



**Department of Electrical,  
Computer, & Biomedical Engineering**  
Faculty of Engineering & Architectural Science

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<i>Assignment/Lab Number:</i>	<i>Lab 4</i>
<i>Assignment/Lab Title:</i>	Requirements Analysis and Specification

<i>Submission Date</i> :	<b>March 27th, 2024</b>
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## 1.0 PART I - CONTEXT DIAGRAM AND DATA FLOW DIAGRAM:

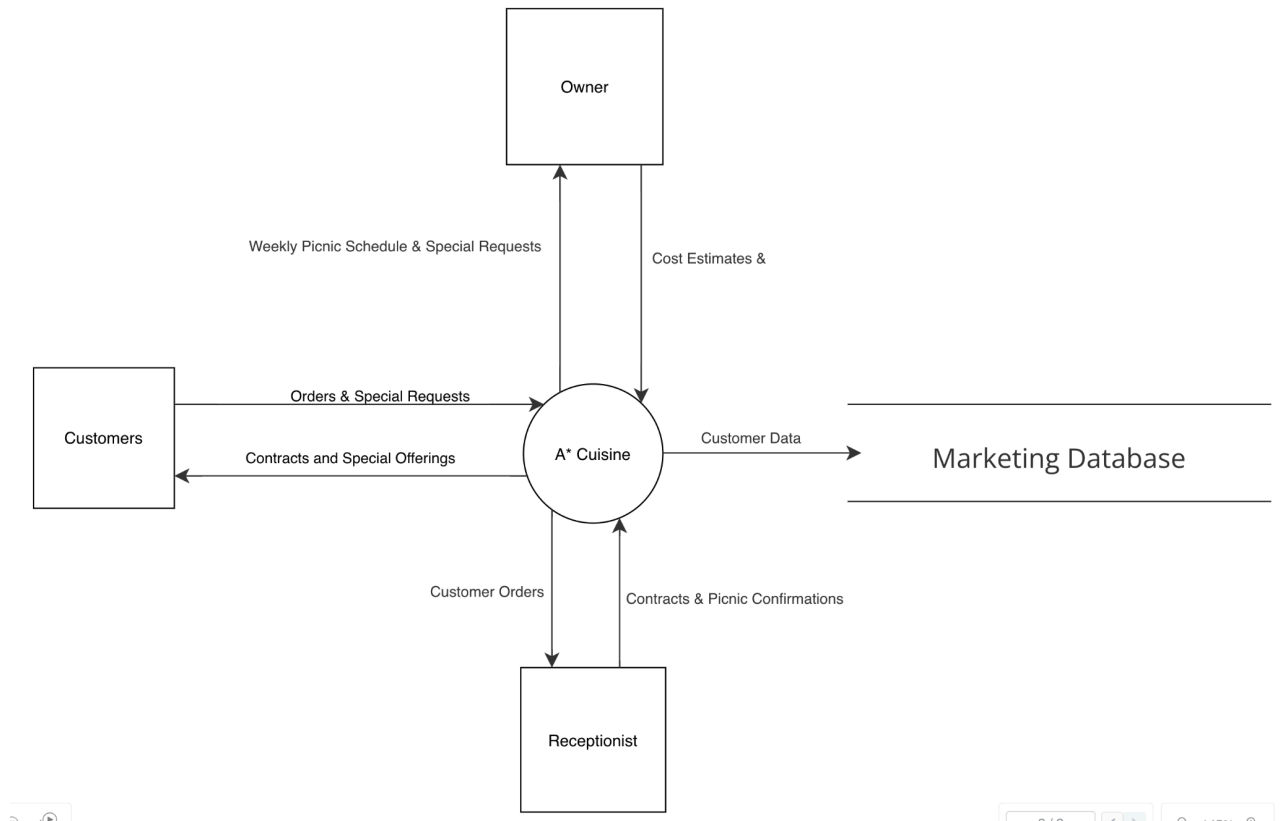


Figure 1.0: Context Diagram for A\* Cuisine System

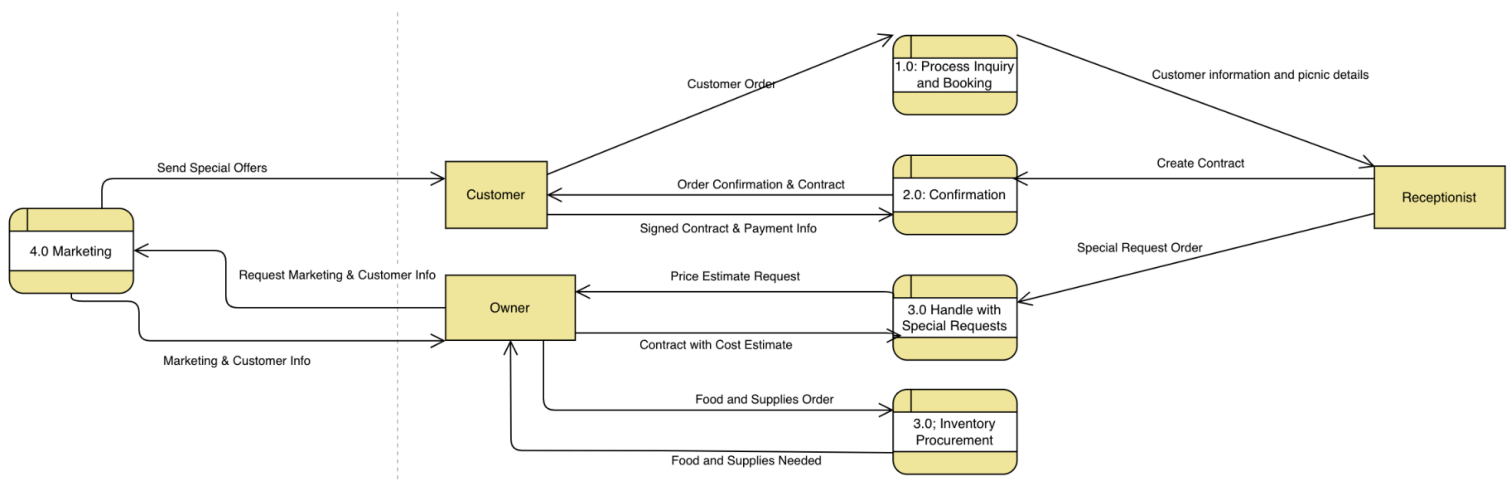


Figure 2.0: DFD Level 0 Diagram for A\* Cuisine System

## 2.0 PART II - ER DIAGRAM:

### Questions:

1. Based on the information provided in the previous scenario *in italic*, what entities will Express Burger need to store information about?
2. For the entities identified in previous part, identify a set of attributes for each entity as well as specify an identifier for each entity.
3. What rules did you apply when selecting the identifier?
4. Draw the entity relation diagram and be sure to specify the cardinalities for each relationship.

1)

Express Burger needs to store information about:

- Inventory
- Menu Items
- Orders
- Customers
- Bill

2)

Inventory	<ul style="list-style-type: none"><li>• Item Name</li><li>• Item ID (identifier)</li><li>• Quantity in Stock</li><li>• Unit Price</li><li>• Supplier</li></ul>
