**Question 5:**

Secure the data via authorization – Pick the biggest OLTP system above and create a role/access matrix populated with the key object privileges (i.e. CRUD) at a table level for a minimum of three industry-relevant roles.

**Answer:**

**OLTP System Selected**: Customer Relationship Management (CRM)

**Key Objects:**

1. customers
2. card\_payment\_details
3. complaints

**Roles:**

1. Customer
2. Staff/Employee at the store
3. Database Admin

**CRUD Operations:**

1. Select(S)
2. Insert(I)
3. Update(U)
4. Delete(D)

**Role based access matrix:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | customers | card\_payments\_details | complaints |
| Customer | S/I/U | S/I/U | S/I/U |
| Staff | S | S | S/U |
| Admin | S/I/U/D | S/I/U/D | S/I/U/D |

**Explanation:**

1. The three main entities of CRM are:
2. customers table – Details of the customer
3. card\_payments\_details – Card details of the customer
4. complaints – details about the complaints raised for different orders
5. Customer has the right to edit details in all three tables since he its is personal details. He can add, modify and view them whenever needed.
6. The Staff at the store can just view the details. They won’t have the right to edit those as they are related to the Customer. They can update the complaints table with the most recent update about the complaint raised.
7. The Admin has an all access and can perform CRUD operations on all three entities. This is done because when there are any technical difficulties and the customer himself is not able to update them, the admin should be able to provide the necessary assistance.