

# COCOMO Model – Software Engineering Hackathon

## Problem Statement –

### REAL-TIME DISASTER INFORMATION AGGREGATION

Overview: Real-time disaster information aggregation is a crucial technology that helps emergency response teams collect, process, and disseminate critical data during disasters. It leverages sources like social media, news portals, and official reports to provide timely updates and improve decision-making.

Problem Statement: Develop a software solution that automatically gathers and categorises disaster-related data from social media, news portals, and open sources. Using advanced algorithms, the system should filter relevant information and present it on a user-friendly dashboard for disaster response agencies. This real-time aggregation will enhance situational awareness, streamline response efforts, and improve decision-making, ultimately saving lives.

Key Objectives:

- Data Collection
  - Categorization & Processing
  - User Dashboard
  - Automated Alert
- 

## Identified Project Type - Organic

## Basic COCOMO Model

### Formulas –

Effort (E) =  $a \times (\text{KLOC})^b$  (Person-Months - PM)

Development Time (Tdev) =  $c \times (E)^d$  (Months)

Personnel Required = Effort / Time

Project Types	a	b	c	d
Organic	2.4	1.05	2.5	0.38
Semi-Detached	3.0	1.12	2.5	0.35

Embedded	3.6	1.20	2.5	0.32
----------	-----	------	-----	------

**1. Effort (E) =  $a \times (\text{KLOC})^b$**

**Given:**

- **a = 2.4**
- **b = 1.05**
- **KLOC = 1.2**

**Effort =  $2.4 \times (1.2)^{1.05} \approx 2.995$  Person-Months**

**2. Development Time (Tdev) =  $c \times (E)^d$**

**Given:**

- **c = 2.5**
- **d = 0.38**
- **E  $\approx$  2.995**

**Tdev =  $2.5 \times (2.995)^{0.38} \approx 3.93$  Months**

**3. Personnel Required = Effort / Time**

**Personnel =  $2.995 / 3.93 \approx 0.76 \rightarrow$  Approximately 1 person**