Semester	T.E Semester V – CMPN
Subject	Web Devlopment Lab
Subject Professor In-Charge	Prof. Divya Nimbalkar
Assisting Teachers	Prof. Divya Nimbalkar
Laboratory	M 516A

Student Name	Sunil Saini	
Roll Number	23102A0036	
Grade and Subject Teacher's Signature		

Experiment Number	9
Experiment Title	COCOMO Cost Estimation
Project Title	Smart Hire: Al-Driven Interview Platform for Smart Recruitment
Project Overview	This project aims to develop a two-sided Al-powered platform that streamlines the recruitment process for both interviewers and interviewees. For recruiters, the system automates resume shortlisting, suggests suitable roles, and analyses candidates' online interviews based on facial expressions, voice tone, and engagement. It also sends automatic acceptance or rejection emails and offers personalized task suggestions. On the interviewee side, the platform allows users to explore job openings, submit applications, and receive Al-driven feedback, even in the case of rejection.
Github Link	https://github.com/Aashna890/SmartHire

Overview	**COCOMO Estimation for 5,000 LOC (5 KLOC)**
	Assumption: Organic Mode (small/simple project, familiar team).

◆ **1. Basic COCOMO**

Formulas:

- **Effort (E) = *a* × (KLOC)^*b***
- **Duration (D) = *c* × (E)^*d***
- **Team Size (P) = *E / D***

Constants for Organic Mode:

- **a = 2.4, b = 1.05**
- **c = 2.5, d = 0.38**

Calculation:

Calculation:

- Effort: $E = 2.4 \times (5)^{1.05} \approx 12.99\,\text{PM}$
- Duration: $D = 2.5 \times (12.99)^{0.38} \approx 5.97\,\text{months}$
- Team Size: $P = \frac{12.99}{5.97} \approx 2.18\,\text{people}$
- Hours: $12.99 \times 160 \approx 2,078\,\text{hours}$

☑ **Basic COCOMO Output:** ~13 PM, ~6 months, 2–3 people, ~2,080 hours.

◆ **2. Intermediate COCOMO**

Adjustment with Effort Adjustment Factor (EAF):

- **Assume average-to-slightly-above project complexity.**
- **Take EAF ≈ 1.15.**

Calculation:

- Effort: $E = 2.4 \times (5)^{1.05} \times 1.15 \approx 14.94\,\text{PM}$
- Duration: $D = 2.5 \times (14.94)^{0.38} \approx 6.3\,\text{months}$
- Team Size: $P = \frac{14.94}{6.3} \approx 2.37\,\text{people}$
- Hours: $14.94 \times 160 \approx 2,390\,\text{hours}$

☑ **Intermediate COCOMO Output:** ~15 PM, ~6.3 months, 2–3 people, ~2,390 hours.

◆ **3. Detailed COCOMO (Phase-Wise Distribution)**

For a small organic project, approximate effort distribution is:

Phase	% Effort	PM	Hours
Planning & Requirements	6%	0.9	144
System/Software Design	16%	2.4	384
Detailed Design	26%	3.9	624
Coding & Unit Testing	42%	6.3	1008
Integration & Testing	10%	1.5	240
Total	100%	15	2390

✅ **Detailed COCOMO Output: ~15 PM distributed across phases, ~6.3 months, ~2–3 people.**

◆ **Comparison Table**

Model	Effort (PM)	Duration (Months)	Team Size	Hours
Basic	~13	~6.0	2–3	~2,080
Intermediate	~15	~6.3	2–3	~2,390
Detailed	~15 (phases)	~6.3	2–3	~2,390

◆ **With Your Constraint (6 People × 5 Months)**

- Available Effort: $6 \times 5 \times 160 = 4,800 \text{ hours}$

- Required Effort (Intermediate): ~2,390 hours

👉 **Observation: The available team capacity (4,800 hrs) exceeds the estimated requirement (2,390 hrs). This means the project can be comfortably delivered with 6 people in 5 months, with buffer for risks, additional features, or earlier delivery.**

Conclusion

COCOMO is a software estimation model that predicts effort, time, and team size based on project size. In this case:

- **Basic: ~13 PM, 6 months, 2–3 people.**
- **Intermediate/Detailed: ~15 PM, 6.3 months, 2–3 people.**
- **With given resources (6 × 5 months = 4,800 hrs), the project is well-staffed and likely to finish ahead of schedule.**

Conclusion	COCOMO is a software estimation model that predicts effort, time, and team size based on project size, with Basic, Intermediate, and Detailed levels for increasing accuracy.