Criterion-B

__Design Overview__

Table of Contents
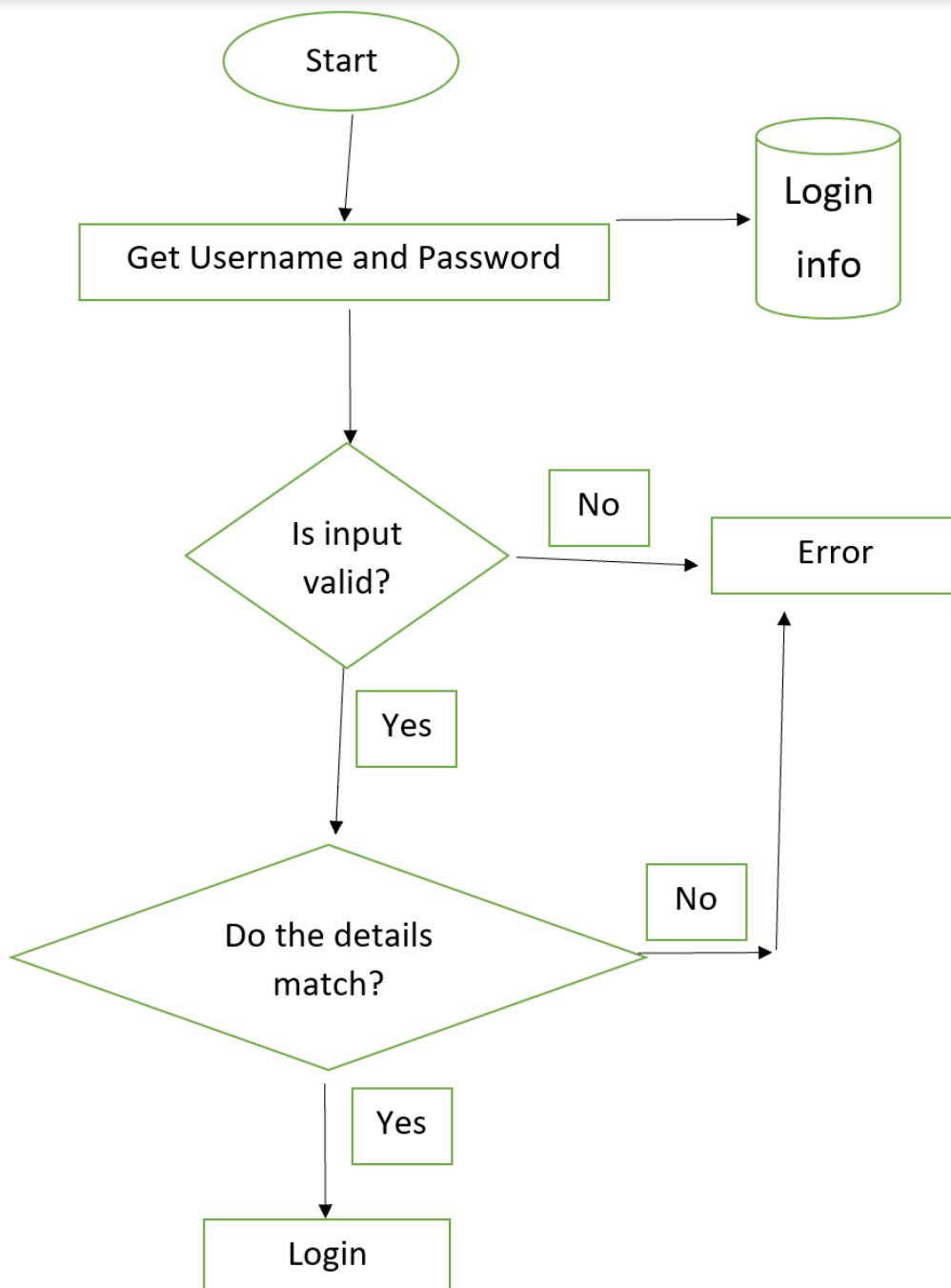
Modular Diagram

```
                          ┌──────────────┐
                          │    Login     │
                          └──────┬───────┘
                                 │
                          ┌──────┴───────┐
                          │    Home      │
                          └──────┬───────┘
                                 │
     ┌───────────┬───────────────┼───────────────┬───────────────┐
┌────┴───┐  ┌────┴────┐    ┌──────┴───┐    ┌──────┴────┐    ┌──────┴──┐
│ Order  │  │ Product │    │ Category │    │ Customer  │    │  User   │
└────────┘  └─────────┘    └──────────┘    └───────────┘    └─────────┘
```

Order

Customer ID

Order ID

Order Date

Category

Product Table

Customer Table

Insert Order

Show all Orders

Remove Product

Clear

Total

Product

Search

Refresh

Add product

Delete Product

Edit Product

Product Table:

- ID
- Name
- Price
- Quantity
- Image
- Category

Category

Next Category

Previous Category

Add category

Delete Category

Update Category

Show Products of a Category

Category Table:

- ID
- Name

Customer

Insert Order

Edit Order

Remove Order

Clear

Total Amount

Order Count

Last Order Date

Customer Table:

- ID
- First Name
- Last Name
- Tel
- Email

User

Insert User

Edit User

Remove User

Clear

User Table:

- ID
- Username
- Password
- Full Name
- Tel
- Email

Login Module

Attribute	Data Type
Username	String
Password	String

Validations for the login Module

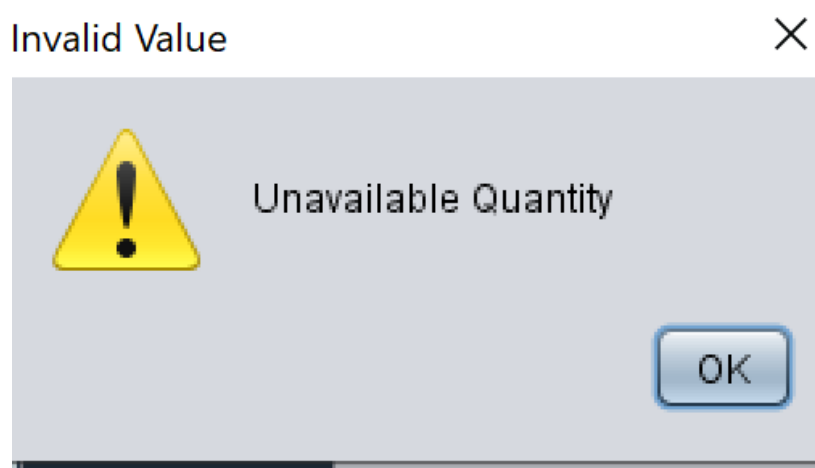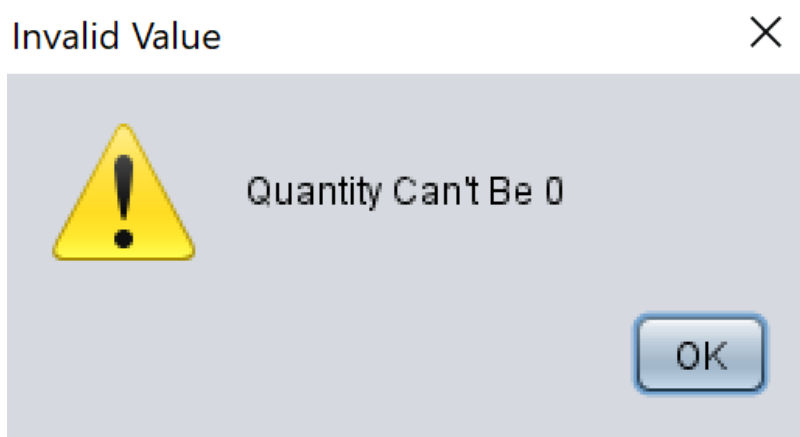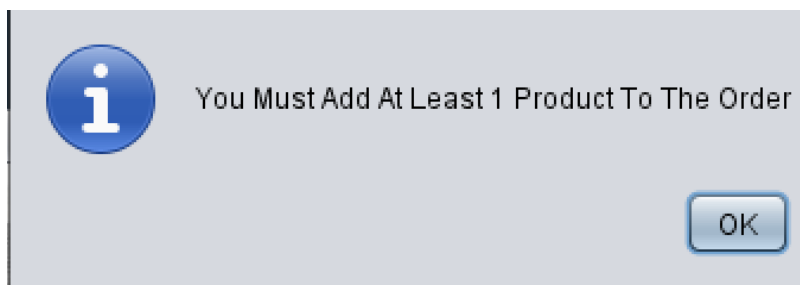| Attribute	Type	Validation	Error	Example
Username	string	No empty Field	Invalid format	Normal-abc Error-*empty*
Password	string	No empty Field	Invalid format	Normal-abc Error-*empty*

