Chapter 4

System Planning

4.1 Function of Proposed System:

Table I. Function of Proposed System

Login into the System	F1
Customer Registration	F2
Customer Information	F3
View Products	F4
Manage Cart	F5
Make Orders	F6
Payment	F7
Manage Orders	F8
Manage Products	F9
Manage Stuff	F10
Manage Customer	F11
Generate Report	F12

4.2 Functions Description

- **F1 Login into the System:**

  Input: User Name, Password, Type

  Output: Login Successful, Login Failed

- **F2 Customer Registration:**

  Input: First Name , Username,Email,Password,Confirm Password,Mobile1,Mobile2,Address

  Output: Success

  Use table of the database: tbl_user

- **F3 Customer Information:**

  Output: Customer's general Information including order details and customer can see order status

  Use table of the database:tbl_user

- **F4 View Products:**

  Output: Product Category, Product type, Availability,Price,Discount,Specifications.

  Use table of the database: tbl_product.

- **F5 Mange Cart:**

  Input: User id, Product id, Quantity, Product Price,Total Price .

  Output: Success

  Update Cart:

  Input: Product Quantity.

  Output: Quantity Success

  Remove Product:

  Output: Product will be removed.

  Use table of the database: tbl_cart

- **F6 Make Orders:**

  Input: Name, Mobile1,Mobile2,Address & Email

  Output: Success.

  Use table of the database: tbl_order

- **F7 Payment:**

  Output: Cash on Delivery

- **F8 Manage Order:**

  Input: Cancel, Returned, Delivered

  Output: Success status.

Use table of the database: tbl_order.

- **F9 Manage Product:**

  Input:name,Code,Solditems,BuyingPrice,Price,Discount,Quantity,Newarrival,catgory, Type,Image1,Image2,Image3,Status,Specifications.
  Output: Success.
  Update Product:
  Input:name,Code,Solditems,BuyingPrice,Price,Discount,Quantity,Newarrival,catgory, Type,Image1,Image2,Image3,Status,Specifications.
  Output: Success
  Update Quantity:
  Input: Product Quantity
  Output: Success
  Use table of the database: tbl_product

- **F10 Manage Stuff:**

  Input: Name, Username,Email,Password,Confirm Password

  Output: Success.

  Update Stuff:

  Input: Name, Phone, Email, Password, Confirm password

  Delete Stuff:

  Output: Stuff Delete

  Use table of the database: tbl_admin

- **F11 Manage Customer:**

  Output: delete Customer.

  Use table of the database: tbl_user

- **F12 Generate Report:**

  Customer:

  Output: Name, Address,Email,Product code, Product name,Subtotal,Price.

  Use table of the database: tbl_invoice

  Sales Report:

  Output: Sales Report History

4.3 Project Planning

Before starting any project, it is compulsory to estimate the work to be done, the resources that will be required, the time that will elapse from start to finish and to analyze the project to determine whether it is feasible or not.

The following activities of software project planning that have followed in this project are:

- Estimation of the software project
- Task scheduling
- Personnel requirements
- Resource requirements
- Estimation of the software cost
- Costs benefit analysis

4.4 Function Point Estimation

The task of counting function points should be included as part of the overall project plan. That is, counting function points should be scheduled and planned. The first function point count should be developed to provide sizing used for estimating. (softwaremetrics, 2018)

Data Functions:

- Internal Logical Files [ILF]
- External interface files [EIF]

Transactional Functions:

- External Inputs [EI]
- External Outputs [EO]
- External Queries [EQ]

Also, DET, RET and FTR have been applied for the analysis of data functions and transactional functions.

Table II**.** Complexity Matrix for FP Function Components

ILF/EIF	DET			**EI**	DET			**EO/EQ**	DET		
RET	1-19	20-50	51+	FTR	1-4	5-15	16+	FTR	1-5	6-19	20+
1	Low	Low	Avg	0-1	Low	Low	Avg	0-1	Low	Low	Avg
2-5	Low	Avg	High	2	Low	Avg	High	2-3	Low	Avg	High
6+	Avg	High	High	3+	Avg	High	High	4+	Avg	High	High

Table III**.** Function Component Complexity Weight Assignment

Component	**Low**	**Average**	**High**
External Inputs	3	4	6
External Outputs	4	5	7
External Inquiries	3	4	6
Internal Logical Files	7	10	15
External Interface Files	5	7	10

FP count:

Table IV. Function Point Analysis and Transection Function

Transaction		**FTRS**	**DETS**	**Complexity**	**UFP**
User Registration (EI)		1	8	Low	3
User Login (EI)		1	2	Low	3
User Information(EQ)		1	5	Low	3
Admin Login (EI)		1	2	Low	3
View Product (EQ)		1	6	Low	3
Add Product to Cart (EI)		1	6	Low	3
Update Product cart (EI)		1	1	Low	3
Remove Product from Cart (EQ)		1	6	Low	3
View Invoice Details (EQ)		1	7	Low	3

