CASE STUDY (40 MARKS) (Allocation time : 75 – 80minutes)

The case study of ordering food in a manual system for a traditional restaurant.

We'll explore each step in more detail:

1. Customer Arrives at the Restaurant
2. The waiter guides the customer to an available table, considering factors like group size and preferences (e.g., near the window or away from the kitchen).
3. The waiter shows the physical menu. The menu includes appetizers, main courses, desserts, and beverages. Each item is described briefly. Prices are clearly listed, and any special offers or chef's recommendations are highlighted.
4. The waiter approaches the table politely, ensuring eye contact and a friendly. They listen actively as the customer discusses preferences, dietary restrictions, and any allergies. The waiter may suggest popular dishes or daily specials based on the customer's taste. If the customer has questions about ingredients or cooking methods, the waiter provides accurate information.
5. The waiter take the order food from the customers.
6. The waiter walks to the kitchen. They verbally communicate the order to the chef. The chef acknowledges the order, noting any specific requests (e.g., "medium-rare steak" or "extra spicy"). The kitchen staff work in harmony, ensuring timely preparation.
7. The waiter carries the plates carefully. They serve the dishes to the respective tables, ensuring proper placement.
8. After the meal, the waiter approaches the table with the handwritten bill. The bill includes the cost of each item, taxes, and any additional charges (e.g., service charge).
9. The customer reviews the bill, calculating the total. Payment options include cash or card. The waiter processes the payment gracefully.
10. Report will be produce to the management such as total sales per day, weekly and monthly.

Based on the above case study. Read and understand it. Imaging you are as the system consultant to developed a new computerized system for this restaurant. Please answer the following questions:

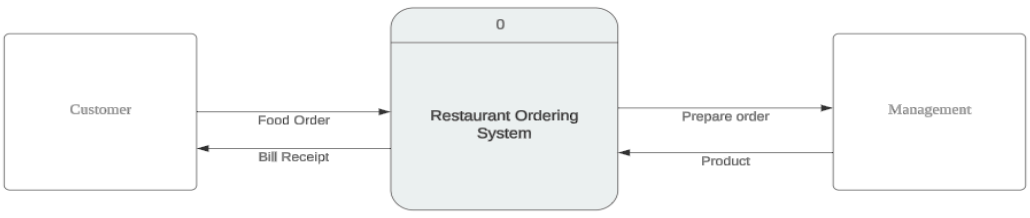
a. Draw a Context Diagram for the proposed system. (5 marks)

Context Diagram:

- External Entities:

  Customer
  Management

- System: Restaurant Ordering System

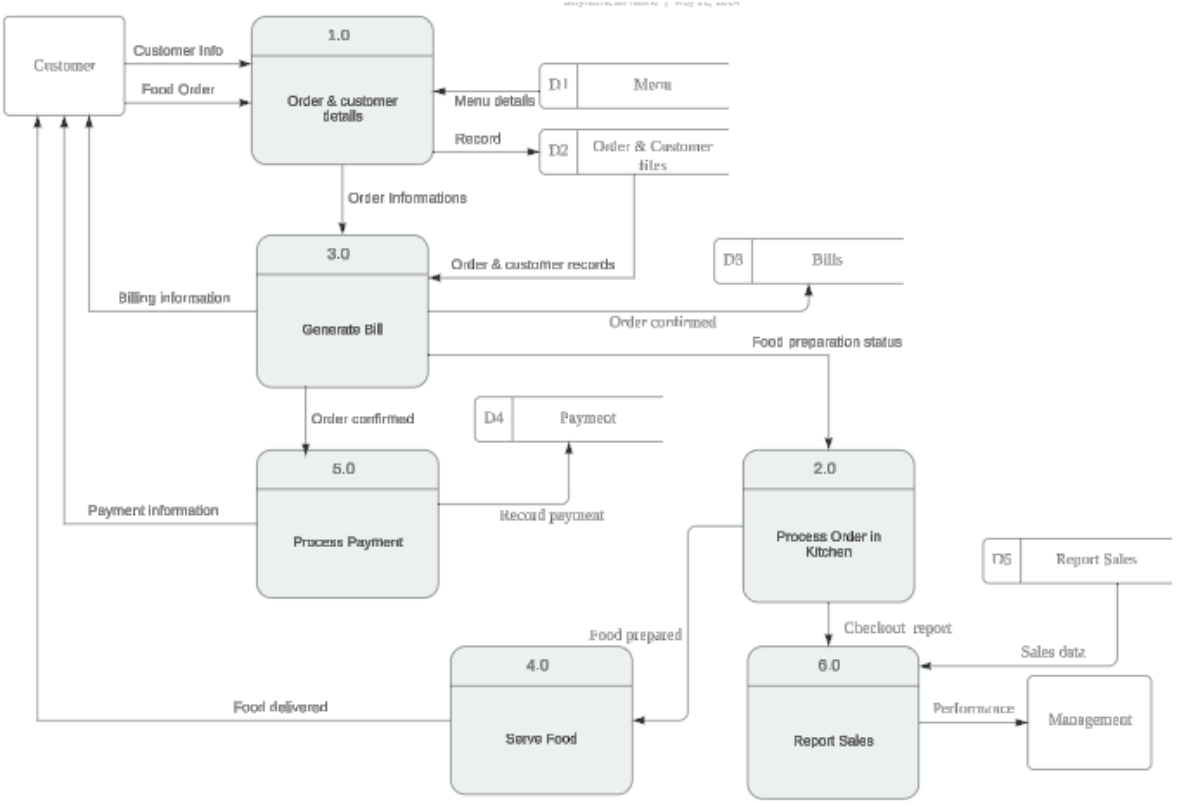


*Or any relevant answer accepted

b. Draw the Level 0 Diagram for the Context Diagram developed in (a). (10 marks)