Order Module

Attribute	Data Type
Customer ID	String
Order ID	String
Order Date	Date
Category	String
Order Quantity	String
Product	String
Total	Double

Insert Order

```
                    ( Start )
                        |
                        v
              +-------------------+
              | Choose Customer   |
              +-------------------+
                        |
                        v
              +-------------------+
              | Choose Category   |
              | and product       |
              +-------------------+
                        |
                        v
              /-------------------/
             /  Enter Quantity   /
            /-------------------/
                        |
                        v
   No                                  Yes
+------+       <  Is input valid  >        +-----------+
| Null | <---                         --->| Add to    |
+------+                                   | database  |
                                          +-----------+
```

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Errors

No Customer Selected   ✕

Select A Customer To Add The Order

OK

You Must Add At Least 1 Product To The Order

OK

Invalid Value   ✕

Quantity Can't Be 0

OK

Invalid Value   ✕

Unavailable Quantity

OK

Remove Product

```
                    ┌─────────────┐
                    │    Start    │
                    └──────┬──────┘
                           │
                  ┌────────▼────────┐
                  │ Choose Product  │
                  └────────┬────────┘
                           │
                  ┌────────▼────────┐
                  │     Remove      │
                  └────────┬────────┘
                           │
        ┌─────┐     ┌──────▼──────┐     ┌─────┐   ┌──────────┐
 ┌─────┐│ No  │     │  Is Product │     │ Yes │   │  Update  │
 │Error│◄────────── │   Chosen?   │ ──────────►  │ database │
 └─────┘└─────┘     └─────────────┘     └─────┘   └──────────┘
```
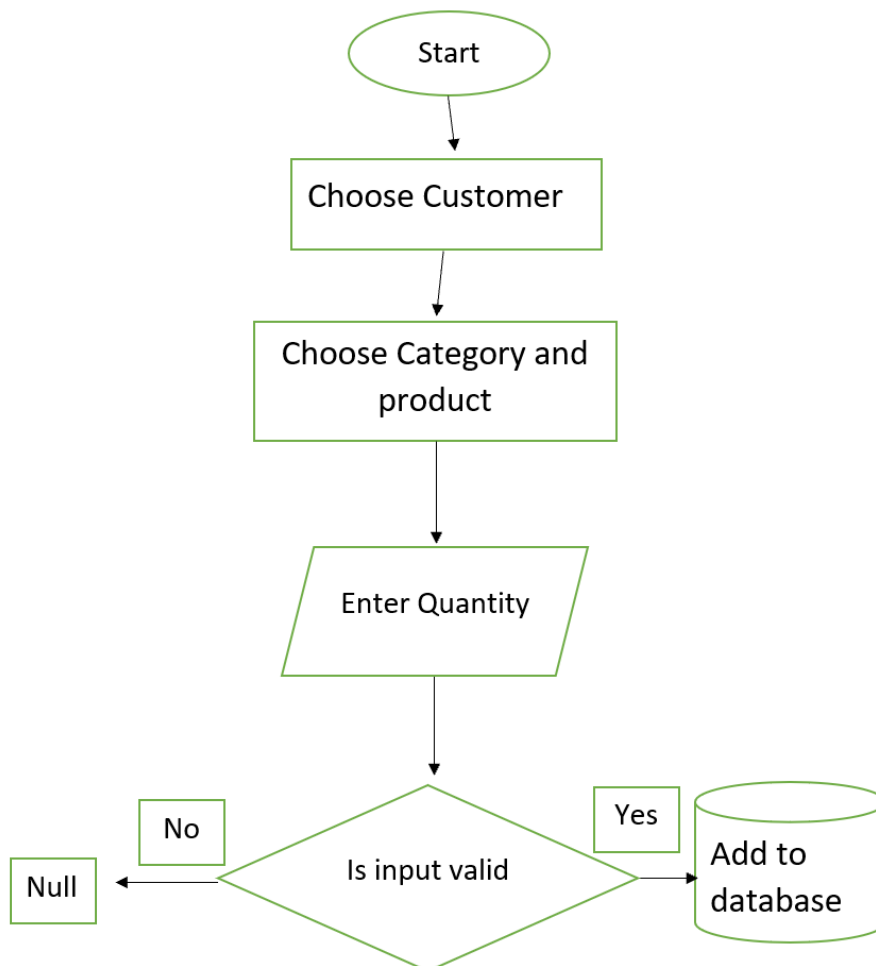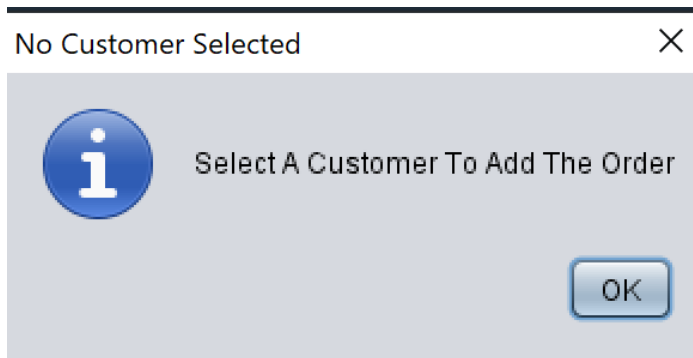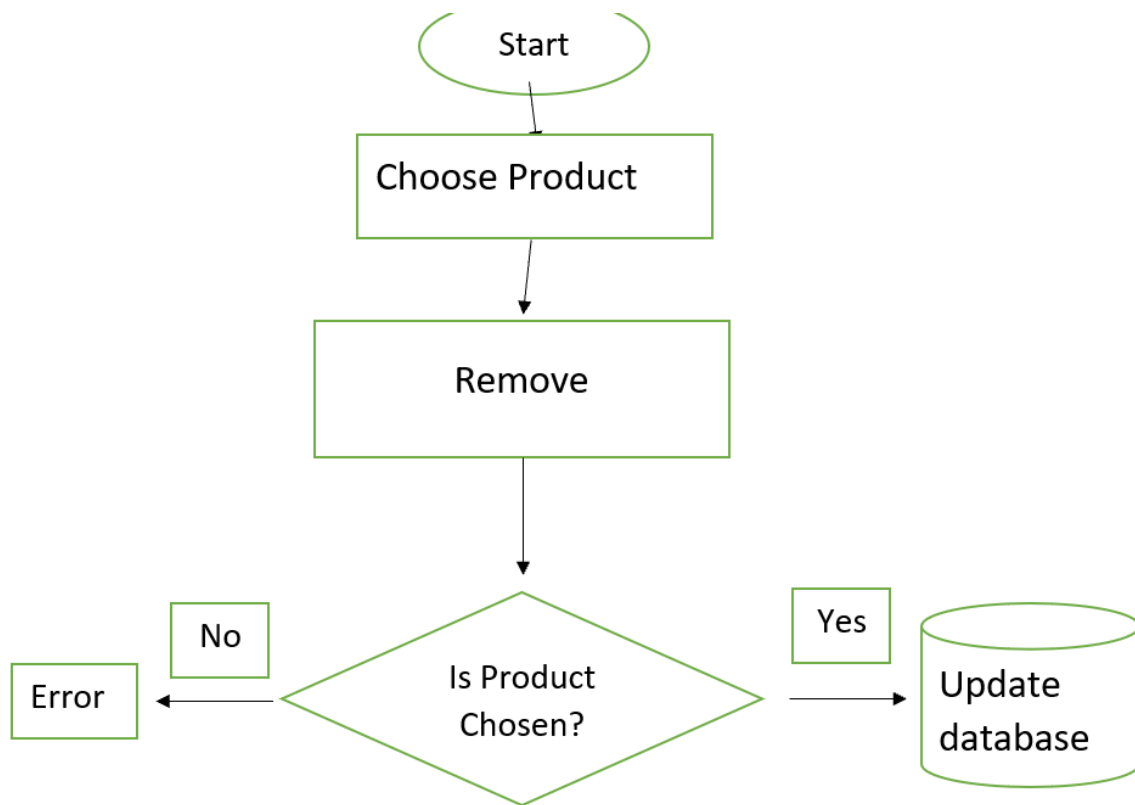
Validations for the Order Module

