

Topic : Online Laundry Service

Group no : MLB\_08.02\_3

Campus : Malabe

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We declare that this is our own work and this Assignment does not incorporate without acknowledgment any material previously submitted by anyone else in SLIIT or any other university/Institute. And we declare that each one of us equally contributed to the completion of this Assignment.

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## Requirements as a Description

Mylaundry.lk is a sophisticated laundry service that is built to provide a seamless experience. Once a customer is registered and logged in, they can view our services, add services to the cart then finally if they want, place an order. But not to worry if they have a change of mind, they can edit the cart before placing an order and they can cancel an order after they place a one. When placing an order customers can pay in a wide variety of payment methods for added ease of access. Customers will receive notification about their order in every step. They can also visit the order page to see order status. If it is not enough, they can inquire us via a contact us form or by mobile or email. Customers will be provided an invoice for every order; these invoices are system generated but our accountants will manually check them before issuing. Regular customers can save money by buying a package. It is much appreciated if customers can provide us feedback so that we can improve our service. However, our staff members will moderate the publicly available feedbacks to avoid spam and feedback misuse.

Staff members, delivery person and accountants are given admin accounts to fulfil their responsibilities. All of them can view and update order status in real time with the admin accounts. However, order cancellation is only done by staff members as they are trained to handle order cancellations. Accountants will use the system data to generate all kind of reports so that we can evaluate system performance and other metrics.

## Requirements as User Stories

- 1. Customers must be able to receive notifications so that they get informed.
- 2. Customers must be able to inquire about the laundry service so that they get informed.
- 3. Customers must be able to register and login to a customer account for the service so that it increases the efficiency of the service.
- 4. Customers must be able to view laundry items.
- 5. Customers must be able to add laundry items to the cart.
- 6. Customers must be able to edit the cart.
- 7. Customers must be able to place orders as it is the main laundry service provided by the system.
- 8. Customers must be able to pay for the orders online so that they are at ease.
- 9. Customers must be able to view order status so that they can stay informed about its situation.
- 10. Customers must be able to cancel orders so that they can avoid needless orders.
- 11. Customers must be provided with invoices for the orders so that they can use them for tax purposes.
- 12. Customers must be able to submit feedback so that the service can improve based on it.
- 13. Customer must be able to buy a package to save money.
- 14. Staff members must be able to log in to a staff account so that they can provide the service.
- 15. Staff members must be able to view order details so that they can provide the service.
- 16. Staff members must be able to update order status so that customers can know order status.
- 17. Staff members must be able to approve order cancellations so that customers are at ease.
- 18. Staff members must be able to view customer feedback & inquiries so that they can improve the business.
- 19. Delivery persons must be able to log in to a staff account so that they can provide the service.

- 20. Delivery persons must be able to view order details so that they can deliver or pick up the laundry.
- 21. Delivery persons must be able to update order status so that customers and staff members know order status.
- 22. Accountants must be able to log in to a staff account so that they can provide the service.
- 23. Accountants must be able to view payment information so that they can create invoices.
- 24. Accountants must be able to generate reports so that the business can speculate finance.

# **Identified Classes**

Laundry Item
Customer
Notification
Cart
Order
Invoice
Feedback
Staff Member
Inquiry
Delivery Person
Accountant
Payment
Report

# **CRC Cards**

Laundry Item		
Responsibilities:	Collaboration:	
<ul> <li>Add new laundry items</li> <li>Display laundry item details</li> <li>Edit laundry item details</li> </ul>		

Customer		
Responsibilities:	Collaboration:	
<ul> <li>Register user details</li> <li>Log in the user</li> <li>Store user details</li> <li>Edit user details</li> </ul>		

Notification Notification		
Responsibilities:	Collaboration:	
<ul><li>Send new notification</li><li>Show description</li></ul>	> Customer	

Cart		
Responsibilities:	Collaboration:	
<ul> <li>Store customer order details</li> <li>Calculate the customer order price</li> <li>Add customer order item</li> <li>Remove customer order item</li> </ul>	<ul> <li>Order</li> <li>Order</li> <li>Order</li> <li>Order</li> </ul>	

Order		
Responsibilities:	Collaboration:	
<ul> <li>Check if laundry item services are offered</li> <li>Place order</li> <li>Order validation</li> <li>Store order details</li> <li>Cancel order</li> </ul>	<ul> <li>Laundry item</li> <li>Customer, Delivery Person</li> <li>Payment</li> </ul>	
	Payment, Staff Member	

