

## Homework 5

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"I pledge my honor that I have abided by the Stevens Honor System." - JM, EO, DB, MM

### Summary:

For this assignment, we estimated how long a project would take to complete. Our initial estimates were based on information given to us by the team of developers. As time progresses and we gain more information, our estimates are readjusted. These adjustments were made based on historical data of previous development teams project performance as well as the performance in the initial sprints of the current project. The estimated time to completion was pushed off to reflect how the team has performed.

**You need to estimate a new project for your team. It has 50 stories that need to be delivered. You intend to deliver them in a series of sprints, each a month apart. You have 5 essential stories that you know need to be delivered first to provide a base, and then the rest are prioritized. You have 6 people on your team.**

- 1. You don't have any historical data at hand, so you ask a group of developers how long they think it would take to develop and test the project. They tell you about 3 months. You ask them how confident they are. They say 95% confident. You ask what they think the big risks are. They say, "Hey, if Jonah decides to take a month off for snowboarding, that might hurt us." So what do you tell your boss? Why?**

From the developers' feedback, the team would explain to the boss that with 95% certainty, the project could be completed in 4 months. The 4 months estimate is a very safe translation of the developers saying it would take "about 3 months" (with 95% certainty) to develop and test the project, which also takes into consideration any unforeseen problems. We would make the point that this estimation relies on the developers taking minimal time off for vacation, since the developers seem to believe that if a developer took a long vacation, it would pose a large risk. If developers were to take substantial time off during the development of the project, the estimation would be lengthened to about 5 months.

- 2. Next you go searching and find that from past projects, you have the data below. So what would you roughly estimate. Why?**

Using the historical data given, we calculated the average number of stories completed per month per staff member is approximately 2 stories. Since we have 6 staff members for this project, it would take approximately 4 months to complete this project using the 2 stories per month per staff member gathered from the historical data. If you only consider historical data with 6 staff members, the average number of stories completed per month per staff member is approximately 1.5 stories. Using this estimate, it would take

approximately 5.5 months. Overall, the two estimates using historical data give an estimated completion time of 4-5.5 months with the average number of completed stories being 9-12 stories per month. These estimates roughly fall in line with our estimate from the previous problem.

staff	stories per month	Stories per month per staff
3	7	2.333333333
4	10	2.5
6	8	1.333333333
1	4	4
12	20	1.666666667
5	10	2
6	11	1.833333333
3	8	2.666666667
9	12	1.333333333
Average		2.185185185

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**3. After the first 1 month you have delivered the first 5 essential stories in the first sprint. Now what do you do?**

After the team completes the 5 essential stories within a month the other 45 stories now need to be developed. At this point the development team is behind by 4 stories as they were supposed to be completing around 9 each month with the most lenient estimates as described in question two. With this information it should be explained to the client there could be a delay in delivery because of this difference in stories completed per month, but we would reevaluate by the end of the second month to see if the development team speeds up their completion of stories.

**4. For the next sprint, you deliver 10 stories. Now what do you estimate?**

If for the next sprint, the team delivered 10 stories, the team would end up being about 3 stories behind the team's most lenient estimate of 1.5 stories per staffer per month. By the end of the second month, using that estimate, the team should have delivered about 18 stories, however they have only delivered 15 stories. Now, the team moves its estimate to be 5.5 months to account for the slow start in addition to any unforeseen problems going forward. The 35 remaining stories should go faster than the original 5 stories given the immediate increase of stories delivered afterwards. The team assumes that the 5 essential stories are more complex than the others, and that this could be an explanation for their lengthy completion.