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**Academic Year: 2023-24**

**Class: TYCM-Win Group No: 26 Date: \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Title of Project: Attendance Monitoring System Using Facial Recognition**

**Assignment No: 4**

**Name of Activity (Assignment): Costing using COCOMO Model**

**Name: Mrs.Y.U.Kadam**

**Signature of Guide:**

**Step 1:** Measure the size in terms of the amount of functionality in a system. Function points are computed by first calculating an unadjusted function point count (UFC).

Table no. 4.1 Unadjusted Function Count(UFC)

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. no. | Function points | Number | Description |
| 1 | User inputs | 2 | Real Time Image Capturing, Student Details |
| 2 | User outputs | 2 | Recognized Face, Marked Attendance |
| 3 | User requests | 0 | - |
| 4 | Internal Files | 41 | Dataset |

**Step 2:** Multiply each number by a weight factor according to complexity of the parameter, associated with that number.

Complexity considered is average.

Table no. 4.2 Complexity Average

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr.  no. | Function points | Number | Weight Factor | Multiplication |
| 1 | User inputs | 2 | 4 | 8 |
| 2 | User outputs | 2 | 5 | 10 |
| 3 | User requests | 0 | 4 | 0 |
| 4 | Internal Files | 41 | 10 | 410 |

**Step 3:** Calculate the total UFP (Unadjusted function points) by adding the multiplication column in above table

UFP = 8+10+0+410

= 428

**Step 4:** Calculate the total TCF (Technical Complexity Factor) by giving a value between 0 and 5

Table no. 4.3 Technical Complexity Factor(TCF)

|  |  |  |
| --- | --- | --- |
| Sr no. | Technical Complexity Factor | Value |
| 1 | Data communication | 5 |
| 2 | Distributed Data Processing | 5 |
| 3 | Performance criteria | 4 |
| 4 | Heavily Utilized Hardware | 0 |
| 5 | High Transaction Rates | 1 |
| 8 | End user efficiency | 4 |
| 9 | Complex Computations | 1 |
| 10 | Reusability | 4 |
| 11 | Ease of Installation | 5 |
| 12 | Ease of Operation | 5 |
| 13 | Portability | 4 |
| 14 | Maintainability | 4 |

**Step 5:** Sum the resulting numbers to obtain DI (degree of influence) by adding the value column in above table

DI = 42

**Step 6:** TCF (Technical Complexity Factor) by given formula

TCF = 0.65+0.01\*DI

= 0.65+0.01\*42

= 1.07

**Step 7:** Calculate FP (Function Points) using the given formula

FP = UFP\*TCF

= 49\*1.07

= 52.43

**Step 8:** To find KLOC (Lines of code) using language factor and FP

Language factor of php = 48

KLOC= Language factor \* FP

= 48\*52.43

= 2.51

**Step 9:** To calculate the effort and nominal development time using given formula and constants

Effort = a1\*(KLOC)a2 PM

Tdev =b1\*(Effort)b2Months

Development mode considered is Organic.

Values of the constants in the Organic Development mode:

a1=2.4 a2=1.05 b1=2.5 b2=0.38

Effort = 2.4\*(2.51)^1.05

= 6.30 PM

Tdev =2.5\*(6.30)^0.38

= 5.03 Months

**Step 10:** Calculate the cost required to develop product by multiplying development time and average salary of engineers

Average salary is 3000

Cost required to develop the product = 5.03 \* 3000

= 15090

**Hence the total cost required to develop the product is ₹15,090/-**