

Q. A simple standalone S/W utility is to be developed in 'C' programming by a team of S/W experts for a computer running Linux & the overall size of the S/W is estimated to be 20,000 lines of code. Considering $(a, b) = (2.4, 1.05)$ as multiplicative & exponentiation factor for the basic Colomo effort estimation equation & $(c, d) = (2.5, .38)$ as multiplicative & exponentiation factor for the basic Colomo development time estimation equation, Approximately how long does the S/W project take to complete?

Ans

Given

lines of code = 20,000 = 20 K

$E = a_1 (K \log) a_2$	OR	$a (K \log) b$
$T_{dev} = b_1 (K \log) b_2$	OR	$c (K \log) d$

$$E = 2.4 (20)^{1.05} = 55.756$$

$$T_{dev} = 2.5 (55.756)^{.38} = 11.52 \text{ PM}$$

Intermediate Colono

Ex 1

* Consider a project having 30,000 lines of code which is an embedded spw with critical area hence reliability is high (1.15) ~~the estimation can be~~

Ans The Reliability is high $\sqrt{EAF} = 1.15$

$$E = a_1 (Kbc)^{a_2} \times EAF$$
$$= 2.8 (30)^{1.20} \times 1.15 = 191$$

$$T_{dev} = b_1 (E)^{b_2} = 2.5 (191)^{.32} = 13 \text{ Months}$$

$$N = E/D = 191/13 = 15 \text{ persons approx.}$$

Ex-2

Project A is to be a 32,000 DSF semi-detached spw. It is in a mission critical Area, so the Reliability is high (1.15). Estimate Effort, schedule, productivity & Avg. Staff.

Ans $E = 3.0 (32)^{1.12} \times 1.15 = 167 \text{ PM}$

$$\text{Schedule or } T_{dev} \text{ or } D = 2.5 (167)^{.35} = 15 \text{ Months}$$

$$\text{Productivity} = 32,000 \text{ DSF} / 167 = 192 \text{ DSF/PM}$$

$$\text{Average Staff} = 167 / 15 = 11 \text{ persons}$$

DSF — Delivered source Instructions / loc

merits

- * This model can be applied to ~~almost~~ ^{entire s/w} almost to entire s/w product for early and rough cost estimation during early stage.
- * It can be applied at the s/w product component level for obtaining more ~~accurately~~ accurate cost estimation.

Demerits

- * The effort estimation multipliers are not dependent on phases.
- * A product with many components is difficult to estimate.