

## **Billing and Customer Service - Logic**

**Name – Shruti Renuse**

### **1. Customer Management-**

- Take input details of a customer such as – customer id, name, phone number, email, planid and status and add a customer.
- Include a function to update the customer details – there could be single or multiple updates for a specific customer, so consider both cases.
- If a customer no longer wants to continue, remove the customer from the database.
- View and display all the necessary customer details.

The Edge Cases to be considered-

- Duplicate Customer ID- Check if a customer ID already exists to prevent adding duplicate IDs so there would be unique entries for the customers.
- Input format – Ensure all the input fields are in a proper format and no field is left empty.
- Linked bills- Check if a customer has any payment due before deleting the details. Delete only if there are no unpaid bills.

### **2. Plan Management-**

- Add new plan details as per customer's requirement (Prepaid, Postpaid, Corporate).
- Update the plan details if necessary.
- Delete the plan details if a customer no longer wants to continue.
- Display the plan details and history with customer details if needed.

The Edge Cases to be considered-

- Assigning a plan- Validate the plan ID before assigning it to a customer to make sure that the customer has not been assigned a plan that doesn't exist.
- Deleting a plan- Make sure the customer no longer uses the plan before deleting it.

### **3. Usage Tracking-**

- Record mobile data and calls usage for a customer every single month.
- Display the usage records for a customer as needed.

The Edge Cases to be considered-

- Multiple Usage Entries- Prevent duplicate usage records for the same customer and month. Check if the usage for that specific month already exists.
- Non – Existent Customer- Validate customer ID before adding the usage to prevent adding usage for a customer that doesn't exist.

#### **4. Billing Module**

- Generate a bill based on the plan, usage, including taxes and extra charges for exceeding limits.
- Display the bill details for a customer.

The Edge Cases to be considered-

- Bill for Aactive Customers- Check customer status before generating the bill to prevent bill generation for inactive or de-activated customers.
- Duplicate bills- Check if the bill already exists for that period to prevent generating multiple bills for the same customer and month.
- Usage Exceeds Plan Limits- Check if the usage matches the plan limit else add extra charges for exceeding limits.
- Pre-paid Customers- They must pay in advance before using services. If the payment for the month is not received, then block usage and bill generation. Usage cannot exceed plan limit if that happens, then they shall be blocked until recharge. If usage exceeds the limits, then the customer has to pay the top-ups.
- Post-paid Customers- Usage can exceed plan limits and extra charges should be calculated here and shall be added to the monthly bill. If there's a delay in the payment, then a penalty shall be added to the bill.

#### **5. Payment Mode**

- Notify customers about the due payment and update the bill status when payment is received.
- Add penalties for the customers if applicable.

The Edge Cases to be considered-

- Overpayment /Underpayment - Before accepting payment, compare the entered amount with the bill amount to avoid overpayment or underpayment.
- Payment for Non-Existent Bill - When a payment is initiated, check if the bill details exist in the system to see if it exists and if it doesn't exist, then display an error.
- Penalties for Late Payment- Make sure the total amount is the bill amount as per plan and the late payments penalties.
- Payment Confirmation – The customers shall be notified via email/ SMS after a successful payment.

## **6. Service Control**

- Temporarily suspend the service for non-payment. Restore the service if payment is made to re-activate the customer's plan.
- Permanently remove the customer if de-activation of the customer is needed.

The Edge Cases to be considered-

- Reactivation- Check status before re-activation to prevent activating an already active plan.
- Deactivation- Check there are no payment dues before account de-activation. And then update the status once it is deactivated.