CMPS115 LECTURE 2 TARGET Q&A

• Reverse engineering

Q. What is the most useful reverse-engineering tool for preparing to add functions to a client-server accounting system written in Java?

A. Your brain :)  

OK, actually, it is your code-reading skill. You might look into an impact analyzer, but this will be of little help because of the client/server disconnect (impact analysis tools generally just do local analysis).

Practice code reading by reading with intention – establish a question you want to answer before you start, use a highlight the listing to establish first-level and second-level elements that relate to the question (or perspective), write down your answer. This pattern helps you stay focused. Now, within the elements you have isolated, look to see if you can recognize any patterns or parts of patterns – learn to spot and complete patterns! Then, ask yourself, “why this pattern?”

• Process families

Q: What is the fundamental premise difference that sets the XP family of processes apart from the traditional plan-based processes?

A: Traditional processes are based on the idea that the cost of repairing a defect (bad behavior, missing function, etc) rises exponentially over the life of the program; XP practitioners believe they can flatten the curve. (The XP folks also hew to low-ceremony and minimal-artifact styles, believing they needn't invest in external artifacts to support future programmers because those programmers will simply read the code.)

• Value of process maturity

Q: Suppose Acme Corp is planning to build four 500KSLOC products next year, and they are estimating the products to cost an average of $1.2M each to build. They are presently an CMMI Level 3 organization, and are considering an investment this year in training and process upgrades to become an CMMI Level 4 organization, but only want to invest as much as they are likely to save on the four projects, through being “better.” How much should they invest?

A: One level change in a 500KSLOC effort gets about a 10% cost change, so they should hold the investment to about $500K. (4 x $1.2M = $4.8M, x 10% = $0.48M)

• Plan-based scheduling technique applicability

Q: You are helping establish a software project which will be done in-house by a small team, maybe 5 people – you're not sure. When the project is “done enough” it will be
used internally, so there aren't any business customers waiting on it. Your company uses a tailored RUP, with fairly coarse data collection. What scheduling technique do you recommend: Gantt, or PERT?

A: Gantt – it works well for small projects, is easy to understand and to modify. PERT is useful with very very large efforts, and efforts where the scheduling end date really needs to be held (so you want to watch for the Critical Paths and to quantify your scheduling confidence.)

• Fundamental method

Q: How do you get a development team to optimize for a particular characteristic?

A: Measure the characteristic and publish the results.