Tracking Productivity: Velocity

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Outline

1. Review for Last Class
2. Plan and Requirements: Productivity
3. Velocity
4. Burndown Charts
5. Tools
6. Summary and Questions
7. References

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Topics in Last Class

1. Overview of requirement engineering
2. Agile vs. traditional (plan & document)
3. An agile approach of requirement analysis
    - Behavior-Driven Development (BDD)
    - UI sketches and storyboards

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Productivity of Agile Teams

- We want to avoid head-heavy planning in Agile. Can we estimate effort/time without a plan?
- Can User Stories be used to measure progress on project?
- What should a tool do to help measure progress for Agile?

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Measuring Productivity

- A measure of team productivity using user stories – calculate average number of stories completed per week?
- However, some user stories are much harder than the others
  - Rate each user story in advance on a simple integer scale (points)
  - Velocity:
    `average number of points / week`

Points	Difficulty
1	straightforward stories
2	medium stories
3	complex or difficult stories

About Velocity ...

- Can’t compare velocity across teams
- Does not matter if velocity is 5 or 10 points per iteration
- What matters is to aim for it to be team consistent, and to to improve self-evaluation and suggest number of iterations for feature set

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User Story Burndown Charts

Use a burndown chart to watch out for Anti-patterns like:

- The team finishes early user story after user story because they aren't committing to enough work.
- The team misses their forecast user story after user story because they're committing to too much work.
- The burndown line makes steep drops rather than a more gradual burndown because the work hasn't been broken down into granular pieces.

Reference:
https://www.atlassian.com/agile/project-management/metrics

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Agile Project Tracking Tools

Features of typical Agile project tracking software

- Prioritize user stories by where place them in Current, Backlog, Icebox panels – When completed, move to Done panel
- Developers push Finish, send to Product Owner – Owner tries story and then Accepts or Rejects
- Can add logical Release points, so can figure out when a Release will really happen
- Remaining points/Velocity

Example Tools

- Atlassian JIRA
- CA Agile Central
- Pivotal Tracker
- Trello
- Github Issues

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Summary

Agile project tracking

- Velocity
- Burndown chart
- Tools

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3 Velocity

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"Engineering Software as a Service" by Armando Fox and David Patterson (2nd Edition)

"Essentials of Software Engineering" by Frank Tsui, Orlando Karam, and Barbara Bernal(4th Edition) (Section 7.3.5)