Invoice		
Responsibilities:	Collaboration:	
<ul><li>Create a new invoice</li><li>Store invoice details</li></ul>	> Accountant	
Get order details	Order	
Get payment details	Payment	
Get customer details	Customer	

Feedback		
Responsibilities:	Collaboration:	
<ul> <li>Add new feedback</li> <li>Store feedback details</li> <li>Get customer details</li> <li>Add feedback reply</li> </ul>	<ul><li>Customer</li><li>Staff Member</li></ul>	

Staff Member		
Responsibilities:	Collaboration:	
Log in the staff member		

Inquiry		
Responsibilities:	Collaboration:	
<ul> <li>Add new inquiry</li> <li>Store inquiry details</li> <li>Get customer details</li> <li>Add inquiry reply</li> </ul>	<ul><li>Customer</li><li>Staff Member</li></ul>	

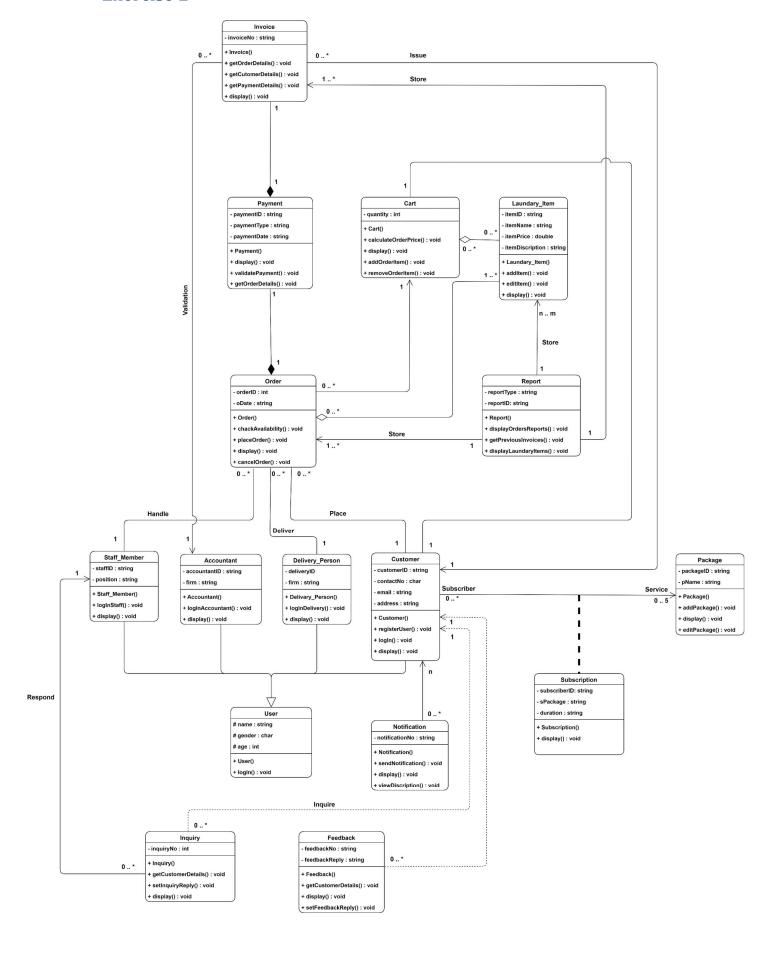
Delivery Person		
Responsibilities:	Collaboration:	
Log in the delivery person		

Accountant		
Responsibilities:	Collaboration:	
➤ Log in the accountant		

Payment		
Responsibilities:	Collaboration:	
<ul> <li>Add new payment</li> <li>Store payment details</li> <li>Validate payment</li> </ul>	> Order	

Report		
Responsibilities:	Collaboration:	
<ul> <li>List of previous orders</li> <li>List of invoices</li> <li>List of laundry items</li> </ul>	<ul><li>Order</li><li>Invoice</li><li>Laundry Item</li></ul>	

