Ahsanullah University of Science & Technology

Department of Computer Science & Engineering (CSE)

Functional Point Analysis on

"Requisition Management System"

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Course No. & Name

CSE 3224 – Information & System Design Lab

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Functional Point Ranking According to Complexity

Measurement Parameter	Low	Average	High
1. Number of external input (EI)	7	10	15
2. Number of external outputs (EO)	5	7	10
3. Number of external inquiries (EQ)	3	4	6
4. Number of internal files (ILF)	4	5	7
5. Number of external interfaces (EIF)	3	4	6

Table 1.1: Weights of 5-FP Attributes

Calculate Unadjusted Function Point (UFP)

Estimate the complexity values for each Functional Point Components:

1.1 External Inputs (EI) for Requisition Manager:

- **Manager Login (Low):** This function allows the manager to log into the system securely. It involves basic user authentication and authorization processes to ensure that only authorized manager can access the system.
- **Add Product (Low):** Manager can add new products to the inventory through this function. It includes providing details like product name, description, category, quantity, and other relevant information.
- **Update Product (Average):** This function enables manager to modify existing product details. It involves updating product attributes such as name, description, category, and price. The complexity is average because it requires additional validation and data consistency checks.
- **Delete Product (Low):** Manager can remove products from the inventory using this function. It involves confirming the product deletion and managing any dependencies or relationships with other data.
- **Update Order Status (High):** This function allows managers to update the status of an order, such as "pending", "accepted", or "denied." The complexity is high because it involves handling multiple order status transitions and updating relevant data accordingly.

1.2 External Inputs (EI) for Branch Representative:

- **Representative Login (Low**): Similar to the manager login, this function allows branch representatives to log into the system securely using their credentials.
- **Order Request (High):** Branch representatives can submit new order requests through this function. It includes selecting products, specifying quantities, and providing other necessary details. The complexity is high as it involves multiple input fields and validation checks.
- **Update Order (Average):** This function enables branch representatives to modify their submitted order requests. It involves editing product quantities, adding or removing items, or making changes to delivery details.
- **Delete Order (Low):** Branch representatives can delete their submitted order requests using this function. It includes confirming the order deletion and handling related data updates.

Total Weighting Factor for EI: 7 * 5 + 10 * 2 + 15 * 2 = 85

2.1 External Outputs (EO) for Requisition Manager:

- **View Product Details (Low**): This function allows the manager to view detailed information about a specific product, such as its name, description, category, price, and current stock level.
- **View Order Request (Low):** Manager can view the incoming order requests from branch representatives. This function displays essential order details, such as the products requested and their quantities.
- **Status Update Dialogue Box (Low):** Managers receive status updates and notifications about order processing or changes through a dialogue box or notification system.
- **View Resolved Delivery (Average):** Managers can view the completed delivery status for orders. This function provides details on which orders have been successfully delivered.

2.2 External Outputs (EO) for Branch Representative:

- **View Product (Low):** Branch representatives can view a list of available products in the inventory. It allows them to check product details, such as descriptions, categories, and prices.
- **View Order (Low):** Branch representatives can view their submitted order requests along with their current status (e.g. pending, accepted or denied).

- **Status Update Dialogue Box (Low):** Similar to the manager's function, branch representatives receive status updates and notifications about their orders through a dialogue box or notification system.

Total Weighting Factor for EO: 5 * 6 + 7 * 1 + 10 * 0 = 37

3. External Inquiries (EI):

- **Product Category Filtering (High):** This function enables users to filter products based on their categories. It requires searching and filtering capabilities, which adds to its complexity.
- **Product Details (Low):** Both Manager and Representatives can inquire about specific products details, such as name, description, category, price and availability in the inventory.
- **View Order (Low):** Manager can view all the order request including resolved deliveries and Representative can view the orders he/she made.

Total Weighting Factor for EQ: 3 * 2 + 4 * 0 + 6 * 1 = 12

4. Internal Logical Files (ILF):

- **Manager (Low**): This internal logical file stores manager-specific data, such as login credentials.
- **Representative (Low):** Similar to the manager's file, this ILF stores branch representative-related data, including login credentials and others.
- **Product Information Management (Average**): This ILF manages information about the products available in the inventory, such as product names, descriptions, categories, prices, and stock levels.
- **Order Information Management (High):** This ILF handles the data related to order requests and their statuses. It includes details about the products ordered, order quantities, delivery information, and status updates.

Total Weighting Factor for ILF: 4 * 2 + 5 * 1 + 7 * 1 = 20

5. External Interface Files (EIF)

NB: No External Interface Files available in this system.

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

Measurement Parameter	Weighting Factor
1. Number of external input (EI)	85
2. Number of external outputs (EO)	37
3. Number of external inquiries (EQ)	12
4. Number of internal files (ILF)	20
5. Number of external interfaces (EIF)	0
	Total: 154

Table 1.2: Computing Weighting Factor

So, UFP = 154

Calculate Complexity Adjustment Factor (CAF)

General System Characteristics (GSC)	Degree of Influence (DOI) (0-5)
1.Data Communications	5
2.Distributed Data Processing	1
3.Performance	3
4.Heavily User Configuration	3
5.Transaction Rate	3
6.Online Data Entry	3
7.End-User Efficiency	3
8.Online Update	3
9.Complex Processing	3
10.Reusability	1
11.Installation Ease	1
12.Operational Ease	3
13.Multiple Sites	1
14.Facilitate Change	3
Total degree of influence	**TDI: 36**

Table 2: 14 Factors

1. Data Communications - High (5):

Due to the use of socketing for communication with external systems and the need for real-time data exchange between the branch representative and the manager, data communications have a high influence on complexity.

2. Distributed Data Processing - Low (1):

The project description does not indicate extensive distributed data processing, so the influence is low.

3. Performance - Moderate (3):

The need for real-time order processing and inventory management with some performance requirements contributes to moderate complexity.

4. Heavily Used Configuration - Moderate (3):

As the system is used by branch representatives and the manager, it has a moderate degree of influence.

5. Transaction Rate - Moderate (3):

The project involves transaction processing for order requests, acceptances, and inventory updates, resulting in a moderate influence on complexity.

6. Online Data Entry - Moderate (3):

Real-time data entry and validation for order requests add to the complexity.

7. End-User Efficiency - Moderate (3):

The need for a user-friendly interface for both branch representatives and managers contributes to moderate complexity.

8. Online Update - Moderate (3):

Real-time updates and synchronization for order acceptance and inventory management add to the complexity.

9. Complex Processing - Moderate (3):

The system involves processing requisitions, order acceptances, and inventory updates, leading to moderate complexity.

10. Reusability - Low (1):

As there are no indications of extensive reusability, the influence is low.

11. Installation Ease - Low (1):

The complexity related to installation is low, as per the project description.

12. Operational Ease - Moderate (3):

The need for an easy-to-operate system with straightforward inventory management contributes to moderate complexity.

13. Multiple Sites - Low (1):

There is no system deployed across multiple sites, the influence is low.

14. Facilitate Change - Moderate (3):

The need for easy maintenance and adaptability contributes to moderate complexity.

So, CAF = [0.65 + (0.01 * TDI)] = [0.65 + (0.01 * 36)] = 1.01

Calculate Functional Points (FP)

So, FP = UFP * CAF = 154 * 1.01 = 155.54