

Functional Points Analysis on
“Cash & Carry”

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Function point Ranking According to Complexity

Table 1.1: Weights of 5-FP Attributes

Measurement Parameter	Low	Average	High
1. Number of external inputs (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

Calculate Unadjusted Function Point(UFP)

Estimate the Complexity Values for each Functional Point Components :

1. External Inputs (EI):

- **Admin login: (Low)** - It involves basic authentication, typically a simple username and password check.
- **Add new product details: (Low)** - A straightforward data entry operation with minimal validation and processing.
- **Update product details: (Average)** - The operation involves searching for a particular product from the database and updating the product information.
- **Show product details: (Low)** - The operation involves searching for a product by the product name and displaying its details.
- **Delete product details: (Average)** - The operation involves searching for a particular product from the database and removing the product from the system.
- **Add new customer details: (Low)** - A basic data entry task for capturing customer information.
- **Update customer details: (Average)** - The operation involves searching for a specific customer from the database and updating the customer information.
- **Show customer details: (Low)** - The operation involves searching for a customer by the customer ID and displaying the details.
- **Delete customer details: (Average)** - The operation involves searching for a specific customer from the database and removing the customer details from the system.

- **Search in daily sales: (Average)** - The operation involves searching of daily sales details according the requirements (Date, product, category)
- **Search customer details for billing calculation: (Average)** - This operation requires searching and processing customer information to calculate relevant billing details.
- **Search purchased product details for billing calculation: (Average)** - It requires searching and processing of purchased product details for billing purposes.
- **Add product quantity for billing calculation: (Low)** - A basic data entry task for storing quantity of the purchased products.
- **Invoice generation: (Average)** - The generation of invoices involves combining product and customer details, applying discounts, calculating totals, and generating the final invoice, making it an operation of average complexity.

Total Weighing Factor for EI: $7 * 6 + 10 * 8 + 15 * 0 = 122$

2. External Outputs (EO):

- **Add new product details: (Low)** - After adding new product details, the system will display a confirmation message or a success status indicating that the product has been successfully added.
- **Update product details: (Low)** - After updating product details, the system might display a confirmation message or a success status indicating that the product information has been updated.
- **Show product details: (Average)** - The system displays the product details retrieved from the database based on the search criteria.
- **Delete product details: (Low)** - After deleting product details, the system will display a confirmation message or a success status indicating that the product has been successfully removed.
- **Add new customer details: (Low)** - After adding new customer details, the system will display a confirmation message or a success status indicating that the customer information has been successfully added.
- **Update customer details: (Low)** - After updating customer details, the system will display a confirmation message or a success status indicating that the customer information has been updated.
- **Show customer details: (Average)** - The system displays the customer details retrieved from the database based on the search criteria.

- **Delete customer details: (Low)** - After deleting customer details, the system will display a confirmation message or a success status indicating that the customer has been successfully removed.
- **Search in daily sales: (Average)** - The system displays the daily sales details retrieved from the database based on the search criteria (e.g., date, product, category).
- **Search customer details for billing calculation: (Low)** - The system will display the relevant customer details required for billing calculation.
- **Search purchased product details for billing calculation: (Low)** - The system will display the relevant purchased product details required for billing calculation.
- **Invoice generation: (High)** - The system generates itemized invoices with the date, time, list of products, prices, and discounts. The invoice itself is the primary external output.

Total Weighing Factor for EO: $5 * 8 + 7 * 3 + 10 * 1 = 71$

3. External Inquiries (EQ):

- **Show product details : (Low)** - The operation involves searching for a product by the product name or ID and displaying its details. It is a simple retrieval without any significant processing.
- **Show customer details: (Low)** - The operation involves searching for a customer by the customer ID or name and displaying their details. Similar to showing product details, it is a straightforward retrieval of data without complex processing.
- **Search in daily sales (Average)** - The operation involves searching for daily sales details based on specific criteria, such as date, product, or category. This requires moderate processing to filter and retrieve relevant data from the database.
- **Search customer details for billing calculation: (Average)** - The operation requires searching and processing customer information to calculate relevant billing details. This involves retrieving data from the database and performing calculations for billing purposes.
- **Search purchased product details for billing calculation: (Average)** - The operation involves searching and retrieving purchased product details required for billing calculation. It is a simple retrieval of data from the database with a little complex processing.

Total Weighing Factor for EQ: $3 * 2 + 4 * 3 + 6 * 0 = 18$

4. Internal Logical Files (ILF):

- Admin: (Low)
- Product Information Management: (Low)
- Customer Information Management: (Low)
- Category Information management: (Low)
- Daily Sales Management: (Average)

Total Weighing Factor for ILF: $4 * 4 + 5 * 1 + 7 * 0 = 21$

5. External Interface Files (EIF):

- **Invoice PDF: (High)** - System allows the generated invoices to print them as PDF for customers upon request.

Total Weighing Factor for EIF: $3 * 0 + 4 * 0 + 6 * 1 = 6$

Table 1.2: Computing weighing factor

Measurement Parameter	Weighing Factor
1. Number of external inputs (EI)	122
2. Number of external outputs (EO)	71
3. Number of external inquiries (EQ)	18
4. Number of internal files (ILF)	21
5. Number of external interfaces (EIF)	6
	Total Count : 238

So, **UFP** = 238

Calculate Complexity Adjustment Factor (CAF)

Table 2: 14-factors

General System Characteristics (GSC)	Degree Of Influence (DI) (0-5)
1.Data Communications	1
2.Distributed Data Processing	0
3.Performance	4
4.Heavily User Configuration	0
5.Transaction Rate	0
6.Online Data Entry	0
7.End-User Efficiency	5
8.Online Update	1
9.Complex Processing	3
10.Reusability	4
11.Installation Ease	5
12.Operational Ease	4
13.Multiple Sites	0
14.Facilitate Change	4
Total degree of influence	TDI : 31

Therefore, $CAF = [0.65 + (0.01 * TDI)] = [0.65 + (0.01 * 31)] = 0.96$

Calculate Functional Points(FP)

The required FP = UFP * CAF = 238 * 0.96 = 228.48