**COCOMO estimation:-**

**Project Complexity Classification**

COCOMO classifies projects into three categories:

1. Organic – Simple projects with well-understood requirements.
2. Semi-Detached – Projects of medium complexity with mixed experience levels.
3. Embedded – Highly complex, real-time, or mission-critical systems.

The Emotion2Movies project involves machine learning models for emotion classification and text embeddings, database management, search and recommendation algorithms, and a web interface. Given its moderate AI component and integration requirements, it falls under the semi-detached category.

**Lines of Code (SLOC) Estimation**

The project consists of 1,722 lines of code (SLOC). Converting this to Kilo Lines of Code (KLOC):

**KLOC = 1722/1000 = 1.722**

**Effort Estimation**

The effort formula for semi-detached projects:

**E = 3 \* (KLOC)1.12**

Substituting KLOC = 1.722:

**E = 3\* (1.722)1.12= 5.51 person-months**

**Development Time Estimation**

The formula for development time:

**T = 2.5 \* (E)0.35**

Substituting E = 5.51:

**T = 2.5 \* (5.51)0.35 = 4.54 months**

**Team Size Estimation**

The required staffing level is given by:

**Team Size = E/T**

Substituting E = 5.51 and T = 4.54:

**Team size = 5.51/4.54 = 1.21**

**Conclusion**

Based on COCOMO analysis, our **Emotion2Movies** project can be completed in approximately **4.5 months** with a team of **1 to 2 developers**, requiring a total effort of **5.51 person-months**.