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Practical No :-5

Aim:- Use of metrics to estimate the cost of the project.

Title of project:- Active chat monitoring and suspicious chat detection over internet.

Lab Outcome: - CSL501.2 Develop architectural models for the selected case study.

Theory:-

Function Point metrics(FP):

FPA provides a standardized method to functionally size the software work product. This work product is the output of software new development and improvement projects for subsequent releases. It is the software that is relocated to the production application at project implementation. It measures functionality from the user's point of view i.e. on the basis of what the user requests and receives in return.

Function Point Analysis (FPA) is a method or set of rules of Functional Size Measurement. It assesses the functionality delivered to its users, based on the user's external view of the functional requirements. It measures the logical view of an application, not the physically implemented view or the internal technical view.

The Function Point Analysis technique is used to analyze the functionality delivered by software and Unadjusted Function Point (UFP) is the unit of measurement.

External Inputs (EIs): 6

External Outputs (EOs): 5

External Inquiries (EQs): 4

Internal Logical Files (ILFs): 3

External Interface Files (EIFs): 2

Information Domain Value(IDV) Table:

Information Domain Values	Count	Weighting Factor Average	Total
EIs	6	4	24
EOs	5	5	25
EQs	4	10	40
ILFs	3	5	15
EIFs	2	7	14
Count total			118

Sr.No	Value Adjustment Factors (VAF)	Rating
1.	Does the system require reliable backup and recovery?	5
2.	Are specialized data communications required to transfer information to or from the application?	4
3.	Are there distributed processing functions?	3
4.	Is performance critical?	4
5.	Will the system run in an existing, heavily utilized operational environment?	5
6.	Does the system require online data entry?	4
7.	Does the online data entry require the input transaction to be built over multiple screens or operations?	4
8.	Are the ILFs updated online?	4
9.	Are the inputs, outputs,files, or inquiries complex?	4
10.	Is the internal processing complex?	5
11.	Is the code designed to be reusable?	5
12.	Are conversion and installation included in the design?	4

13.	Is the system designed for multiple installations in different organizations?	4
14.	Is the application designed to facilitate change and ease of use by the user?	5

The estimated number of FP is derived:

$$\text{FP estimated} = \text{Total count} * [0.65 + 0.01 * \sum(F_i)]$$

$$\text{FP estimated} = 118 * [0.65 + 0.01 * 60]$$

$$\text{FP estimated} = 118 * [1.25]$$

$$\text{Fp estimated} = \mathbf{147.5}$$

Organizational average productivity = **6.5 FP/pm**

Burdened labour rate = **\$ 6500** per month and

Cost/FP = approximately **\$1000/FP**

Based on the FP estimate and the historical productivity data,

$$\mathbf{\text{Total estimated project cost}} = \text{FPestimated} * (\text{Cost/FP}) = 147.5 * \$1000 = \mathbf{\$147500}$$

Hence, the estimated effort of the project is $\text{FPestimated/productivity} = 147.5/6.5 = \mathbf{22.69 \text{ person-month.}}$