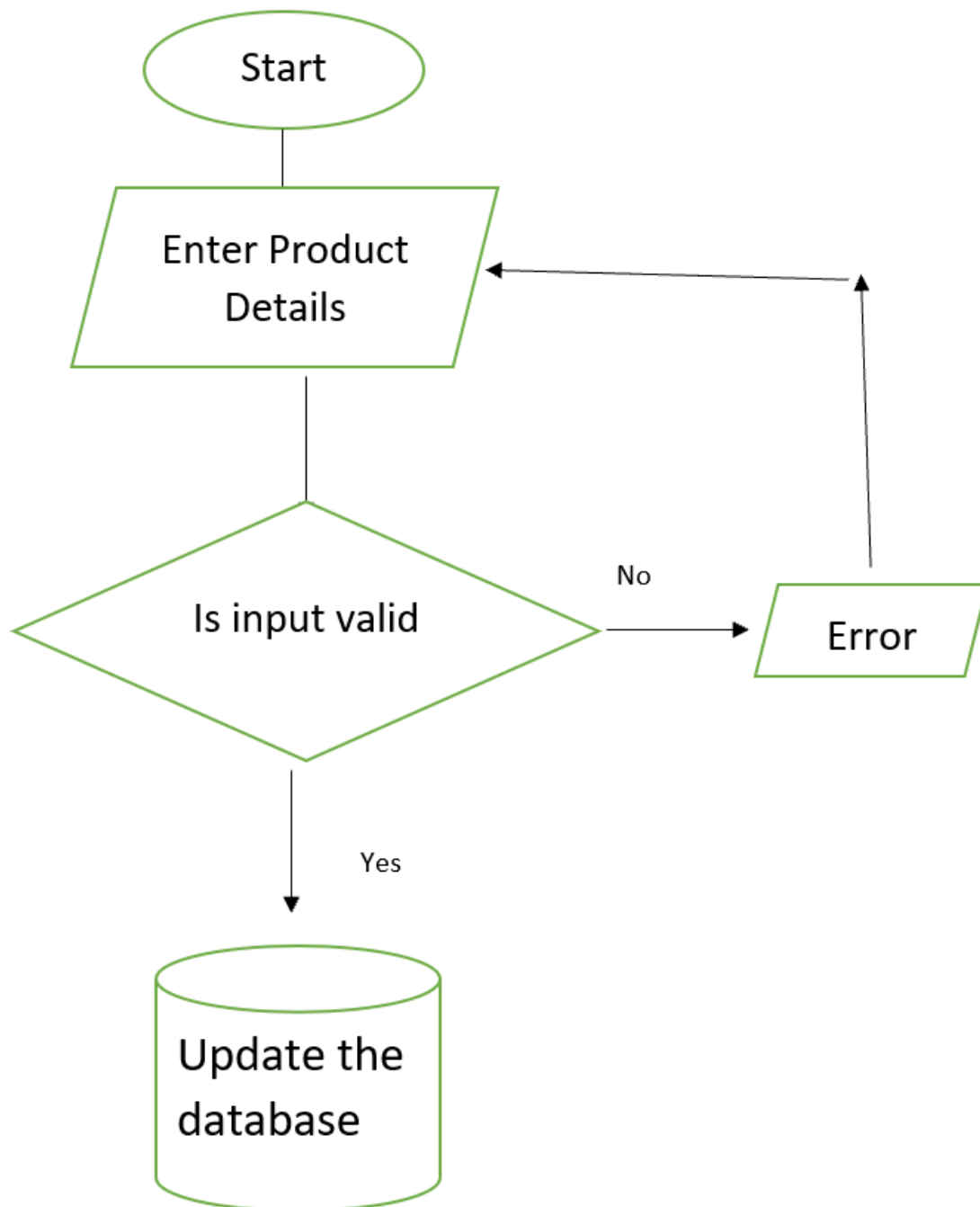| Field	Type	Validation	Error
Order ID	String	Presence check Type check	"Invalid format" "You cannot leave this field empty"
Customer ID	String	Presence check Type check	"Invalid format" "You cannot leave this field empty"
Product	String	Presence check Type check	"Invalid format" "You cannot leave this field empty"
Order Quantity	String	Presence check Type check	"Invalid format" "You cannot leave this field empty"

Product Module

Attribute	Data Type
Product Name	String
Product ID	String
Quantity of product	Integer
Price of product	Integer
Image	BLOB
Description	String
Product Category	String

Add Product

```
                        ┌─────────┐
                        │  Start  │
                        └─────────┘
                             │
                             ▼
                   ┌───────────────────┐
                   │  Select category  │
                   └───────────────────┘
                             │
                             ▼
                    ╱─────────────────╲
                   ╱   Enter Product    ╲
                  ╱      Details         ╲
                  ╲                      ╱
                   ╲────────────────────╱
                             │
                             ▼
                      ╱─────────────╲
                     ╱     ADD        ╲
                     ╲────────────────╱
                             │
                             ▼
```

Error :

You must select a picture, invalid values,

Empty fields,

no ◄─── **Is input valid** ───► Yes ───► Add to database

```
         ┌─────────┐
         │  Start  │
         └─────────┘
              │
    ┌──────────────────┐
    │  Enter Product   │ ◄─────────────────┐
    │    Details       │                   │
    └──────────────────┘                   │
              │                            │
              │                            │
          ╱───────╲                        │
         ╱ Is input ╲      No              │
        ◄  valid     ►──────────►  Error ──┘
         ╲         ╱
          ╲───────╱
              │
              │ Yes
              ▼
      ┌──────────────┐
      │  Update the  │
      │  database    │
      └──────────────┘
```