Order Details (EI)		1	5	Low	3
Calculate Bill (ILF)		1	2	Low	7
Add Product (EI)		1	17	Avg	4
Update Product(EI)		1	17	Avg	4
Delete Product(EI)		1	1	Low	3
Add Stuff (EI)		1	6	Low	3
Update Stuff (EI)		1	5	Low	3
Delete Stuff(EI)		1	1	Low	3
Add Layouts 3(EI)		3	5	High	9
View Report Date wise (EQ)		1	2	Low	3
				Total	69

Table V. FP Count

Data Function	**RETs**	**DETs**	**Complexity**	**UFP**
Login (ILF)	1	9	Low	7
Admin Login (ILF)	1	7	Low	7
Product (ILF)	1	16	Low	7
Cart (ILF)	1	6	Low	7
Order (ILF)	1	8	Low	7
Invoice (EQ)	1	5	Low	3
Report (ILF)	1	4	Low	7
Search(ILF)	1	2	Low	7
			Total	53

Performance and environmental impact:

GSC	DI
Data Communications	**3**
Distributed Data Processing	**0**
Performance	**5**
Heavily Used Configuration	**3**
Transaction Rate	**3**
Online Data Entry	**4**
End-user Efficiency	**5**
Online Update	**0**
Complex Processing	**3**
Reusability	**3**
Installation Ease	**4**
Operational Ease	**3**
Multiple Site	**0**
Facilitate Change	**4**
Total Degree of Influence (TDI)	**40**

4.5 Function Point Estimation

UFP for TF = 69

UFP for DF = 53

Total UFP = 122

Value Adjustment Factor (VAF) = (0.65+ (0.01×40))

= 1.05

Adjusted Function Point (AFP) = UFP × VAF

= 122× 1.05

= 124.65

Efforts for PHP = AFP × Productivity

= 124.65× 15.5

= 1932.075 person hours/6 hours

= 322.012 person days / 20 = 16.10 person month

Time Frame Calculation = 16.10/4=4.02

4.02 ≈ 4 month needed for 4 persons

4.6 Process Based Estimation

In process-based estimation, process is decomposed into a relatively small set of tasks and the effort required to accomplish each task is estimated. Process based estimation begins with a delineation of software functions obtained from the project scope. A series of software process activities must be performed for each function. (softwaremetrics, 2018)

Table VI. Process Based Estimation

Activity	**CC**	**Planning**	**Engineering**		**Construction**		**CE**	**Total**
Function			**Analysis**	**Design**	**Code**	**Test**	n/a	
F1			0.12	0.15	1.25	0.3	n/a	1.82
F2			0.17	0.12	1.15	0.3	n/a	1.74
F3			0.19	0.25	0.45	0.3	n/a	1.19
F4			0.12	0.25	0.45	0.3	n/a	1.12
F5			0.60	0.25	0.75	0.3	n/a	1.9
F6			0.54	0.25	0.75	0.3	n/a	1.84
F7			0.36	0.25	0.45	0.3	n/a	1.36
F8			0.12	0.25	0.45	0.3	n/a	1.32
F9			0.54	0.55	1.15	0.3	n/a	1.56
F10			0.24	1.4	2.00	0.3	n/a	1.94
F11			0.26	1.5	0.45	0.3	n/a	2.51
F12			0.28	0.22	0.35	0.3	n/a	1.15
Total	**1.00**	**1.50**	**3.00**	**3.47**	**8.85**	**1.55**	**0.55**	**19.92**
Effort	**2%**	**6%**	**19%**	**27%**	**36%**	**6%**	**4%**	**100%**

