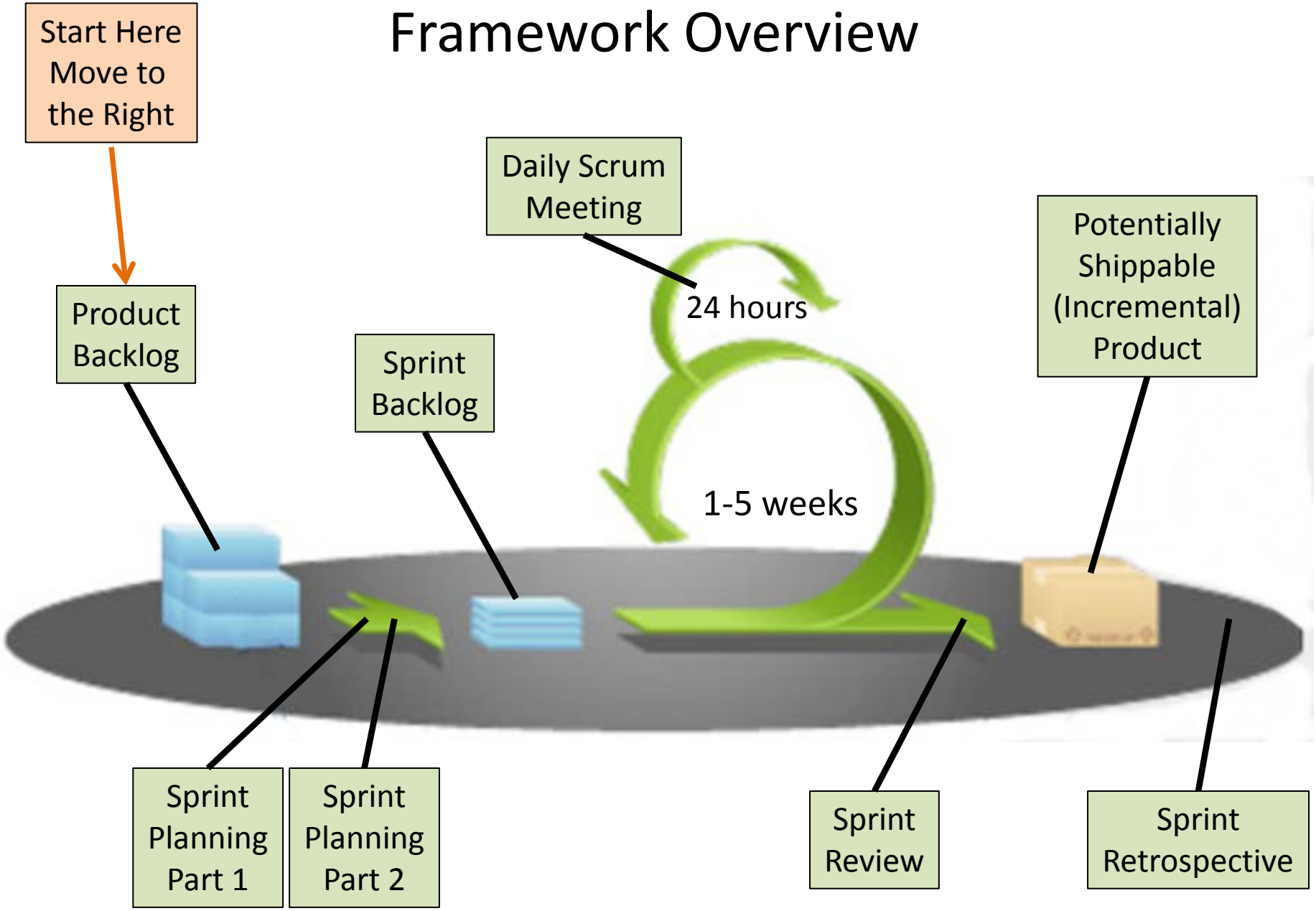
Scrum Roles: **Scrum Master**

- Facilitates the Scrum Framework
  - Upholds Scrum values and practices
  - Oversees the Scrum Meetings
- Helps the team be as efficient as possible
  - Works for the Team
  - Facilitates continuous improvement
  - Helps remove barriers
- Enables the team to accomplish Scrum

Scrum Roles: **Product Owner**

- Ultimate responsibility and authority
  - Interface to the customer
  - Conveys the vision to the team
  - Determines when a feature is done
    - implicit link to quality
  - Single person, not a committee
  - Is available to the team

Framework Overview



Stories in the Product Backlog

- ***Features and requirements*** are tracked as ***Stories*** in the Product Backlog
  - Each story must contain a description, priority, and estimate

