Ex No: 8	ESTIMATION OF PROJECT SIZE USING FUNCTION POINT ANALYSIS & COCOMO MODEL
Date : 27/09/2021	
Video Link:	

OBJECTIVE

The objective is to calculate the estimation of project size using function analysis & COCOMO model.

METHODOLOGY

A project would be fall in one of the scenarios

1. Much relevant project data are available for the current project but not much information about previous projects.
2. Previous project data are available for the project but not much information about the current project.
3. Project data are available for the current project as well as that of previous projects.
4. Some project data are available for the current project.
5. No project data are available for both current as well as previous projects.

Estimation Technique Selection Based on Project Information Availability:

	Project Details	**Estimation Technique**
01	Historical project data & current project data	Function Point Analyses
02	Current project data	COCOMO, Wide Band Delphi`
03	No data	No technique

DESCRIPTION

(i) Function point analysis

The function point is a "unit of measurement" to express the amount of business functionality an information system (as a product) provides to a user. Function points are used to compute a

functional size measurement (FSM) of software. The cost (in dollars or hours) of a single unit is calculated from past projects.

Step-1: Calculate F where

(1)

Scale varies from 0 to 5 according to character of Complexity Adjustment Factor (CAF). Below is the scale:

0 - No Influence

1 - Incidental

2 - Moderate

3 - Average

4 - Significant

5 - Essential

Step-2: Calculate Complexity Adjustment Factor (CAF).

Step-3: Calculate Unadjusted Function Point (UFP) by multiplying each individual function point to corresponding values in the table.

Measurement Parameter	**Weighting factor**		
	Simple	**Average**	**Complex**
No. of user inputs	3	4	6
No. of user output	4	5	7
No. of user inquires	3	4	6
No. of files	7	10	15
No. of external interfaces	5	7	10

Step-4: Calculate Function Point (FP)

Upon calculating FP, it is used to calculate productivity and cost

(4)

(5)

(ii) Basic COCOMO model

The COnstructive COst Estimation MOdel (COCOMO) model gets the number of estimated lines of code for the project and calculates the overall time and people required for project. The output differs based on the different project type and the different types of projects are as follows.

(a) Organic: Relatively small, simple software projects in which small teams with good application experience work to a set of less than rigid requirements.

(b) Semi-detached: An intermediate, (in size and complexity), software project in which teams with mixed experience levels must meet a mix of rigid and less than rigid requirements.

(c) Embedded: A software project that must be developed within a set of tight hardware, software and operation constraints

The COCOMO models calculates the no of person (effort) and duration using the equations 6 & 7.

(6)

(7)

where

• KLOC is the estimated size of the software product expressed in Kilo Lines of Code

• a, b, c, d are constants for each category of software products and their values are as follows.

Project type	a	b	c	d
Organic	2.4	1.05	2.5	0.38
Semi-detached	3	1.12	2.5	0.35
Embedded	3.6	1.2	2.5	0.32

• Tdev is the estimated time to develop the software, expressed in months

• Effort is the total effort required to develop the software product, expressed in person months (PMs)

OUTPUT:

FUNCTION POINT ANALYSIC SCREEN SHOTS

COCOMO MODEL SCREEN SHOTS

RESULT:

The estimation of project was performed using function point analysis and COCOMO model.