Delete Product

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```
                          ┌─────────────┐
                          │    Start    │
                          └─────────────┘
                                 │
                  ┌──────────────────────────┐
                  │      Enter Product       │ ◄──────────┐
                  │        Details           │            │
                  └──────────────────────────┘            │
                                 │                  ┌──────────────┐
                                 │                  │    Error     │
                            ◇ Is input valid ◇      └──────────────┘
                                 │        no │             │
                                 │           └─────────────┘
                                 │ Yes
                          ┌─────────────┐
                          │  Delete the │
                          │ Product from│
                          │ the database│
                          └─────────────┘
```

Start

Enter Product Details

Is input valid

Error

no

Yes

Delete the Product from the database

Validations for the Product Module

Attribute	Data type	Validation	Error
Product Name	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Product ID	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Quantity of product	Integer	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Price of product	Integer	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Image	BLOB	Type Check	"Invalid format"
Description	String	Type Check	"Invalid format"
Product Category	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
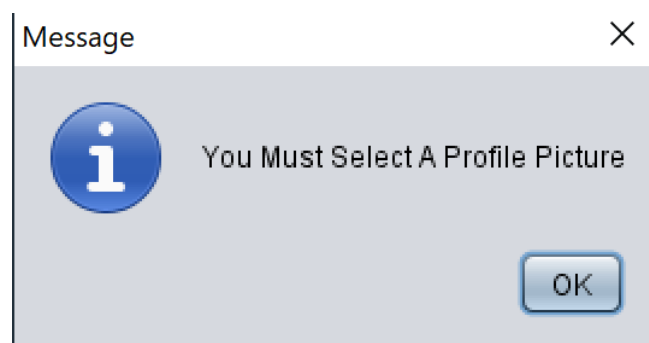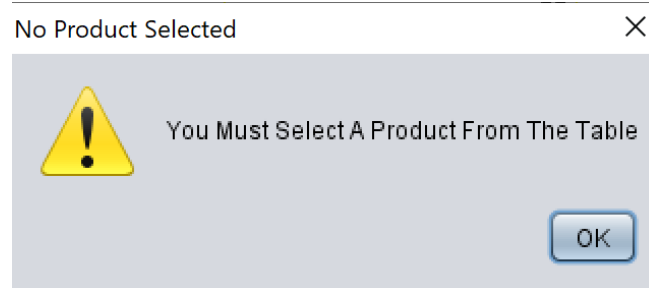
Errors

Category Module

Attribute	Data Type
Category Name	String
Category ID	String

Add Category
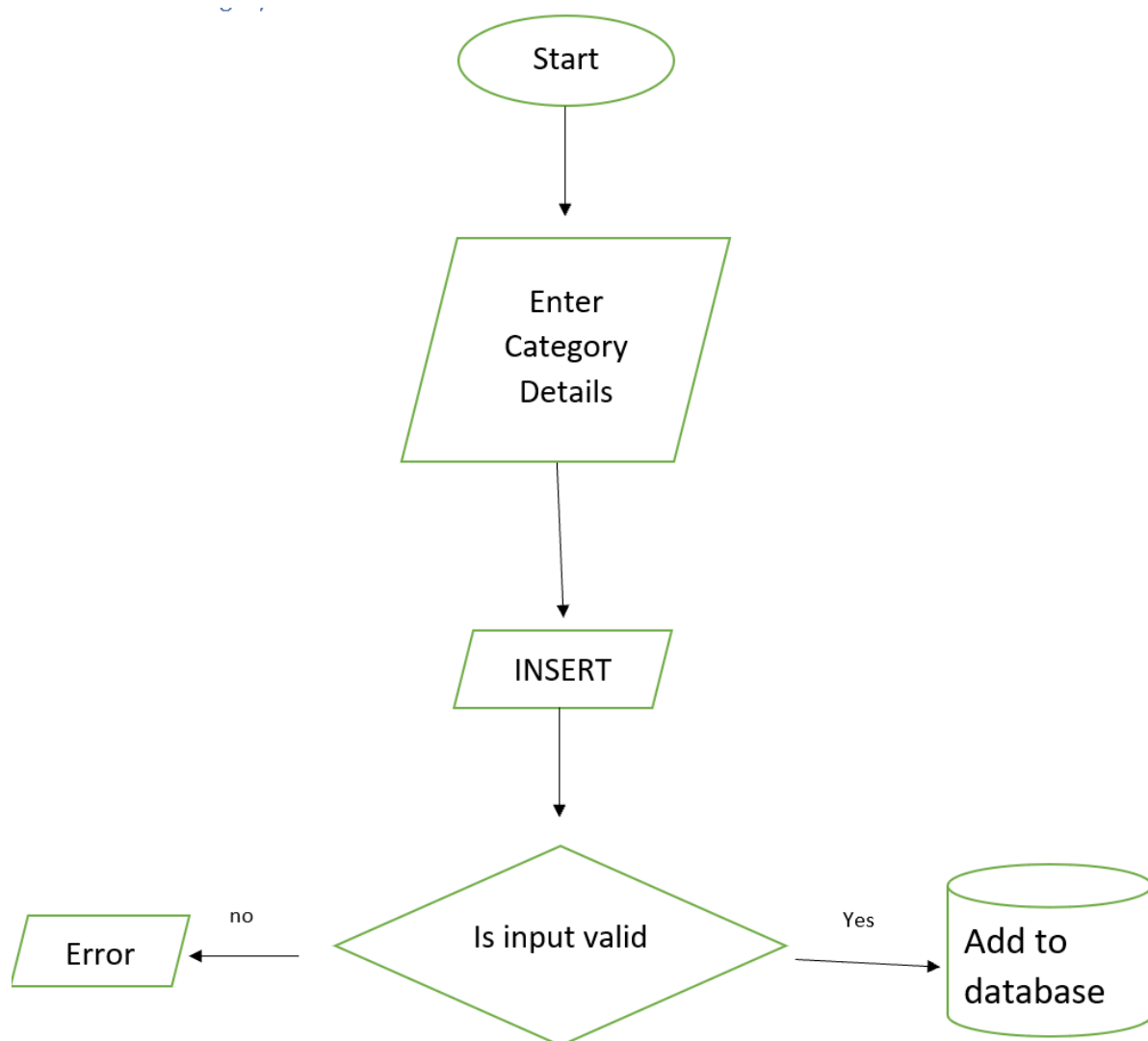
Edit Category
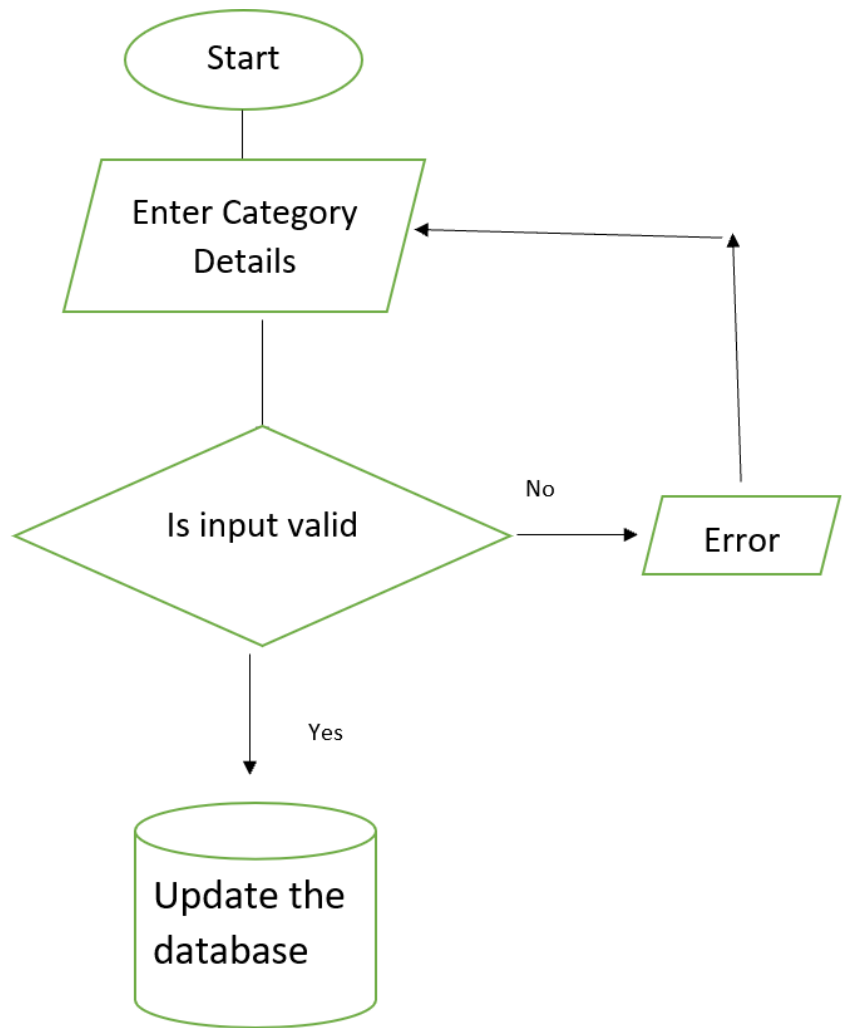
Delete Category
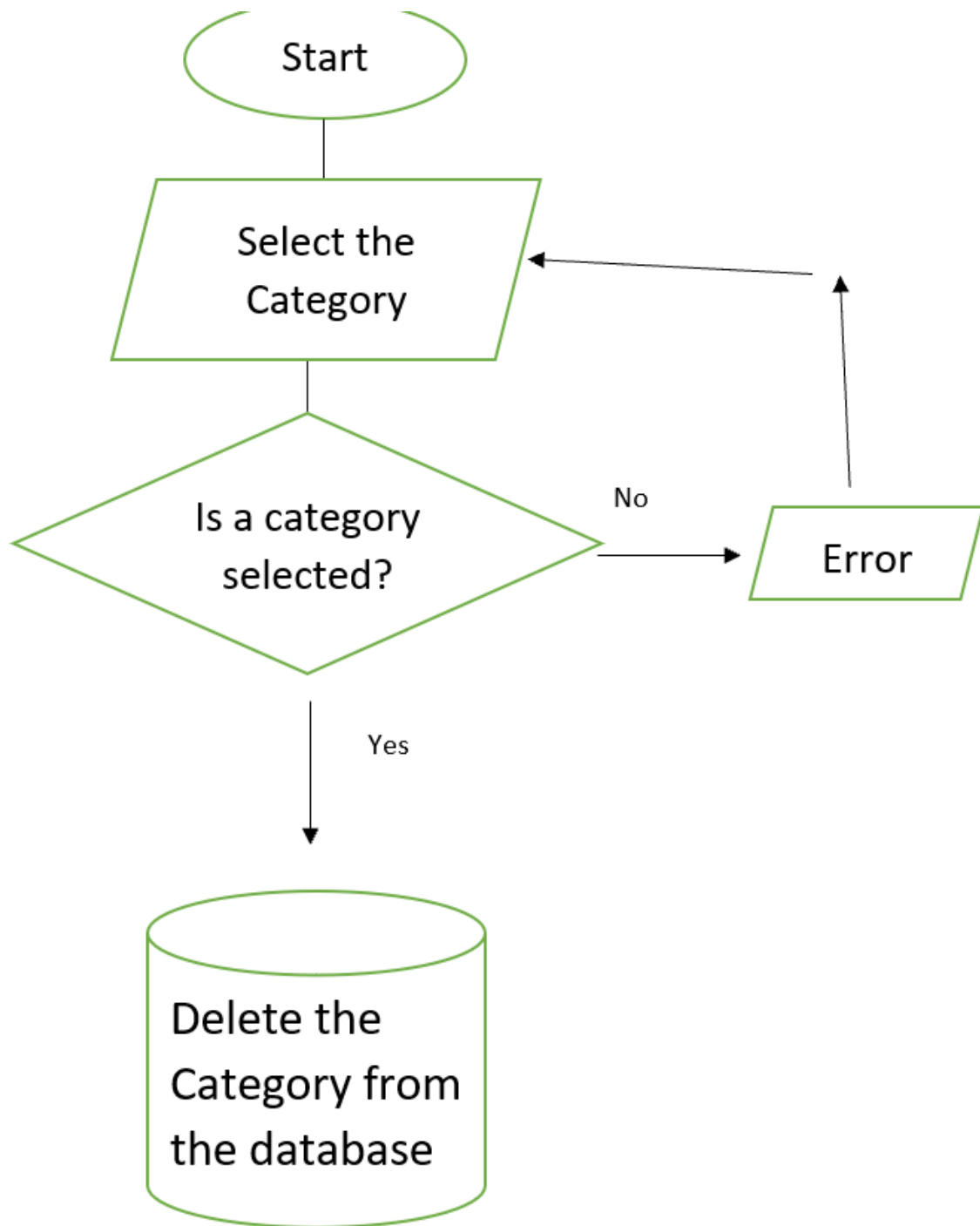
Validations for the Category Module

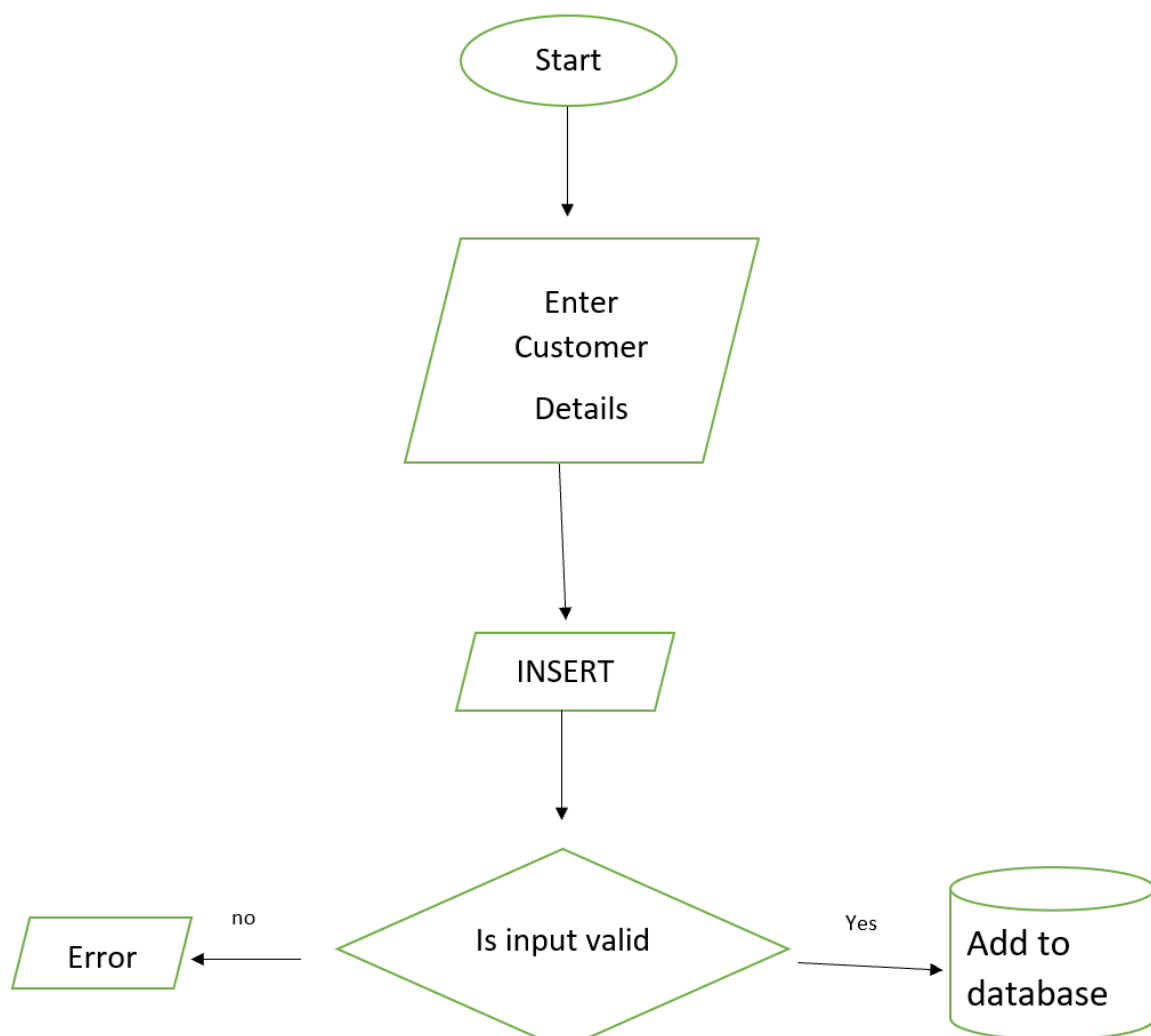| Attribute	Data type	Validation	Error

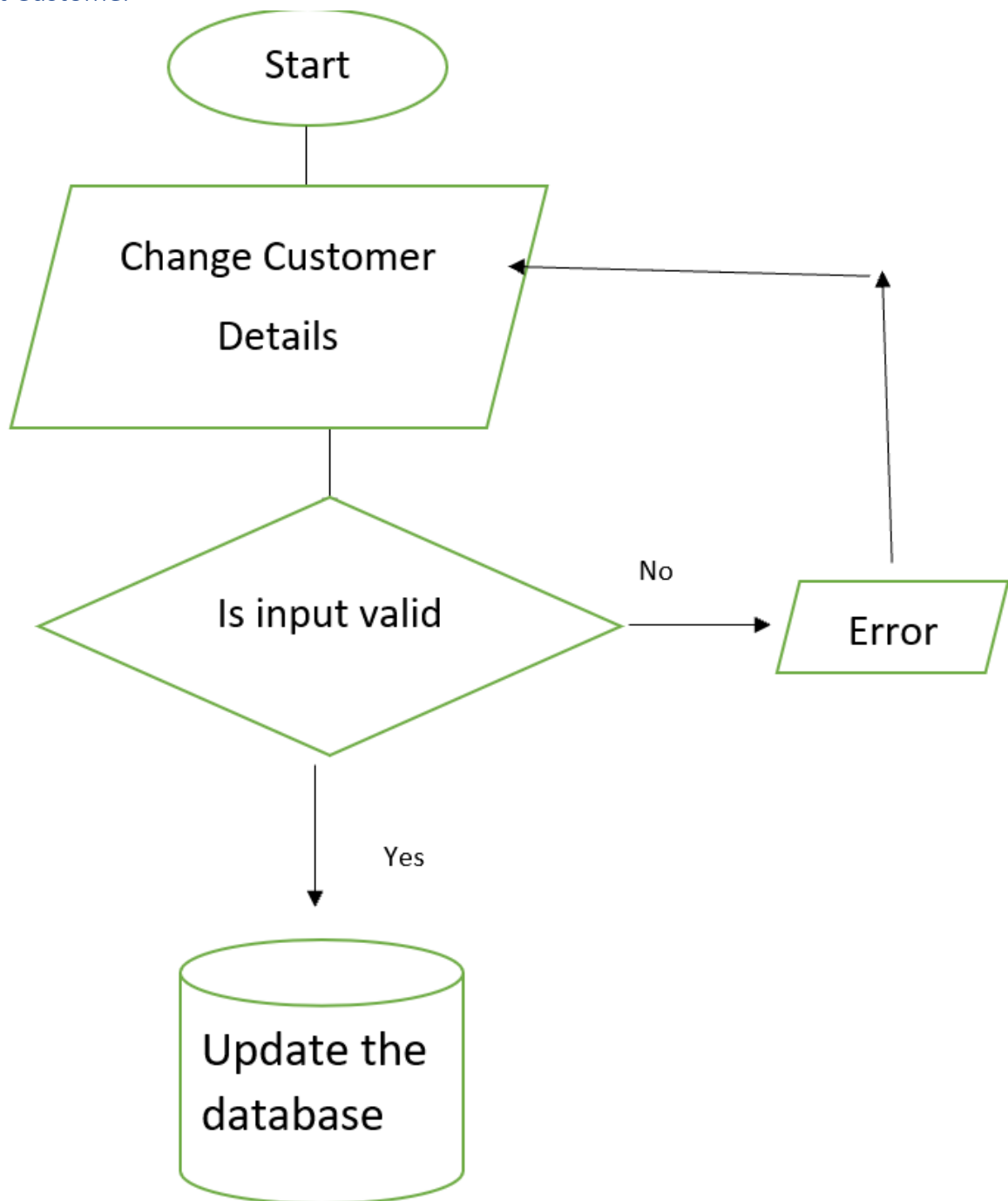| Category Name	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Category ID	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"

Customers Module

Attribute	Data Type
Customer ID	String
First Name	String
Last Name	String
Tel	String
Email	String
Order Count	Integer
Order Amount	Integer
Last Order Date	Date

Add Customer

