Planning III-B: Estimating Software Size - The PROBE Method

Outline

- **PROBE**
- **Object categories**
- **Ways to develop & improve your estimating skills**
- **Homework #4**

PROBE *(cf. Humphrey, 1995, 117-125)*

- *PROBE = PROxy-Based Estimating*
- *Uses objects (or functions) as proxies*
- *See diagram below, script on p. 679 & 680*
- *Walk through example on p. 120.*

Start

Conceptual Design

Identify Objects

| Number of Methods | Object Type | Relative Size | Reuse Categories |

Calculate Added and Modified LOC

Estimate Program Size

Calculate Prediction Interval

Estimate

Object Categories *(cf. Humphrey, 1995, 125-134)*

- *In order to yield the most useful information, your historical database must eventually be categorized according to type and size of object.*
- *Use basic "fuzzy-logic" approach and create categories and size ranges based on assumed normally distributed sizes.*
- *Note that s^2 and s should be calculated with n-1 rather than n as is done in the example (n<30).*
- *Natural log (ln) can be used to create normally-distributed LOC data from which LOC category ranges can be more effectively calculated.*
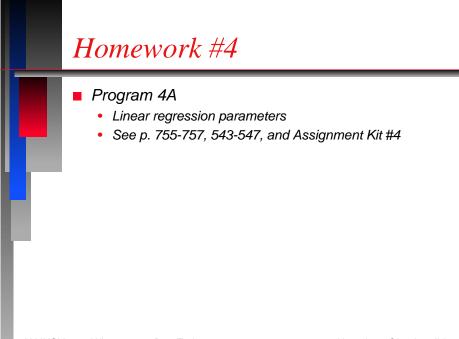- *Walk through example on p. 126-134. Note incorrect calculations.*

Ways to Develop & Improve Your Estimating Skills

(cf. Humphrey, 1995, p. 134-141)

- *Estimate many small pieces and sum them to get a total estimate - the sum of the variances is probably smaller than the variance of a single large estimate.*
- *Over time your b_0 and b_1 values will stabilize. Then you do not need to recalculate them every time you do an estimate.*
- *If b_0 and b_1 appear to be unreasonable (b_0 larger than the smallest code sizes and b_1 significantly larger or smaller than 1.0) then recheck your calculations, and you may need to use historical averages instead of the b-weights. A ratio based on averages can be calculated from the proportion of estimated object LOC to the estimated total new & changed LOC.*
- *Until you have sufficient data (> 2 estimated programs), you will need to calculate the b's from actual program data and make estimates based on averages of the actual program data as described above.*
- *Make revised estimates (in large projects) at various phases when you have additional information.*
- *Don't try to correct estimating errors every time - statisitical variation is natural and OK. Relying on historical data will eventually help correct errors as this database goes larger over time.*

Homework #4

- *Program 4A*
  - *Linear regression parameters*
  - *See p. 755-757, 543-547, and Assignment Kit #4*