

# Personal Estimation

SWEN-250

"It is the mark of an instructed mind to rest satisfied with the degree of precision to which the nature of the subject admits and not to seek exactness when only an approximation of the truth is possible."

-- Aristotle, 350 B.C.

## Tip 18

*"Estimate to Avoid Surprises."*

-- Pragmatic Programmers, 2000 A.D.

# Estimating

- What are you estimating?
  - Code to be written
  - Code to be written & tested
  - Code accompanied by project documentation
  - Estimation  $\leftrightarrow$  Understanding the Requirements
- How do estimate?
  - Size or effort?
  - Accuracy (granularity)
  - Effort Time vs Elapsed Time
- Tracking / Refining
  - Estimating is also an iterative process
  - **Tip #19: “Iterate the Schedule with the Code”**

# Estimation Approaches

- Size Measurements:
  - Lines of Code (LOC)
  - Pages in a Book
  - Yards of Mulch
- Effort Metrics:
  - Person Hours/Months
  - LOC/HR
  - Yds Mulch/HR
  - Pages/Min

# Estimation Types

- **Effort Time**

- What developers typically give as estimates
- Estimated size: 800 LOC
- Productivity rate: 20 LOC/HR
- Total Effort Time: 40 Hours ( 1 week)

- **Elapsed (Calendar) Time**

- Actual calendar duration
- What else are you doing?
- Dedicated percentage of work day?
- 50% (4 hours a day)
- Total Elapsed Time: 80 Hours ( 2 weeks)

# How to Estimate

- **Historical**

- Use previous estimates (assuming you kept track of them)
- What did you track? Size, effort, elapsed time?
- What **similarities** do past efforts have in common with what you are estimating?
- Units of estimation
  - LOC – not always the full picture
  - Complexity
  - Features (sort algorithm, site log-in, etc)

# PROBE (Proxy-Based) Method

- **Basic issues**
  - Good size measures are detailed
  - Early estimators can rarely think in detail
- **Alternatives**
  - Delay estimate until detail available
  - Make best guess
  - **Identify a suitable proxy**
- **Good proxies**
  - Are easy to visualize early in development
  - Should be physical entity that can be counted
- **Example Proxies**
  - Classes (OOP)
  - Product elements (components; screens, reports, scripts, files; chapters)
  - Features

# Personal SE Estimating

- Every project and activity includes a journal document as part of the submission.
- The plan section should indicate what factors were used to arrive at the estimate:
  - New technology, programming language
  - Did something similar to this beforehand
  - Amount of test code in addition to product code
  - Other artifacts?
- The reflection section should:
  - Compare estimated to actual time and analyze differences
  - Track effort and elapsed (calendar) time
- Refine estimates at each new level of the project/activity