TASK-3

To Prepare a Detailed Estimate using the FP and COCOMO Model and to Prepare a Detailed Project Schedule for Online Banking System

Aim:

To perform estimation using Function Point (FP) and COCOMO models and to develop a project schedule for the Online Banking System.

FP Model

The Functional Size of the Online Banking System is measured in Function Points (FP), which represent the functional complexity of the software application.

Step 1:

$$F = 14 \times \text{scale}$$

The scale varies from 0 to 5, depending on the Complexity Adjustment Factor (CAF).

Scale Influence Level

0   No Influence

1   Incidental

2   Moderate

3   Average

4   Significant

5   Essential

Step 2: Calculate Complexity Adjustment Factor (CAF)

$$CAF = 0.65 + (0.01 \times F)$$

Step 3: Calculate Unadjusted Function Point (UFP)

Function Units	Low	Avg	High
External Inputs (EI)	3	4	6
External Outputs (EO)	4	5	7
External Inquiries (EQ)	3	4	6
Internal Logical Files (ILF)	7	10	15

Function Units	Low	Avg	High
External Interface Files (EIF)	5	7	10

Step 4: Calculate Function Point

$$FP = UFP \times CAF$$

Given data for the Online Banking System:

Parameter	Value
Number of user inputs	24
Number of user outputs	46
Number of inquiries	8
Number of files	4
Number of external interfaces	2
Effort	36.9 person-months
Technical documents	265 pages
User documents	122 pages
Cost	$7744 per month

When average complexity values are considered:
FP = UFP × CAF, which provides the total size estimate of the Online Banking System.

COCOMO Model

A project for the Online Banking System is estimated to be 400 KLOC.
The effort and development time for all three models — *Organic*, *Semi-detached*, and *Embedded* — are calculated using the Basic COCOMO equations:

$$Effort = a \times (KLOC)^b \text{ PM}$$
$$T_{dev} = c \times (Effort)^d \text{ Months}$$

Estimated Size of Project = 400 KLOC

(i) Organic Mode

$$Effort = 2.4 \times (400)^{1.05} = 1295.31 \text{ PM}$$
$$T_{dev} = 2.5 \times (1295.31)^{0.38} = 38.07 \text{ Months}$$

(ii) Semi-Detached Mode

$$Effort = 3.0 \times (400)^{1.12} = 2462.79 \text{ PM}$$
$$T_{dev} = 2.5 \times (2462.79)^{0.35} = 38.45 \text{ Months}$$

(iii) Embedded Mode

$$Effort = 3.6 \times (400)^{1.20} = 4772.81 \text{ PM}$$
$$T_{dev} = 2.5 \times (4772.81)^{0.32} = 38.00 \text{ Months}$$

Project Scheduling

A project schedule is a detailed timetable that defines the sequence of tasks, responsible resources, and deadlines required to complete the Online Banking System efficiently.

Phase	Activities	Duration
Requirement Analysis	Collect user requirements and system goals	2 weeks
Design Phase	Create system architecture and database design	3 weeks
Development Phase	Implement core modules (Login, Fund Transfer, Account Management)	8 weeks
Testing Phase	Perform unit, integration, and security testing	4 weeks
Deployment Phase	Host on secure server and launch for end-users	2 weeks
Maintenance & Updates	Ongoing bug fixes and feature updates	Continuous

Result:

Thus, the estimation using Function Point (FP) and COCOMO models has been successfully performed for the Online Banking System, and a detailed project schedule has been prepared to ensure systematic and timely completion of the project.