For this course

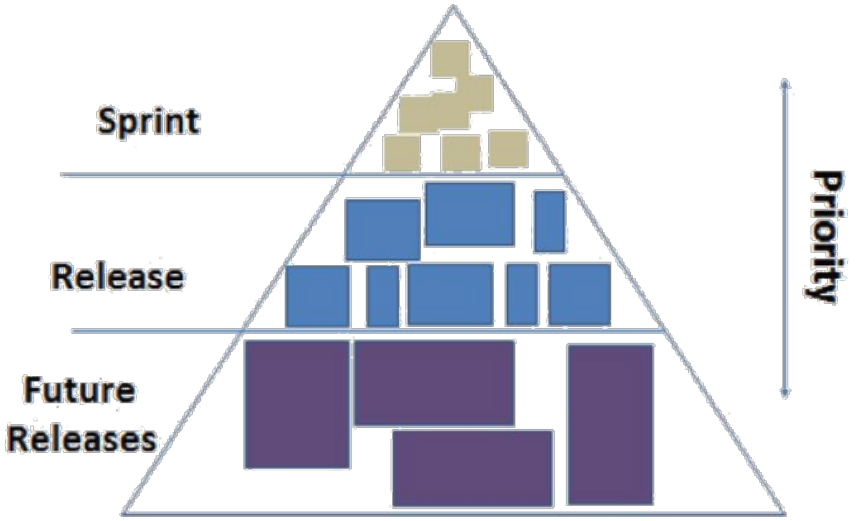
(most) **STORIES = ASSETS**

Product Backlog = Master Task List

Sprint Planning – Part 1

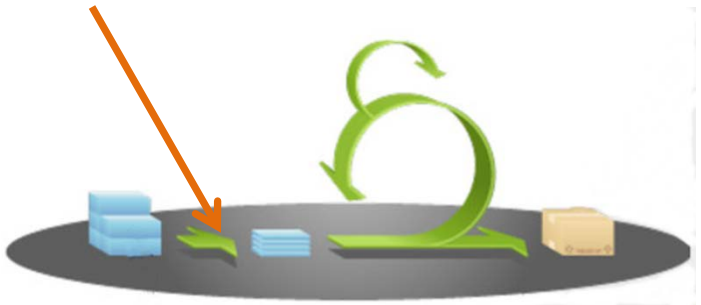
"The What"

What stories (tasks) are going to be worked on this sprint?



Sprint Planning – Part II

"The How"



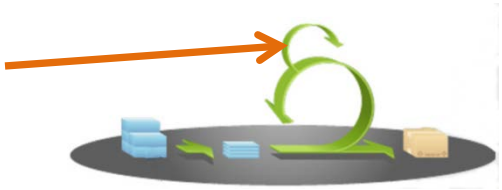
Do any of the stories need to be broken into tasks?

If you already decomposed the game this should be a simple activity

You now need "volunteers" to work on each task needed for the current sprint

Story	To Do	In Process	To Verify	Done
As a user, I... 8 points	Code the... 9 Test the... 8 Code the... 2 Code the... 8 Test the... 8 Test the... 4	Code the... DC 4 Test the... SC 8	Test the... SC 6	Code the... Test the... Test the... Test the... Test the... SC 6
As a user, I... 5 points	Code the... 8 Test the... 8 Code the... 4 Code the... 6	Code the... DC 8		Test the... Test the... Test the... SC 6

The **Daily Scrum**



Status your progress to the team

Keep track of

what you have done

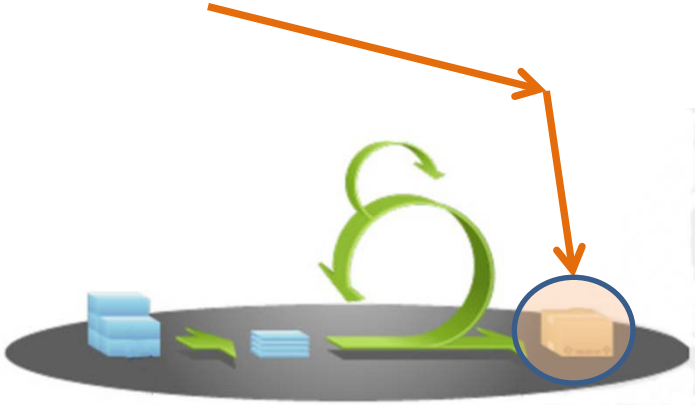
what you are doing

and what you will be doing

Remember to Record Task Progress

User Story	Tasks	Day 1	Day 2	Day 3	Day 4	Day 5	...
As a member, I can read profiles of other members so that I can find someone to date.	Code the ...	8	4	8	0		
	Design the ...	16	12	10	4		
	Meet with Mary about ...	8	16	16	11		
	Design the UI	12	6	0	0		
	Automate tests ...	4	4	1	0		
	Code the other ...	8	8	8	8		
As a member, I can update my billing information.	Update security tests	6	6	4	0		
	Design a solution to ...	12	6	0	0		
	Write test plan	8	8	4	0		
	Automate tests ...	12	12	10	6		
	Code the ...	8	8	8	4		