## Exercise 2



# Individual Contribution for Exercise 2

#### Maduranga D.B.W.N (IT21170270)-->

- Payment
- Invoice
- Report

#### Sumanasekara P.D.M (IT21167300) -->

- Order
- Cart
- Laundary\_Item

#### I.U.N.Nadeeshan (IT21166556) -->

- Staff\_Memeber
- Accountant
- User
- Delivery\_Person

#### M.G.T Rashmika (IT21167546) -->

- Feedback
- Notification
- Inquiry

#### Gamlathge G.G.A.U (IT21173868) -->

- Package
- Subscription
- Customer

# Exercise 3

```
#include <iostream>
#include <string>
#define MAX_REPORT_INVOICE_QUANTITY 10
#define MAX_REPORT_ORDER_QUANTITY 10
#define MAX_ORDER_ITEM_SIZE 10
#define MAX_CART_ITEM_SIZE 10
using namespace std;
/* -----*/
/*----*/
class User{
     protected:
          string name;
          string gender;
          int age;
     public:
          virtual void login() = 0;
          void display();
};
/*----*/
```

```
class Staff_Member : public User{
       private:
             string staffID;
             string position;
       public:
             Staff_Member();
             Staff_Member(string ID, string posi, string n, string g, int a);
             void login();
             void display();
};
/*----*/
class Accountant : public User{
       private:
             string accountantID;
             string firm;
       public:
             Accountant();
             Accountant(string Aid, string frm, string n, string g, int a);
             void login();
             void display();
};
/*----*/ Delivery_Person class Definition IT21166556 -----*/
```

```
class Delivery_Person : public User{
       private:
              string deliveryID;
              string firm;
       public:
              Delivery_Person();
              Delivery_Person(string Did, string frm, string n, string g, int a);
              void login();
              void display();
};
/*----*/
class Package {
private:
              string packageID;
              string pName;
public:
              Package();
              Package(string pID, string name);
              void addpackage();
              void editPackage();
              void display();
```

```
};
/*-----*/
class Customer {
private:
          string customerID;
          int contactNo;
          string email;
          string address;
public:
          Customer();
          Customer(string CID,int CNO,string mail,string Caddress);
          void regiterUser();
          void login();
          void editUser();
          void display();
};
/*----*/
class Subscription {
private:
```

```
string subscriberID;
              string sPacakge;
              string duraiton;
              Customer *customer;
              Package *package;
public:
              Subscription();
              Subscription(string subID, string pkg, string dura);
              void displaySubscription();
              void display(Customer*customer,Package*package);
};
/*-----*/
class Invoice {
 private:
  string invoiceNo;
                      //aggrigation with Payment Class
                        //association with Cusatomer Class
  Customer *customer;
  Accountant *accountant; //association with Accountant Class
 public:
  Invoice();
  Invoice(string no);
       void display();
  void getOrderDetails();
       void getCustomerDetails();
       void getPaymentDetails();
```

```
~Invoice();
};
/*-----*/
class Payment
{
     private:
           Invoice *invoice; //aggrigation with Invoice Class
           string paymentID;
           string paymentType;
           string PaymentDate;
     public:
   Payment();
           Payment(string payID , string payType , string patDate , string No );
           void display();
           void validatePayment();
           void getOrderDetails();
           ~Payment();
};
/*-----*/
class Laundry_Item {
```

```
private:
             string itemID;
             string itemName;
             float itemPrice;
             string itemDescription;
      public:
             Laundry_Item();
             Laundry_Item(string id, string name, float price, string desc);
             void display();
             void addItem();
             void editItem();
};
/*-----*/
class Cart {
      private:
             int itemQuantity;
             Laundry_Item * items[MAX_CART_ITEM_SIZE]; //association with
Laundry_Item class
             Customer * customer;
      //association with Customer class
      public:
```

```
Cart();
              Cart(int quantity);
              void addLaundryItem( Laundry_Item *item, int index);
              void addCustomer(Customer * cus);
              void display();
              void calculatePrice();
              void removeItem();
};
/*----*/
class Order {
       private:
              string orderID;
              string oDate;
                                                                             //
              int itemAmount;
Laundry_Item amount in a single order
              Payment * payment;
                                                                             //
Composition with payment
              Laundry_Item * items[MAX_ORDER_ITEM_SIZE];
                                                              // Aggregation with
Laundry_Items
                                                                             //
              Cart *cartOrder;
Association with cart
                                                                      // Association
              Customer *customer;
Customer
                                                               // Association
              Delivery_Person *delivery;
Delivery_Person
              Staff_Member *staff;
                                                                // Association
Staff_Member
```

```
Order();
              Order(string oID, string oD, int amount, string payID, string payType, string payDate,
string No);
              void addLaundryItem( Laundry_Item *item, int index); // Add Laundry_Items to the
order
              void addCustomer(Customer *cus);
              void addDelivery_Person(Delivery_Person *d);
              void addStaff_Member(Staff_Member *s);
              void display();
              void checkAvailability();
              void placeOrder();
              void orderValidation();
              void cancelOrder();
              ~Order();
};
/*----*/
class Report
{
       private:
              string reportID;
              string reportType;
              Invoice *invoice[MAX_REPORT_INVOICE_QUANTITY]; //aggrigation with Payment
Class
              Order *order[MAX_REPORT_ORDER_QUANTITY]; //association with Payment
```

