Software Project Management

What is project

- Project is a temporary work that create unique product or service with having fixed starting time and deadline for completion the work.

Project Management

- Project Planning and Organizing
- Project Staffing
- Directing, Monitoring and Controlling

Responsibility of a Project Manger

- Takes overall responsibility of steering project to success.
- Building up efficient team to successfully complete a project.
- project cost estimation
- Project scheduling
- Project Staffing
- project monitoring and control
- Risk management

Project Planning

- **Estimation:**
- Cost :
- Duration:
- Effort:
- **Scheduling:**
- **Staffing:**
- **Risk Management**

Project Estimation

- For an effective project management , various parameters must be estimated such as:
- Project Size Estimation
- Cost Estimation
- Effort Estimation

Metric For Project Size Estimation

- **LOC: (Line of Code):**
- This metric measures the size of a project by counting the number of source instructions in the developed program. Obviously, while counting the number of source instructions, comment lines, and header lines are ignored.
- **Short Coming:**
- Though this metric is so popular for its simplicity , but using this metric estimate the project size accurately at the beginning level, is quite difficult.

Function Point Metric

- Conceptually, the function point metric is based on the idea that a software product supporting many features would certainly be of larger size than a product with less number of features.

Steps For calculating Function Point Metric

- Calculate UFP (unadjusted function points):
- UFP = (Number of inputs)*4 + (Number of outputs)*5 +(Number of inquiries)*4 + (Number of files)*10 +(Number of interfaces)*10

Function Units	Low	Avg	High
EI	3	4	6
EO	4	5	7
EQ	3	4	6
ILF	7	10	15
EIF	5	7	10

Identifying Scaling Value

0 - No Influence

1 – Incidental

2 – Moderate

3 – Average

4 - Significant

5 - Essential

Given the following values, compute function point when all complexity adjustment factor (CAF) and weighting factors are average.

```
User Input = 50 User Output = 40 User Inquiries = 35 User Files = 6 External Interface = 4
```

- **Step-1:** As complexity adjustment factor is average (given in question), hence,
- `scale = 3.`
  `F = 14 * 3 = 42`

- **Step-2:** `CAF = 0.65 + ( 0.01 * 42 ) = 1.07`

- **Step-3:** As weighting factors are also average (given in question) hence we will multiply each individual function point to corresponding values in TABLE.
- `UFP = (50*4) + (40*5) + (35*4) + (6*10) + (4*7) = 628`

- **Step-4:** `Function Point = 628 * 1.07 = 671.96`

FP	LOC
1. FP is specification based.	1. LOC is an analogy based.
2. FP is language independent.	2. LOC is language dependent.
3. FP is user-oriented.	3. LOC is design-oriented.
4. It is extendible to LOC.	4. It is convertible to FP (backfiring)

Project Estimation Technique

- **Empirical Estimation:**
  - **Expert Judgement Method**
  - **Delphi Cost Estimation**
- **Heuristic Techniques:**
  - Basic COCOMO
  - Intermediate COCOMO
  - Complete COCOMO

Reference

- https://www.google.co.in
- Fundamentals of Software Engineering, Rajib Mall , PHI