```
                    Start

                 Enter
               Customer
                Details

                 INSERT

     no                              Yes
Error  ◄──   Is input valid   ──►   Add to
                                    database
```

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Edit Customer

Start

Change Customer Details

Is input valid

No → Error

Yes

Update the database

Delete Customer

```
                        ┌──────────────┐
                        │    Start     │
                        └──────┬───────┘
                               │
                     ┌─────────┴──────────┐
                    ╱   Select the         ╲
                   ╱    Customer            ╲ ◄──────────────┐
                   ╲                        ╱                │
                    ╲──────────┬───────────╱                │
                               │                            │
                       ◇───────┴────────◇                   │
                      ╱                   ╲                  │
                     ╱   Is a customer     ╲    No    ┌──────┴──────┐
                     ╲    selected?         ╱ ───────► │   Error     ╱
                      ╲                   ╱            └─────────────┘
                       ◇───────┬────────◇
                               │
                              Yes
                               │
                     ┌─────────┴──────────┐
                     │   Delete the        │
                     │   Customer from     │
                     │   the database      │
                     └─────────────────────┘
```

Select the Customer

Is a customer selected?

No

Error

Yes

Delete the Customer from the database

Start

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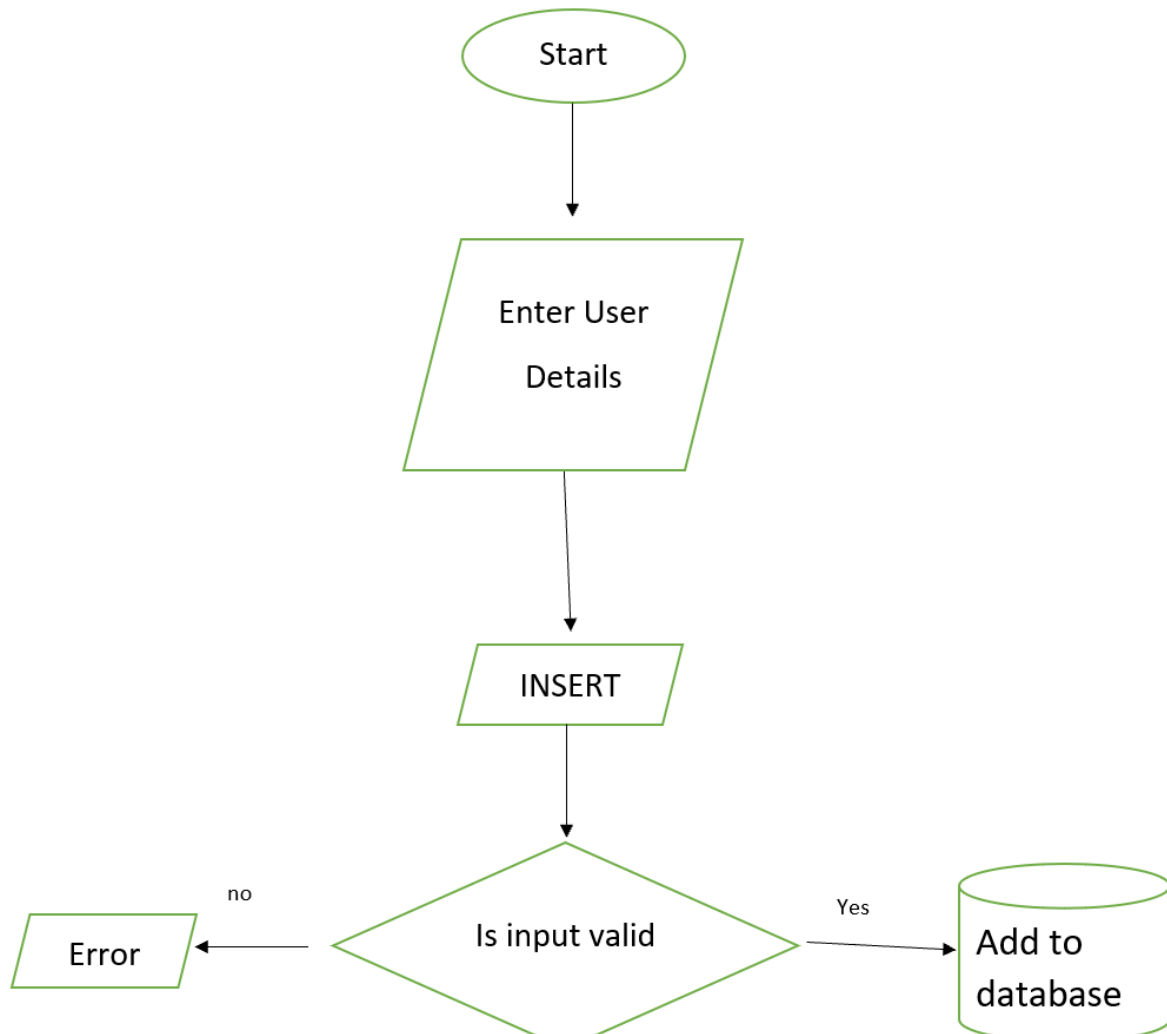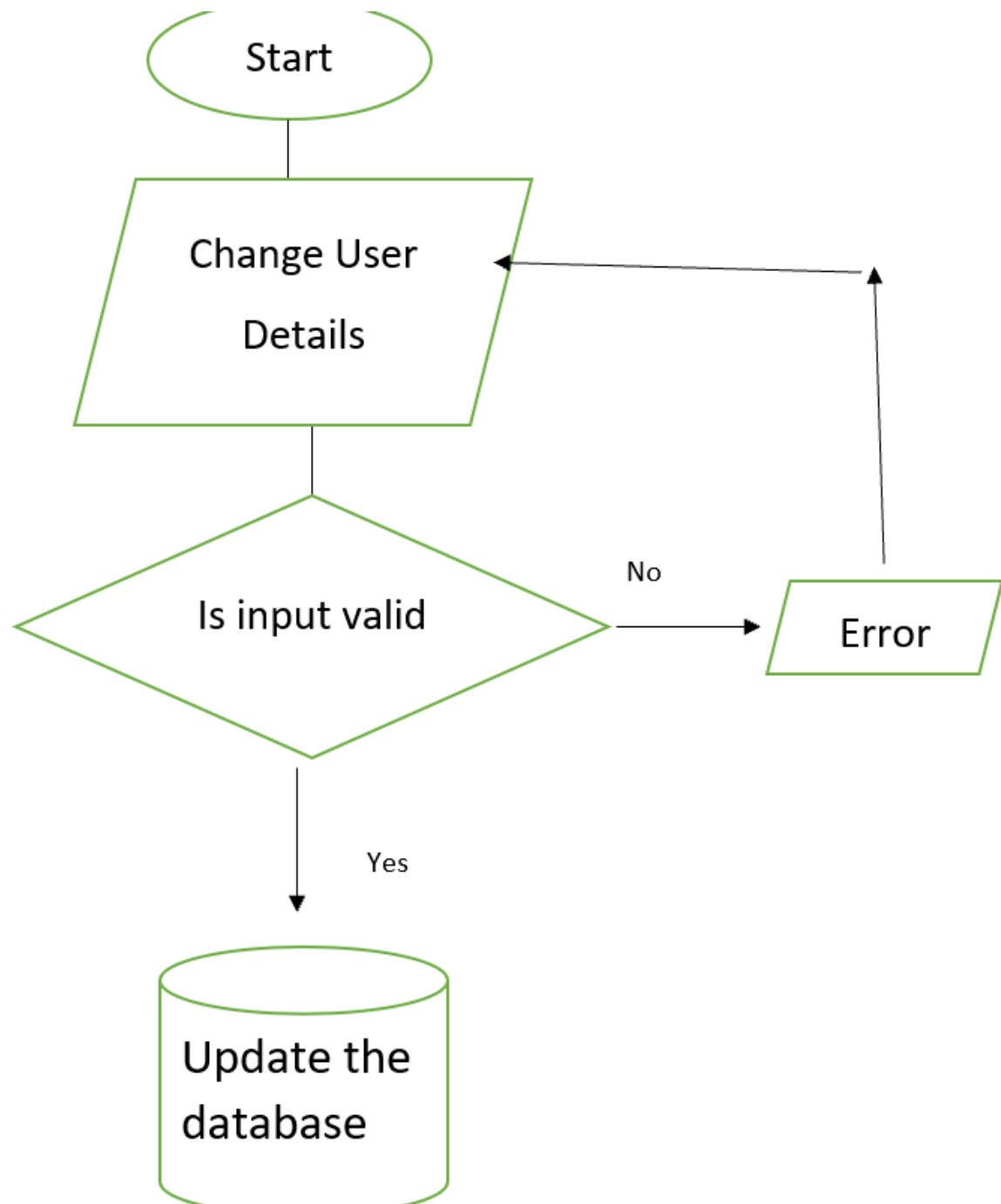| Attribute	Data type	Validation	Error
Customer ID	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
First Name	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Last Name	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Tel	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Email	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
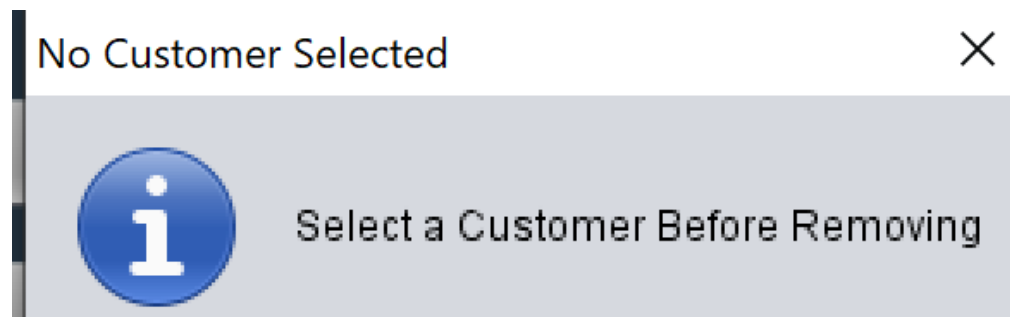
Errors

User Module

Attribute	Data Type
ID	String
Username	String
Password	String
Full Name	String
Tel	String
Email	String

