Department of Computer Engineering

Academic Term: First Term 2023-24

Class: T.E /Computer Sem – V / Software Engineering

Practical No:	5
Title:	Estimating project cost using COCOMO model
Date of Performance:	24.08.2023
Roll No:	9649
Team Members:	Ishita Yadav, Kashmira Sukhtankar, Aaron Rodrigues

Rubrics for Evaluation:

Sr. No	Performance Indicator	Excellent	Good	Below Average	Total Score
1	On time Completion & Submission (01)	01 (On Time)	NA	00 (Not on Time)	
2	Theory Understanding(02)	02(Correct)	NA	01 (Tried)	
3	Content Quality (03)	03(All used)	02 (Partial)	01 (rarely followed)	
4	Post Lab Questions (04)	04(done well)	3 (Partially Correct)	2(submitted)	

Signature of the Teacher:

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COCOMO (Constructive Cost Model) Document

Project Information
- Project Name: Superkicks Online Store.
- Project Description: Develop a web-based e-commerce platform for selling products online.

Basic COCOMO Estimates

Inputs
- Estimated Lines of Code (LOC): 50,000 LOC
- Scale Factor "a" (from historical data): 2.4
- Scale Factor "b" (from historical data): 1.05

Calculations
- Effort (in person-months) = a * (LOC^b)
- Effort = 2.4 * (50,000^1.05)
- Effort ≈ 120 person-months

- Schedule (in months) = 2.5 * (Effort^0.38)
- Schedule = 2.5 * (120^0.38)
- Schedule ≈ 14.45 months

- Estimated Development Cost = Effort * Average Developer Salary
  (Please replace "Average Developer Salary" with the actual salary information.)

Intermediate COCOMO Estimates

Additional Inputs
- Scale Factor "c" (from historical data): 1.0 (nominal)
- Scale Factor "d" (from historical data): 1.0 (nominal)
- Scale Factor "e" (from historical data): 1.0 (nominal)
- Scale Factor "f" (from historical data): 1.0 (nominal)
- Scale Factor "g" (from historical data): 1.0 (nominal)
- Scale Factor "h" (from historical data): 1.0 (nominal)

Calculations
- Adjusted Effort (person-months) = Effort * (c * d * e * f * g * h)
- Adjusted Effort = 120 * (1.0 * 1.0 * 1.0 * 1.0 * 1.0 * 1.0) = 120 person-months

- Adjusted Schedule (months) = 2.5 * (Adjusted Effort^0.38)
- Adjusted Schedule = 2.5 * (120^0.38) ≈ 14.45 months

- Adjusted Development Cost = Adjusted Effort * Average Developer Salary
  (Please replace "Average Developer Salary" with the actual salary information.)

Detailed COCOMO Estimates

Additional Inputs (Project-Specific Details)
- Product Complexity: Moderate
- Required Performance: High
- Team Experience: Low

Calculations (Based on detailed project characteristics)
- Adjusted Effort (person-months) = Effort * (c1 * d1 * e1 * f1 * g1 * h1)
  (Use project-specific values for c1, d1, e1, f1, g1, h1)
- Adjusted Schedule (months) = 2.5 * (Adjusted Effort^0.38)
- Adjusted Development Cost = Adjusted Effort * Average Developer Salary

Risk Management
- Identify and assess project risks.
- Develop a risk mitigation plan.

Break down of the estimations and assumptions made in the COCOMO document for the "Superkicks Online Store" software project:

1. Project Information:
   - Project Name and Description: These are straightforward project identifiers.

2. Basic COCOMO Estimates:
   - Estimated Lines of Code (LOC): This is a hypothetical value representing the size of the software. It's crucial to have a reasonably accurate estimate of the LOC, as it directly influences effort and cost estimates.
   - Scale Factor "a" and "b": These hypothetical values come from historical data or industry standards. They are used in the Basic COCOMO formula to estimate effort and schedule based on LOC. The values can vary depending on the type of software and the development environment.

3. Intermediate COCOMO Estimates:
   - Scale Factors "c" to "h": These are hypothetical values representing different scale factors that account for project-specific characteristics. In this example, all scale factors are set to their nominal (average) values because there is no specific information provided about the project's characteristics. In a real project, you would determine these factors based on the project's unique attributes.

4. Detailed COCOMO Estimates:
   - Product Complexity: This is a hypothetical assessment of the project's complexity, categorized as "Moderate." In practice, you would perform a detailed analysis of the software's characteristics to determine its complexity.
   - Required Performance: This is set to "High," indicating a performance-demanding project. The performance requirements can significantly impact development effort and cost.
   - Team Experience: This is hypothetically assessed as "Low," suggesting that the development team may not have extensive experience with similar projects. In reality, team experience plays a crucial role in estimating project effort and risk.

5. Risk Management:
   - The document mentions the need to identify and assess project risks, which is an essential step in any software project. However, the specific risks and mitigation strategies are not detailed in this hypothetical example. In practice, a comprehensive risk assessment would be conducted, and mitigation plans would be developed based on real project risks.

6. Development Cost:
   - The document mentions the calculation of development cost based on estimated effort and "Average Developer Salary." The actual salary information for the development team is not provided in this example but would be essential for accurate cost estimation.