4.7 Effort Estimation

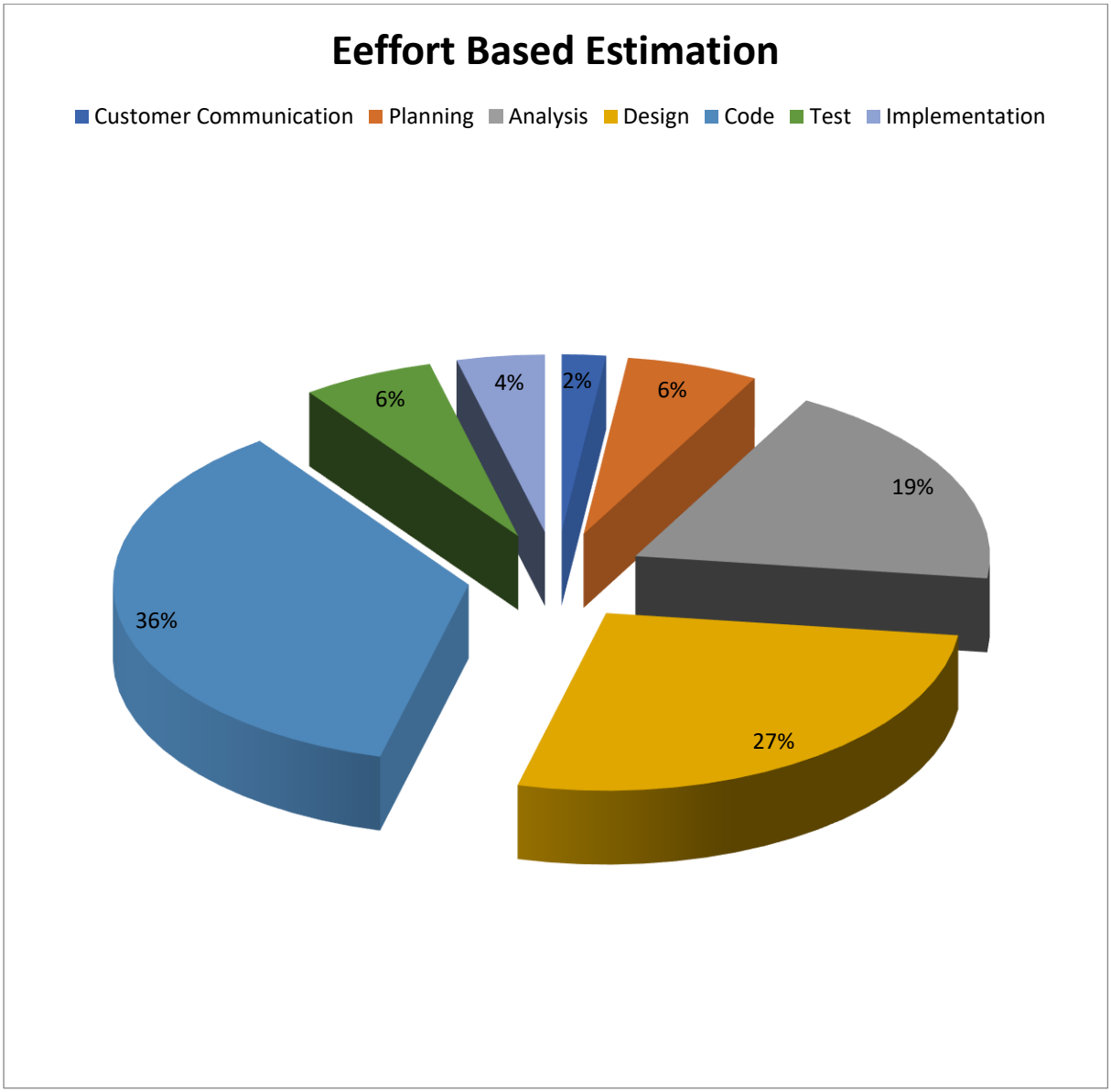

Figure 4.4: Effort Based Estimation (Baracks, 2018)

4.9 Project Schedule Chart

Total system development is a combination of set of tasks. These set of tasks should done sequentially and timely. Project schedule works as the guideline of the system developer. The following is the schedule chart of this project:

Table VII. Project Schedule Chart

Category	1st Month	2nd Month	3rd Month	4th Month
Customer Communicator				
Planning				
Analysis				
Design				
Coding				
Testing				
Implementation				

4.10 Cost Estimation

- Software Cost
- Hardware Cost
- Personnel Cost
- Other Cost

Software Cost:

Table VIII. Software Cost

Name	Amount
Windows 10	50.00
MS Office 2013	50.00
XAMPP	Free
MySQL	Free
Subline Text Editor	Free
Adobe Photoshop	50.00
Total	150

It is expected that the life of hardware is 5 years. So, an asset with a life of 5 would have a sum of digits as follows: 5+ 4+ 3 +2 + 1 = 15.

The percentage of month is: 1/15 = 6.67% = 0.0667

The depreciation cost of Computer is = (30000 * 0.0667) = 200

The depreciation cost of Scanner is = (1800* 0.0667) = 120.06

The depreciation cost of Printer is = (2200* 0.0667) = 146.74

Hardware Cost:

Table IX. Hardware Cost

Name	Amount	Depreciated Cost
Computer	30000	200
Scanner	1800	120.06
Printer	2200	146.74
	Total	2267.8

Personnel Cost:

Table X. Personnel Cost

Type	Number	Month	Salary Per Month	Total
System Analyst	1	2	12000	24000
Designer	1	2	10000	20000
Code Developer	1	2	8000	16000
Tester	1	1	5000	5000
			Total:	65000

Other Cost:

Table XI. Other Cost

Name/utility	**Monthly Bill Rate**	**Bill calculated for 4 months**
Electricity Bill	800	3200
Internet Bill	1000	4000
	Total	7200

Total System Development Cost:

Table XII. System Development Cost

Cost Type	**Cost**
Software Cost	**150 BDT.**
Hardware Cost	**2,267.8 BDT.**
Personnel Cost	**65,000 BDT.**
Other Cost	**7,200 BDT.**
Total	**74617.8 BDT.**