Menu Items	<ul style="list-style-type: none"><li>• Menu Item Name</li><li>• Menu Item Number (identifier)</li><li>• Description</li><li>• Price</li></ul>
Orders	<ul style="list-style-type: none"><li>• Order ID (identifier)</li><li>• Date/Time</li><li>• Items Ordered</li><li>• Total Amount, Customer ID</li><li>• Payment Status</li></ul>
Customers	<ul style="list-style-type: none"><li>• Customer Name</li><li>• Customer ID (identifier)</li><li>• Contact Information</li><li>• Order History</li><li>• Payment Information.</li></ul>

Bill	<ul style="list-style-type: none"> <li>• Date/Time</li> <li>• Bill ID (identifier)</li> <li>• Customer ID</li> <li>• Order ID</li> <li>• Total Amount</li> <li>• Payment Method</li> <li>• Payment Status</li> </ul>
Express Mighty Meal	<ul style="list-style-type: none"> <li>• Meal ID (identifier)</li> <li>• Main Menu Item IDs</li> <li>• Side Item IDs</li> <li>• Serving Size</li> <li>• Price</li> </ul>

3)

When choosing the identifier for the entities, I mainly looked for uniqueness, and simplicity. Uniqueness makes it so that each entity can be easily differentiated from each other. In my ER diagram, I assign unique new ID values (which can be constrained with SQL database) which allows for uniqueness. I also looked for simplicity, which basically means that identifiers are simple to reference. A simple ID number is easy to reference as compared to having any other attribute.

