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

Outline

- *PROBE*
- *Object categories*
- *Ways to develop & improve your estimating skills*
- *Homework #4*
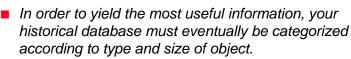
PROBE *(cf. Humphrey, 1995, 117-125)*

- *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

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Identify Objects

Number of Methods	Object Type	Relative Size	Reuse Categories

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Calculate Added and Modified LOC

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Estimate Program Size

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Calculate Prediction Interval

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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.*
- *<u>Walk through example on p. 126-134. Note incorrect calculations.</u>*

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 - statistical variation is natural and OK. Relying on historical data will eventually help correct errors as this database goes larger over time.*

Homework #4

■ *See "Homework Assignments" list and textbook instructions.*