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BATCH: EB06 PROJECT TITLE: 'BURNITAPP'

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### SE Lab-8 Constructive Cost Model (COCOMO)

⇒ Complexity / Mode of Project:- 'Semi-detached Mode'  
(Intermediate b/w Organic and Embedded)

⇒ Lines of Code = 24,000 (approx.)

\*estimated based on similar projects (already developed)

⇒ KLOC (Kilo Source Lines of Code) =  $24000 / 1000 = 24$

Calculating the following based on COCOMO Model (in semi-detached mode).

⇒ Effort =  $a_1 * (KLOC)^{a_2}$  (person-months)

$a_1 = 3.0$  (in semi-detached model)

$a_2 = 1.12$

→ substituting the values:-  $3.0(24)^{1.12} = 3.0 \times 35.1428...$

$= \boxed{105.42845... \text{ PM}}$   
(person/month)

⇒ Productivity =  $KLOC / \text{Effort}$  (KLOC/PM)

$= 24 / 105.42845...$

$= \boxed{0.22764... \text{ KLOC/PM}}$

⇒ Development Time ( $T_{dev}$ ) =  $b_1 * (\text{effort})^{b_2}$  (months)

$b_1 = 2.5$  (in semi-detached model)

$b_2 = 0.35$

→ substituting the values:-  $2.5(105.42...)^{0.35} = 2.5 \times 5.1054...$

$= \boxed{12.7636608... \text{ months}}$

→ 13 months (at most)  
(1 year 1 month)<sup>needed</sup>

⇒ Staff =  $\text{Effort} / T_{dev}$  (persons)

$= 105.428... / 12.763...$

$= \boxed{8.260048... \text{ persons}}$

→ 9 persons (at most) needed

Double-checking the Calculations at <http://www.edtechnology.in/cocomo/>:

### COCOMO calculator

Enter estimated kilo line of codes :

calculate

$$\text{Effort} = a * \text{loc}^b$$

$$\text{Duration} = c * \text{effort}^d$$

$$\text{Staffing} = \text{effort} / \text{duration}$$

	Organic	Semi-detached	Embedded
Variable A	2.4	3	3.6
Variable B	1.05	1.12	1.2
Variable C	2.5	2.5	2.5
Variable D	0.38	0.35	0.32
KLOC	24	24	24
Effort (In Person / Month)	67.52009513112468	105.42845578536853	163.13832195175902
Duration (In months)	12.391519537556338	12.763660813822613	12.76315153950939
Staffing (Recommended)	5.44889550684112	8.260048376653279	12.781977981437489

### Writing a Code to Calculate the Quantities:

```
CO SE Lab 8.ipynb ☆
File Edit View Insert Runtime Tools Help All changes saved

+ Code + Text

#Semi-Detached Model
loc=int(input())
kloc=loc/1000
print("KLOC=",int(kloc))
eff=3*(kloc**1.12)
prod=kloc/eff
tdev=2.5*(eff**0.35)
staff=eff/tdev
print("Effort=",eff,"PM")
print("Productivity=",prod,"KLOC/PM")
print("Development Time=",tdev,"months")
print("Staff=",staff,"persons")

24000
KLOC= 24
Effort= 105.42845578536853 PM
Productivity= 0.2276425261208345 KLOC/PM
Development Time= 12.763660813822613 months
Staff= 8.260048376653279 persons
```