Add User

Start

Enter User
Details

INSERT

no ← Error

Is input valid

Yes → Add to
database

Edit User

Start

Change User Details

Is input valid

No → Error

Yes → Update the database

Delete User

Start

Select the User

Is a User selected?

No

Error

Yes

Delete the User from the database
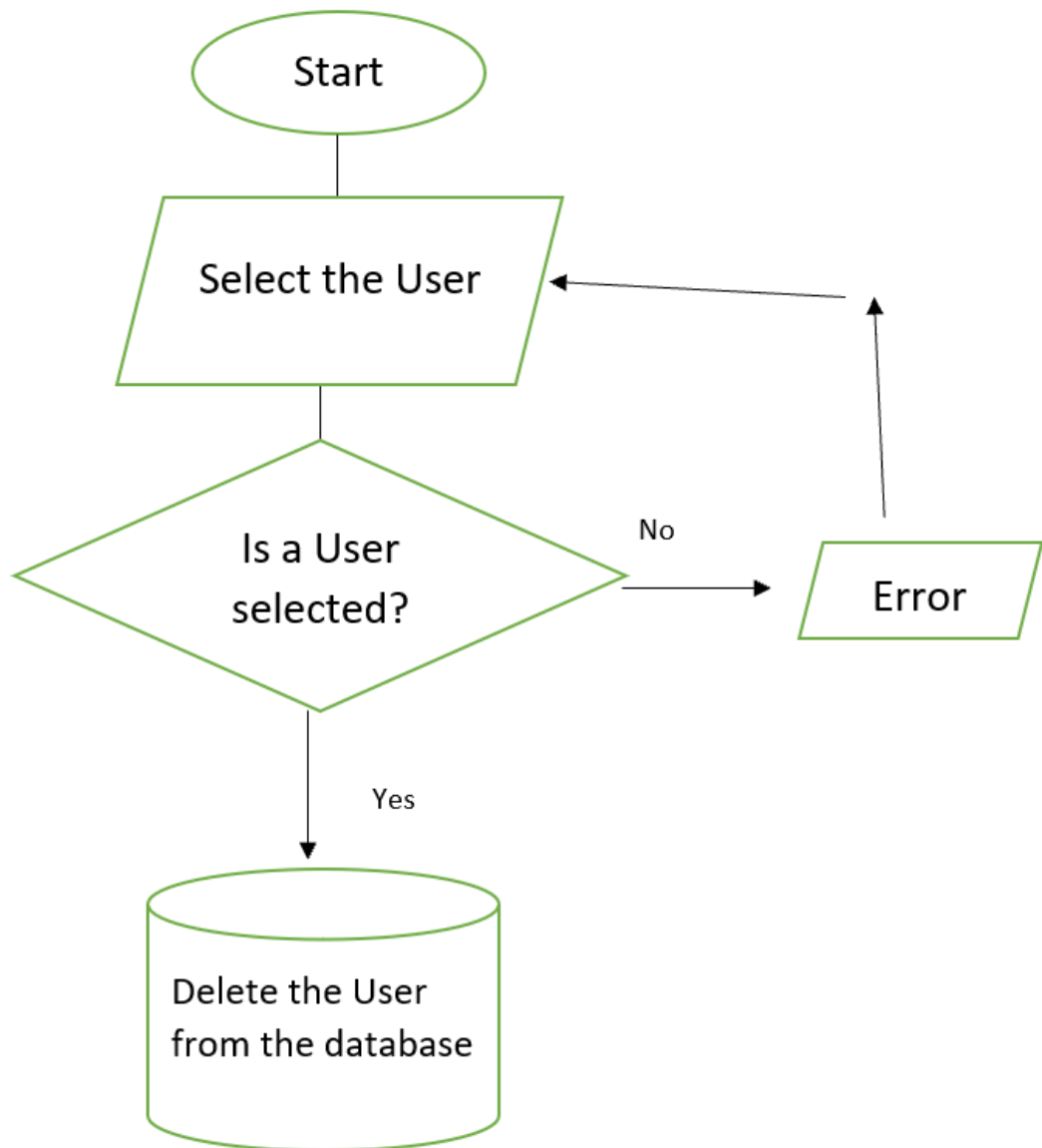
Validations for the Users Module

Attribute	Data type	Validation	Error
ID	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Username	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Password	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Full Name	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Tel	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"
Email	String	Presence check, Type check	"Invalid format" "You cannot leave this field empty"

Errors
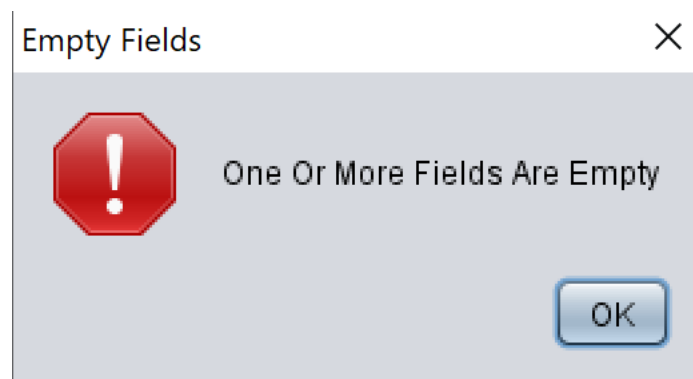
Test Plan

Test Type	Nature of Test
1.All the prices of products are displayed.	Login is displayed correctly
2.Price of a specific product can be searched.	Search button for products
3.Inputs for size, weight and transportation can be given	Inputs using dialogue boxes
4.The product price can be calculated without any error	Product price is calculated using multiplication
5. Final amount is displayed at the end of the bill	It should add gst and transport to the price of product
6.The amount can be displayed according to customers	User can check amount pending according to customer
7. Provide a user-friendly interface that allows the user to use the program easily	Appealing colours and easy GUI
8. It is secure and asks for username and password reducing breaches	Login is displayed correctly
9. It can be updated for any customer detail changes	Customer information can be edited
10. the admin can edit and remove other users	Admin can control other users but not vice-versa
11. the user can sign out or exit the program safely and easily	Sign out option is there and work is saved

Extensibility

I have used simple processes for coding and the program can be further extended as per client's future needs. New columns can be added to tables, print button can be added to print the invoice and user access can be changed easily for different users. The database is designed in a way such that the user can change fields and modify them easily. The product can be modified in almost any way required easily due to the simple method of coding.