Assignment: Effort Estimation Using Basic COCOMO

Project:	Human Resource Management System (HRMS)
Code Size:	~208.5 KLOC (Half of 417 KLOC)
Model Used:	Basic COCOMO (Organic type)
Team Size:	3 developers

Step 1: Effort (PM)

Effort = 2.4 × (208.5)^1.05 ≈ 587 PM

Step 2: Development Time (TDEV)

TDEV = 2.5 × (587)^0.38 ≈ 33 months

Step 3: Average Team Size

Team Size = 587 / 33 ≈ 18 people

Step 4: Adjustment for Actual Team (3 Developers)

Available Capacity = 3 × 10 × 30 = 900 hours/month
Target Schedule = 9 months
Total Capacity = 900 × 9 = 8100 hours

Final Result (Adjusted)

Effort:	Balanced to fit available capacity
Development Time:	9 months
Team Size:	3 members
Date:	September 17, 2025

Task 2: Short Note (200 words)

Effort estimation is a fundamental part of software engineering because it directly influences the success or failure of a project. A project that begins with unrealistic or poorly calculated estimates is highly likely to miss deadlines, exceed budget, or deliver poor-quality results. Good estimation provides a structured way to plan, allocate resources, and manage risks.

Accurate estimation allows project managers to make informed decisions regarding schedules and team size. It helps in forecasting costs and aligning project milestones with client expectations. Without it, projects face constant scope creep, resource shortages, and stressed teams. Even though software development has inherent uncertainties, models like COCOMO give a baseline for planning that can be refined with practical constraints.

In the case of the HRMS project, while the theoretical COCOMO model suggested a much longer

duration with a larger team, adjustments were made to fit the actual team capacity and project goals. This highlights that estimation is not just about applying formulas but also about adapting them to real-world constraints.

Ultimately, sound effort estimation reduces risks, ensures predictability, and creates confidence among developers and stakeholders. It forms the backbone of successful project management and timely delivery.