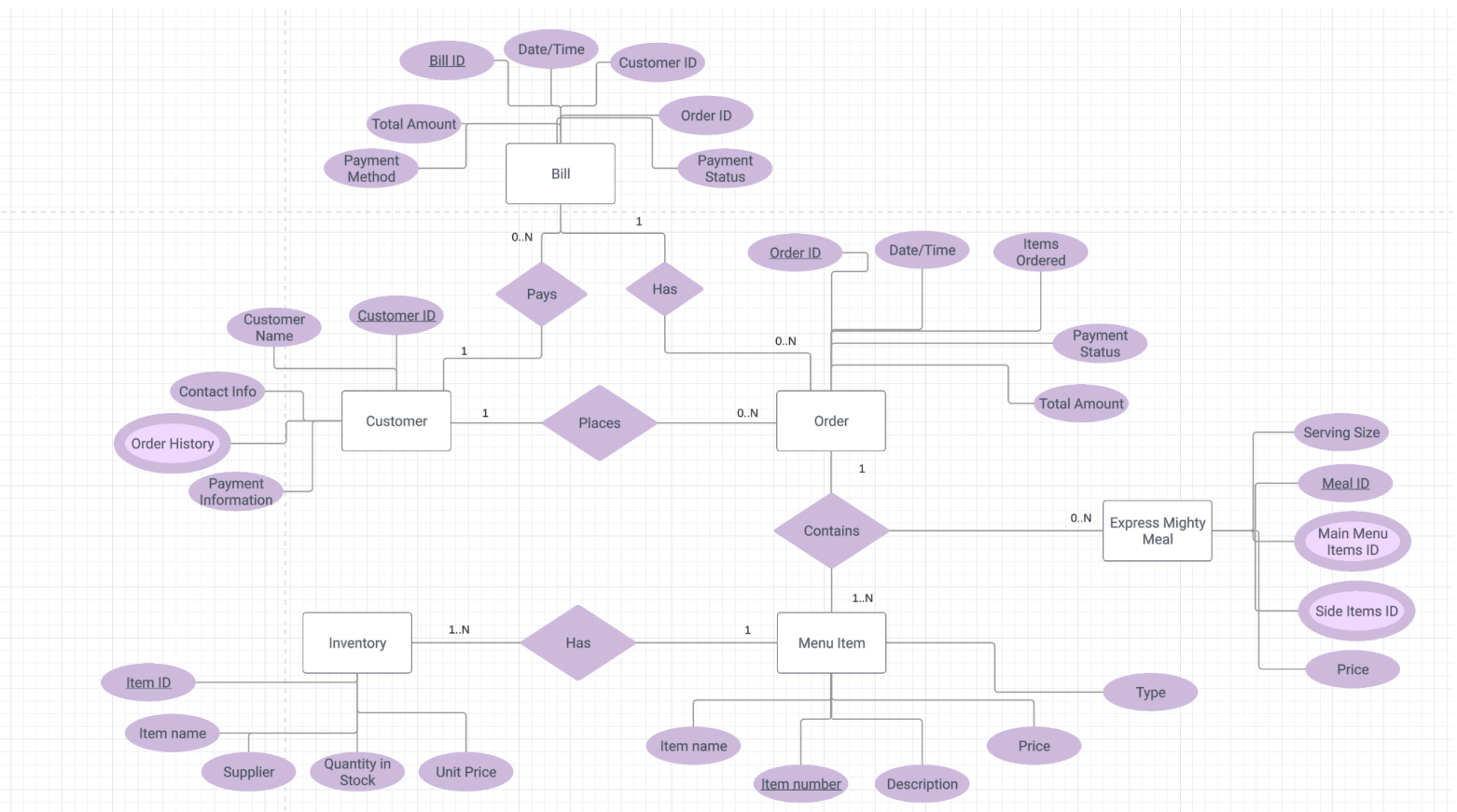


Figure 3.0: ER diagram

## 2.0 PART II - STATE DIAGRAM:

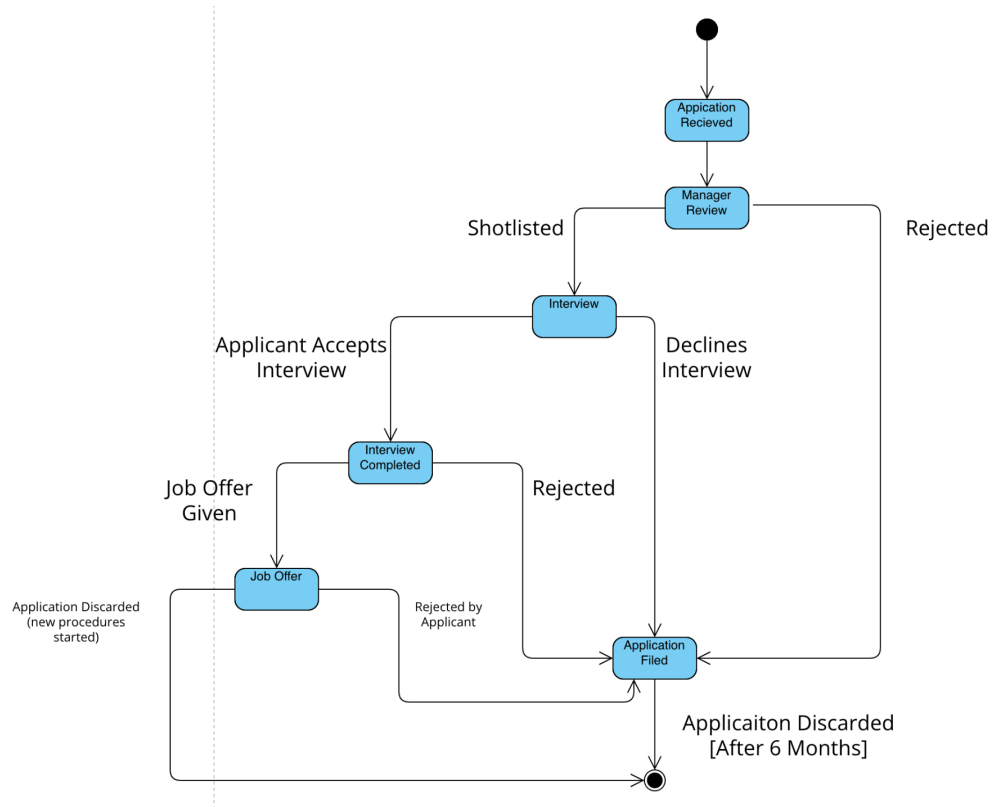


Figure 4.0: State diagram