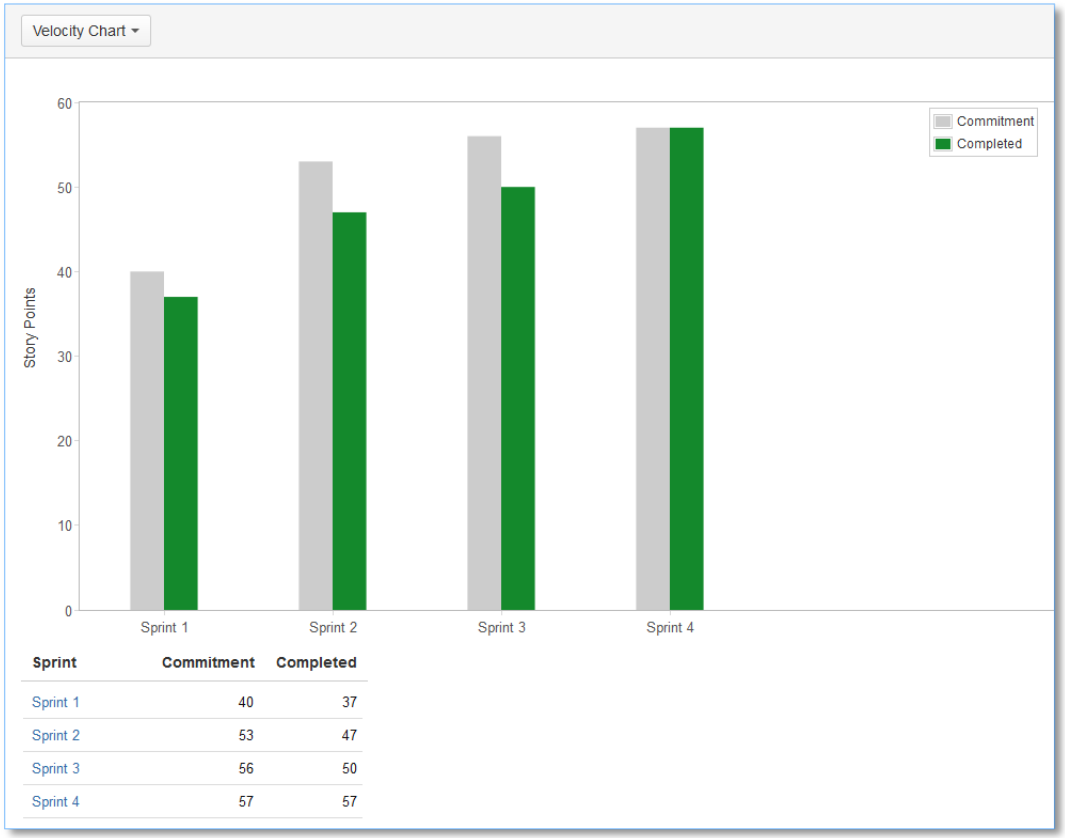
Measuring Velocity



Sprint	Commitment	Completed
Sprint 1	40	37
Sprint 2	53	47
Sprint 3	56	50
Sprint 4	57	57

SWEN-261
Introduction to Software Engineering

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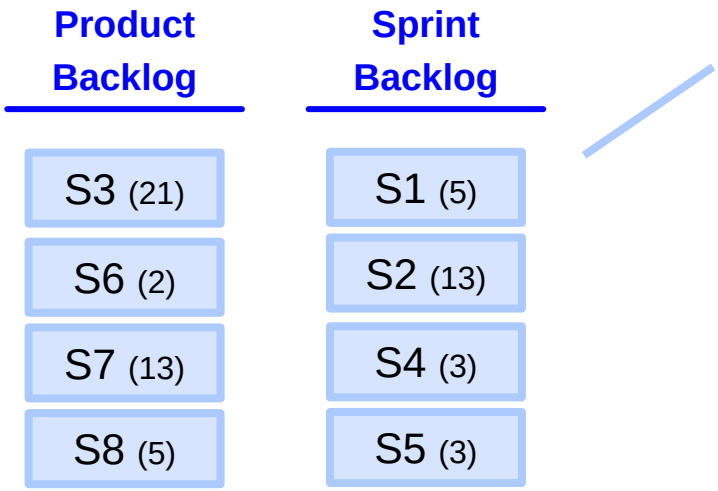
Velocity is the last piece of the Scrum process.

- At this point in the course, you've seen all of the Scrum processes, except for measuring velocity.
- Velocity is what determines the maximum story points to be included in the next sprint.
- Recall our Sprint planning lesson:



The velocity is used to determine how many (and which) stories to add to the Sprint Backlog. In this case, the team's velocity was 25 story points.

The mechanics of calculating velocity is easy.

- Velocity is measured from the average of the last three sprints.
  - ***Only use the completed stories.***
  - ***This rolling average will change over time.***
- The average velocity is then used to cap the number of story points for the next sprint.
- Example:
  - ***Sprint 7: 45 story points committed; 42 completed.***
  - ***Sprint 8: 40 committed; 50 completed***
  - ***Sprint 9: 48 committed; 47 completed***
  - ***Velocity = (42 + 50 + 47) / 3 ~= 46.3333***
  - ***Sprint 10 will be capped at 46 story points.***

Velocity is specific to one team working on one project.

- This assumes that sprint length and team membership remain consistent.
  - ***If either of these two change, then velocity measurement must start over with a new running average.***
- Velocity is only measured for a single project, single team.
  - ***Story points are level of effort estimates***
  - ***Story points are determined by the team, for the team***
  - ***Thus you cannot compare velocity's between teams***
- Management cannot **set** a team's velocity.

Velocity is not the same as the team's overall capacity.

- Velocity is only a measure of effort for working on user stories.
  - ***It does not include company meetings, email communication, small "outside" tasks***
  - ***For class, it does not include most pre- and post-class activities***
- What about these issues?
  - ***Holidays or vacations***
  - ***Members given large, outside tasks***
- Normally these issues can be ignored being smoothed out by the averaging process.
- In extreme cases, the team can make adjustments to the calculated velocity usually by lowering it.