

15-413: Introduction to Software Engineering

Jonathan Aldrich

Assignment 3: Estimation

Due: Monday, September 19, 11:30am (hardcopy at beginning of class)

40 points

This assignment is a group assignment. Each project group should turn in one response to each part, with all the names of the group members.

Parts of this assignment depend on interaction with clients. Occasionally, you may not be able to meet with clients for reasons outside your control, e.g. they are traveling. If this is the case, contact the instructor or TA to get an extension on the assignment. However, you are expected to contact your client promptly so as to avoid any possible delays.

Part 1: Estimation by Analogy (20 points)

Gather information on a similar project to yours: what was the scope of the project, how much person-effort did the project (and ideally its parts) consume, what was the OS, language, and library platform. Look at the list of project similarities and differences from the course lecture on estimation. The best source for such data is probably your client; however, if your client does not have such data (even estimated data), using the web or other resources is also acceptable. For the purposes of this assignment, rough estimates of effort (as opposed to actual measurements) are fine.

You may also do this for a portion of your project if that is more convenient (e.g. if one portion of your project is more well-defined than the rest). If you are unable to gather data, contact the instructor or TA two school days before the assignment is due.

Based on the data you collected, estimate the effort level (in person-hours) for your project or a portion of it. Use the differences between the other project and your project to adjust your estimate higher or lower. Also use the similarities and differences to

Turn in:

1. A short description of your project and the historical project (a paragraph or two for each)
2. How much effort did the historical project consume, and what is the level of confidence in that estimate (e.g., measured, reasonable estimate, guess)
3. A short summary of the similarities and differences between your project and the historical project (a couple of sentences for each)
4. An effort estimate for your project. Justify this estimate (show how it was computed) in terms of the historical project, including similarities and differences (i.e., you should adjust for the differences that you believe are significant).

5. A discussion of your level of confidence in that estimate. This should be affected by the confidence in the historical estimate, and the similarities and differences between your project and theirs.

Part 2: Wideband Delphi Estimation (20 points)

Pick 3 user stories (ideally ones for which you have not settled on a time estimate), and use the Wideband Delphi estimation technique to estimate their cost in ideal person-hours. Follow the Wideband Delphi estimation method described in class. Stop the rounds of estimation for one story after 4 rounds, or when everyone is unwilling to change their estimate, or when the discussion of one story has taken more than 20 minutes, or when the high estimate is no more than 50% above the low estimate (e.g. a range of 5 to 7.5 hours).

Remember that estimates should be anonymous, each person should bring an initial estimate and assumptions to the meeting (this effort is not counted in the 20 minutes of discussion), and that assumptions should be written down and discussed after each round.

Turn in:

1. The three stories you used
2. For each story, and for each person on the team, the initial estimate and the list of assumptions that person used in coming up with the estimate
3. For each story, the list of estimates made for each round—both in raw format, and in a chart like the one presented in lecture
4. For each story, why you stopped the estimation rounds