Assignment 2

**External Inputs:** Admin login inputs, admin registration input, customer registration, payment information, employee registration, employee login, product detail, customer history.  
Count: 8

**External Outputs:** Notification messages, status response, reports for sales or customer history.  
Count: 3

**External Inquiries:** Product availability check, customer history, employee records

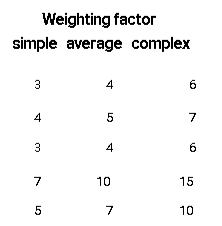
Count: 3

**Internal Logical Files:**  System configuration file, user account data, product data, booking records, payment records, Employee data.

Count: 6

**External Interface Files:** Database for records, third party payment system(assuming), external storage for backups

Count: 3

Considering the weighting factor  


Assuming average for External input and external output, simple for External Inquiries and Internal logical files and complex for External Interface files

Total count = (8\*4)+ (3\*5)+(3\*3)+(6\*7)+(3\*10) = 128.

Calculating value adjustment factor now based on 14 points. (0 is N/A while 5 is absolutely essential)

1- Reliable backup and Recovery: 3

2- Communication Required: 3

3- Distributed processing functions: 2

4- Performance Critical? : 4

5- System run in heavily utilized OS environment?: 2

6- On-line data entry: 3

7- Input transactions over multiple operations/screens: 3

8- Master files updated online: 3

9- Complex input, output, files, inquiries: 2

10- Internal processing complex: 2

11- Code reusability: 3

12- Conversion and installation included in design: 3

13- Multiple installations in different organizations: 2

14- Facilitate change and ease of use: 3

Adding all the numbers give us a total Fi of: 38  
Calculating function point: count total × (0.65 + 0.01×∑Fi)  
FP = 128 x (0.65+0.01\*38)= 131.84 or 132  
Assuming FP/LOC for C# = 64  
Lines of code = 64\*132 = 8448 or 8.448K Loc

Since 8.448K LOC, we will use Organic Mode in Basic Cocomo as it uses the range 2-50 KLOC.

Effort = E = 2.4 x (8.448)1.05 = 24.27 person months or 24 Person months.

TDEV/development time = 2.5 \* (24)0.38 = 8.36 months or approx 8 Months.

Average Staff = Effort/TimeDev = 24/8 = 3 members on average.  
Productivity = 8448/24 = 352 LOC/staff-month.

**Intermediate Cocomo**

Effort = 3.2 x size1.05 x EAF

Calculating Cost drivers

RELY (Required Software Reliability): Since the software is intended to automate important operations in an electronic market, it should be fairly reliable. Let's assume it is "Nominal" (e.g., 1.00).

DATA (Database Size): Given that the software will be handling bookings, product management, customer interactions, and more, we can assume that it will handle a considerable amount of data. Let's assume it is "High" (e.g., 1.14).

CPLX (Product Complexity): The system includes a variety of features including login, registration, payment processing, booking, and more, which suggests it is complex. Let's assume it is "High" (e.g., 1.17).

TIME (Execution Time Constraint): There's no specific information in the SRS or Project Charter about execution time constraints. Let's assume it is "Nominal" (e.g., 1.00).

STOR (Main Storage Constraint): Similar to TIME, there's no specific information about storage constraints. Let's assume it is "Nominal" (e.g., 1.00).

VIRT (Virtual Machine Volatility): There's no specific information about virtual machine volatility. Let's assume it is "Nominal" (e.g., 1.00).

TURN (Computer Turnaround Time): No specific information about computer turnaround time is available. Let's assume it is "Nominal" (e.g., 1.00).

ACAP (Analyst Capability): The SRS is well-documented, which suggests a skilled analyst team. Let's assume it is "High" (e.g., 1.19).

AEXP (Applications Experience): The team is developing an Electronic Management System, which is somewhat specialized. Let's assume it is "Nominal" (e.g., 1.00).

PCAP (Programmer Capability): The SRS does not provide enough information to determine this, but we'll assume the team is skilled. Let's assume it is "High" (e.g., 1.17).

VEXP (Virtual Machine Experience): There's no information about virtual machine experience. Let's assume it is "Nominal" (e.g., 1.00).

LEXP (Programming Language Experience): The system will be developed using C#, a well-known language. Let's assume it is "High" (e.g., 1.09).

MODP (Modern Programming Practices): The SRS does not provide enough information to determine this. Let's assume it is "Nominal" (e.g., 1.00).

TOOL (Use of Software Tools): There's no information about the use of software tools. Let's assume it is "Nominal" (e.g., 1.00).

SCED (Required Development Schedule): The project has specific milestones with target dates, which indicates some schedule pressure. Let's assume it is "Nominal" (e.g., 1.00).

EAF = RELY \* DATA \* CPLX \* TIME \* STOR \* VIRT \* TURN \* ACAP \* AEXP \* PCAP \* VEXP \* LEXP \* MODP \* TOOL \* SCED = 1.00 \* 1.14 \* 1.17 \* 1.00 \* 1.00 \* 1.00 \* 1.00 \* 1.19 \* 1.00 \* 1.17 \* 1.00 \* 1.09 \* 1.00 \* 1.00 \* 1.00 = 1.465

Effort = A \* (Size)^B \* (EAF)

= 3.2 \* (8.448)^1.05 \* 1.465

≈ 53.36 staff-months

Tdev = 2.5 \* (53.36)^0.38

≈ 13.48 months

Average Staff = Effort/TimeDev = 53/13 = 4.07 or 4

Productivity = 8448/ 53 = 159.39 or 159 LOC/Staff-month

Assume average salary for C# developer is Rs 70000  
Cost = Effort x Average Salary = 53 x 70000 = Rs 3710000