Level 0 Diagram:

- Processes:
  - Take Order
  - Process Order in Kitchen
  - Serve Food
  - Generate Bill
  - Process Payment
  - Report Sales
- Data Stores:
  - Menu
  - Orders
  - Bills
  - Payments
  - Sales Reports
- Data Flows:
  - Customer Information
  - Order Information
  - Food Preparation Status
  - Billing Information
  - Payment Information
  - Sales Data

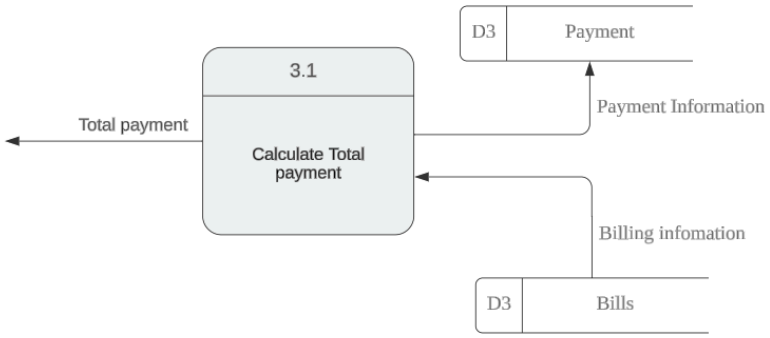


*Or any relevant answer accepted

c. Construct a child diagram for the “calculate the total payment” for proposed system. (5 marks)

Child Diagram for "Calculate the Total Payment":

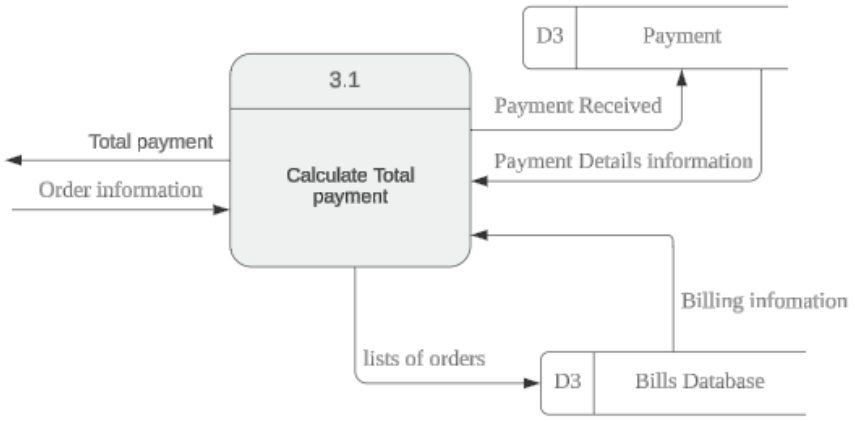
Process:	Data Stores:	Data Flows:
Calculate Total	Bills Payments	Billing Information Payment Information Total Payment



*Or any relevant answer accepted

d. Convert the child diagram for (c) to the Physical Data Flow Diagram (DFD). (5 marks)

Process:	Data Stores:	Data Flows:
Calculate Total	Bills Payments	Billing Information List of orders Payment details Information Payment Received Total Payment Order information



*Or any relevant answer accepted

e. Select the suitable process specification for calculate the total payment. (10 marks)

Process: Calculate Total Payment
Input:
- Billing Information (from Bills Database)
- Payment Information (from Payments Database)
Output:
- Total Payment
Steps:
1. Retrieve itemized bill from the Bills Database.
2. Sum the cost of all items on the bill.
3. Add applicable taxes and service charges.
4. Store the calculated total in the Payments Database.
5. Display the total payment to the Waiter.

*Or any relevant answer accepted

f. Suppose that you want to design an online order form to order the food. List the main input fields that you should include in the form together with their type. For example: will you use text box, check box, drop-down list box, radio button? (5 marks)

Input Fields:

i. Customer Name: Text Box
ii. Contact Number: Text Box
iii. Table Number: Drop-Down List Box
iv. Appetizers: Check Boxes (for multiple selections)
v. Main Course: Radio Buttons (for single selection)
vi. Desserts: Check Boxes (for multiple selections)
vii. Beverages: Check Boxes (for multiple selections)
viii. Special Instructions: Text Area
ix. Order Button: Button

*Or any relevant answer accepted