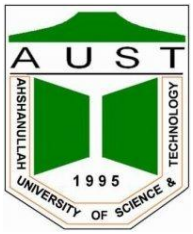
Ahsanullah University of Science & Technology
Department of Computer Science and Engineering



Functional Points Analysis on

“Power Up Gym”

Course Number & Name: CSE 3224 - Information & System Design Lab

Prepared for:

Dr. Taslim Taher (Assistant Professor)
Mridha Md. Nafis Fuad (Lecturer)

Prepared by:

Lab Section: A2
Group No: 3

Aurprita Mahmood	20200104035
Meherin Sultana	20200104036
Yasir Arafah Prince	20200104042
Sumaiya Shejin	20200104043
Farhan Abid Ahmed	190104084

8th August, 2023

Table of Contents

Functional Point Ranking According to Complexity

Table 1: Weights of 5-FP attributes

Measurement Parameters	Low	Average	High
Number of External Inputs (EI)	7	10	15
Number of External Outputs (EO)	5	7	10
Number of External Inquiries (EQ)	3	4	6
Number of Internal Files (ILF)	4	5	7
Number of External Files (EIF)	3	4	6

Calculate Unadjusted Function Points (UFP)

We are calculating the complexity value for each Functional Point Components. The complexity values we are assigning (low, average, high) are used to estimate the effort and resources required for implementing each functional point. Generally, higher complexity points involve more intricate operations, validations, calculations, or interactions with other components, leading to more development effort. Meanwhile, lower complexity points tend to involve simpler operations with less complexity.

Admin/Owner's Perspective

1. External Inputs (EI):

- **Admin Login (Low Complexity):** A basic authentication process where administrators log in using a simple username and password.
- **Add New Customer (Average Complexity):** Capturing and validating customer information before adding it to the system.
- **Edit Customer (Average Complexity):** Updating existing customer details, which includes searching, editing, and saving changes.

- **Show Customer (Low Complexity):** Displaying customer details after retrieving them from the database by taking CustomerID as input.
- **Add New Equipment (Average Complexity):** Requires input validation, storing detailed equipment information, and potentially associating it with maintenance schedules.
- **Add Employee (Average Complexity):** Capturing employee information, including validation and storage.
- **Edit Employee (Average Complexity):** Updating existing employee details, which includes searching, editing, and saving changes.
- **Show Employee (Low Complexity):** Displaying employee information after retrieving it from the database after taking EmployeeID as input.
- **Add Package (Average Complexity):** Capturing package details, applying validation, and saving them in the system.
- **Delete Package (Average) Complexity:** Locating and removing a package from the system, including necessary validations.

Total Weighting Factor for EI: (7*1) + (10*9) + (15*0) = 97.

2. External Outputs (EO):

- **Show Customer (Average Complexity):** Retrieval and presentation of customer details from the database to display their information.
- **Membership Information (Low Complexity):** Displaying membership-related information, typically showcasing different membership states or levels.
- **Show Equipment (Average Complexity):** Fetching equipment details from the database and presenting them to users.
- **Show Employee (Average Complexity):** Presenting employee details sourced from the database.
- **Show Expenses & Revenue (High Complexity):** Complex calculation and data processing to provide a comprehensive overview of the gym's financial status.
- **Show Package (Average Complexity):** Displaying package specifics fetched from the database.

Total Weighting Factor for EO: (5*1) + (7*4) + (10*1) = 43.

3. External Inquiries (EQ):

- **Show Customer Details (Average Complexity):** The operation involves searching for a customer by ID and displaying their details. A straightforward retrieval without complex processing.
- **Show Equipment Details (Low Complexity):** Fetching equipment specifics from the database in response to external inquiries. Involves moderate processing to filter and retrieve relevant data.
- **Show Employee Information (Low Complexity):** Responding to external inquiries by displaying employee details sourced from the database. A simple retrieval without significant processing.
- **Show Financial Overview (High Complexity):** Complex calculation and data processing to present a comprehensive financial summary in response to external inquiries.
- **Membership Information (Low Complexity):** Responding to external inquiries by displaying data about different membership states or levels. A straightforward retrieval without significant processing.
- **Show Package Details (Low Complexity):** Responding to external inquiries by displaying package specifics fetched from the database. A simple retrieval without complex processing.

Total Weighting Factor for EQ: (3*4) + (4*1) + (6*1) = 22.

4. Internal Logical Files (ILF):

- Admin Information Database Table (Low Complexity).
- Customer Information Database Table (Low Complexity).
- Equipment Information Database Table (Low Complexity).

- Employee Information Database Table (Low Complexity).
- Financial Information Database Table (High Complexity).
- Package Information Database Table (Low Complexity).

Total Weighting Factor for ILF: (4*5) + (5*0) + (7*1) = 27.

5. External Interface Files (EIF):

Total Weighting Factor for EIF: (3*0) + (4*0) + (6*0) = 0.

Table 2: Computing weighting factor

Measurement Parameters	Weighting Factor
Number of External Inputs (EI)	97
Number of External Outputs (EO)	43
Number of External Inquiries (EQ)	22
Number of Internal Files (ILF)	27
Number of External Files (EIF)	0
Total Count:	189

So, $UFP_1 = 189$

Customer/User's Perspective

1. External Inputs (EI):

- **Login (Low Complexity):** A straightforward user authentication process involving a username and password.

Total Weighting Factor for EI: (7*1) + (10*0) + (15*0) = 7.

2. External Outputs (EO):

- **My Stats (High Complexity):** Displaying personalized fitness statistics or records for the logged-in user.
- **Packages (Average Complexity):** Presenting information about available gym packages, including details such as pricing, features, and associated trainers.

Total Weighting Factor for EO: (5*0) + (7*1) + (10*1) = 17.

3. External Inquiries (EQ):

- **My Stats (Low Complexity):** Retrieving and displaying individual fitness data for the user, like past workouts or progress.
- **Packages (Low Complexity):** Responding to user queries about package details, providing straightforward information about available options and trainers.

Total Weighting Factor for EQ: (3*2) + (4*0) + (6*0) = 6.

4. Internal Logical Files (ILF):

- User Information Database Table (Low Complexity).
- Package Information Database Table (Low Complexity).

Total Weighting Factor for ILF: (4*2) + (5*0) + (7*0) = 8.

5. External Interface Files (EIF):

- **Total Weighting Factor for EIF:** (3*0) + (4*0) + (6*0) = 0.

Table 3: Computing weighting factor

Measurement Parameters	Weighting Factor
Number of External Inputs (EI)	7
Number of External Outputs (EO)	17
Number of External Inquiries (EQ)	6
Number of Internal Files (ILF)	8
Number of External Files (EIF)	0
Total Count:	38

So, $UFP_2 = 38$

Therefore, $UFP = UFP_1 + UFP_2 = 189 + 38 = 227$.

Calculate Complexity Adjustment Factor (CAF)

Table 4: 14-Factors

General System Characteristics (GSC)	Degree of Influence (DI) (0-5)
Data Communications	1
Distributed Data Processing	0
Performance	4
Heavily User Configuration	0
Transaction Rate	3
Online Data Entry	0
End-User Efficiency	5
Online Update	0
Complex Processing	5
Reusability	4
Installation Ease	2
Operational Ease	4
Multiple Sites	0
Facilitate Change	4
Total degree of influence (TDI):	32

So, CAF = [0.65 + (0.01 * TDI)] = [0.65 + (0.01 * 32)] = 0.97

Calculate Functional Points (FP)

So, FP = UFP * CAF = 227 * 0.97 = 220.19