Sprint Release



Check stuff into D2L

and

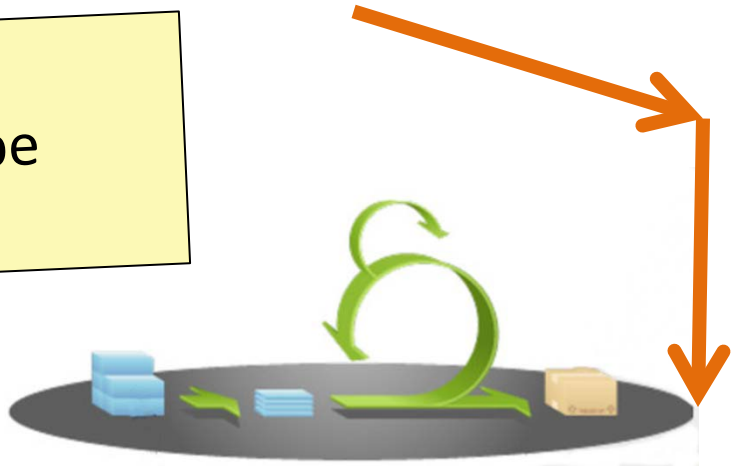
Create a marker point in the version control system

Sprint Review/Demonstration

This is your presentation and demo at the end of each sprint

Sprint Retrospective

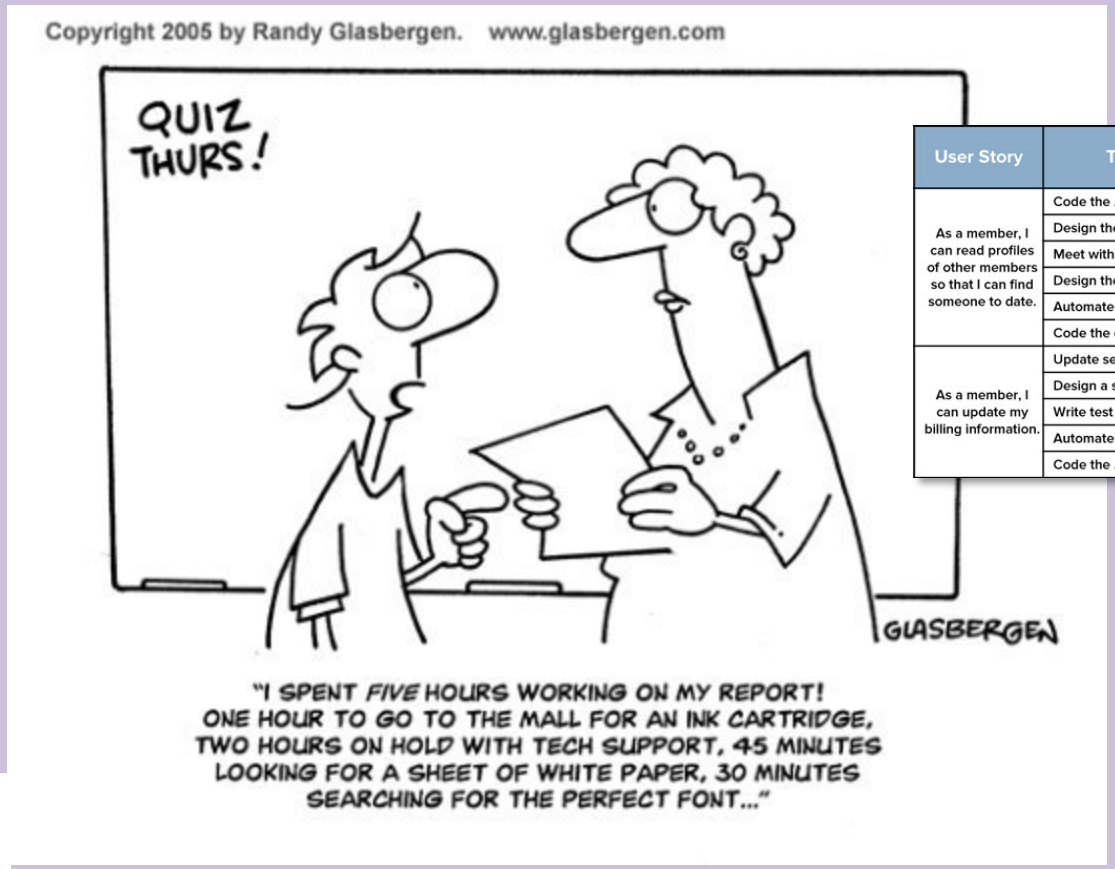
- ***For this course***
  This will usually (but not always) be the teammate evaluations



- Purpose
  - Evaluate what is and is not working
  - Plan ways to improve
  - Document lessons learned
  - Inspect and Adapt opportunity – for the sake of the Team

- Output
  - Ways to improve as a team
    - May be a change to process
    - Can be captured as a Story/Task and added to the product backlog

Questions?



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