

# **CECS543 – Software Estimations and Metric report**

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## **1- Executive Summary**

An electronic store that sells different models of products like TVs and Stereos.

This document consists of a detailed analysis plan to develop and manage this electronic store using three phases.

These phases are:

1. Project Specification
2. Application Composition Model
3. Early Design Model

We documented our project specifications, outlining all of the external inputs, outputs, interface files, and inquiries as well as all internal files required for the electronic store. With these specifications, we could easily predict the three phases with the aid of a COCOMO II tool.

At the Early Design stage,

- The estimate for source lines of code (SLOC) is 900 in C++, 1100 in Java and 50 in HTML programming language.
- The most likely estimate for cost is \$16,568.
- The most likely schedule is 17.4 months and the number of required staff is 7.

## **2- Project Specification**

In order to run this electronic store, we have devised a plan that we would now like to evaluate in terms of effort and cost. To accomplish this, we have decided to use the COCOMO II software estimation model. Prior to using COCOMO II, we clearly defined all of the project specifications. These specifications include all of the External inputs, outputs, interface files, inquiries, and internal files. Details about each of the specifications are listed below.

## **2-1- External Inputs (EI):**

1. Create Password
2. Login
3. Change Password 4. Create Invoice
5. Register Salesperson 6. Create Purchase Order 7. Add Supplier
8. Add Warehouse
9. Add Customer
10. Add Products
11. Edit Invoice
12. Edit Salesperson
13. Edit Purchase Order 14. Edit Supplier
15. Edit Warehouse
16. Edit Customer
17. Delete Invoice
18. Delete Salesperson
19. Delete Purchase Order
20. Delete Supplier
21. Delete Warehouse
22. Delete Customer
23. Add Button
24. Update Button
25. Delete Button
26. Back Button
27. Submit Button
28. Checkbox

## **2-2- External Outputs (EO):**

1. Password creation window
2. User logged in

3. Update user details
4. Invoice window
5. Salesperson window
6. Purchase Order window
7. Supplier window
8. Warehouse window
9. Customer window
10. Product window
11. View invoice details
12. View Salesperson details
13. View Purchase order details
14. View Supplier details
15. View Warehouse details
16. View Customer details
17. Success popup window

### **2-3- External Interface Files (EIF):**

1. Supplier details
2. Product specification details

### **2-4- External Inquiries (EQ):**

1. Invoice generation reports
2. Sales report
3. Product specification reports
4. Profit report
5. Validate Login
6. Validate password

### 2-5- Internal Files (ILF):

1. Salesperson
2. Customer
3. Product
4. Warehouse
5. User
6. Supplier
7. Purchase Order
8. Invoice
9. Payment
10. Delivery

### 3- Application Composition Model

Object points = 22

$$\text{NOP} = (\text{object points}) * [(100 - \text{Reusability\%})/100]$$

$$\text{Effort} = \text{Object points} / \text{Productivity}$$

Table 1:

Screens	Data Inputs	Complexity Level	Reusability	Complexity Weight	NOP	Effort
Create Password	3	Simple	1	1	49.5	3.807692308
Login	2	Simple	1	2	49.5	3.807692308
Change Password	4	Medium	2	2	49	3.769230769
Create Invoice	6	Difficult	2	3	49	3.769230769
Register Salesperson	5	Medium	3	2	48.5	3.730769231

Create Purchase order	5	Medium	2	2	49	3.769230769
Add Supplier	2	Medium	1	1	49.5	3.807692308
Add Warehouse	3	Medium	2	3	49	3.769230769
Add Customer	3	Medium	2	2	49	3.769230769
Add Products	4	Medium	1	2	49.5	3.807692308
Edit Invoice	4	Medium	2	2	49	3.769230769
Edit Salesperson	4	Medium	2	2	49	3.769230769
Edit Purchase Order	4	Medium	2	2	49	3.769230769
Edit Supplier	4	Medium	3	2	48.5	3.730769231
Edit Warehouse	4	Medium	3	2	48.5	3.730769231
Edit Customer	4	Medium	3	2	48.5	3.730769231
Delete Invoice	5	Medium	2	2	49	3.769230769
Delete Salesperson	4	Medium	2	2	49	3.769230769
Delete Purchase Order	4	Medium	3	2	48.5	3.730769231
Delete Supplier	3	Medium	2	2	49	3.769230769

Delete Warehouse	4	Medium	3	2	48.5	3.730769231
Delete Customer	3	Medium	2	2	49	3.769230769

Table 2:

<b>Report</b>	<b>Data Entries</b>	<b>Complexity Level</b>	<b>Reusability</b>	<b>Complexity Weight</b>	<b>NOP</b>	<b>Effort</b>
Sales Report	8	Difficult	5	8	47.5	3.653846154
Product specification Report	3	Medium	3	5	48.5	3.730769231
Profit Report	10	Difficult	3	8	48.5	3.730769231

#### 4- Early Design

Please find a separately attached spreadsheet.