public:

Class

```
public:
       Report();
           Report(string ID, string);
           void display();
           void displayOrdersReports();
           void displayInvoiceReports();
           void displayLaundaryItemReports();
};
/*----*/
class Inquiry
{
     private:
           int inquiryNo;
     public:
       Inquiry();
           Inquiry(int no);
           display();
       void getCustomerDetails(Customer *customer);
           void setInquiryReply();
};
/*-----*/
class feedback
{
     private:
           string feedbackNo;
```

```
string feedbackReply;
      public:
             feedback();
             feedback(string fNo, string fReply);
             void getCustomerDetails(Customer *customer);
             void display();
             void setfeedbackReply();
};
/*----*/
class Notification
{
      private:
             string notificationNo;
             Customer *customer;
      public:
             Notification();
             Notification(string nNo /*, Customer *nCus*/);
             void display();
             void viewDiscription();
};
```

```
/*----*/
Staff_Member::Staff_Member(){
       staffID = " ";
       position = " ";
       name = " ";
       gender = " ";
       age = 0;
}
Staff_Member::Staff_Member(string ID, string posi, string n, string g, int a)
{
       staffID = ID;
       position = posi;
       name = n;
       gender = g;
       age = a;
}
void Staff_Member::login(){
}
void Staff_Member::display(){
       cout<<"Staff Member details -> " << endl;</pre>
       cout << "Staff Member Name :" << name << endl;</pre>
       cout << "Staff Member Gender :" << gender << endl;</pre>
       cout << "Staff Member Age :" << age << endl;</pre>
       cout << "Staff Member ID :" << staffID << endl;</pre>
```

```
cout << "Staff Member Position :" << position << endl << endl;</pre>
}
/*----*/
Accountant::Accountant(){
       accountantID = "";
       firm = "";
       name = "";
       gender = "";
       age = 0;
}
Accountant::Accountant(string Aid, string frm, string an, string ag, int aa){
       accountantID = Aid;
       firm = frm;
       name = an;
       gender = ag;
       age = aa;
}
void Accountant::login(){
}
void Accountant::display(){
       cout <<"Accountant details -> " << endl;</pre>
       cout << "Accountant Name :" << name << endl;</pre>
       cout << "Accountant Gender :" << gender << endl;</pre>
       cout << "Accountant Age :" << age << endl;</pre>
       cout << "Accountant ID:" << accountantID << endl;</pre>
```

```
cout << "Accountant Firm :" << firm << endl << endl;</pre>
}
/*----*/
Delivery_Person(){
       deliveryID = "";
       firm = "";
       name = "";
       gender = "";
       age = 0;
}
Delivery_Person::Delivery_Person(string Did, string frm, string n, string g, int a){
       deliveryID = Did;
       firm = frm;
       name = n;
       gender = g;
       age = a;
}
void Delivery_Person::login(){
}
void Delivery_Person::display(){
       cout <<"Delivery Person details -> " << endl;</pre>
       cout << "Delivery Person Name :" << name << endl;</pre>
       cout << "Delivery Person Gender :" << gender << endl;</pre>
       cout << "Delivery Person Age :" << age << endl;</pre>
       cout << "Delivery Person ID:" << deliveryID << endl;</pre>
```

```
cout << "Delivery Person Firm :" << firm << endl << endl;</pre>
}
/*-----*/
Package :: Package (){
       packageID = "";
       pName = "";
}
Package :: Package(string pID, string name){
               packageID = pID ;
               pName = name;
}
void Package ::addpackage(){
}
void Package ::editPackage(){
}
void Package ::display(){
       cout << endl << "Package Info " << endl ;</pre>
       cout << "Package ID : " << packageID << endl ;</pre>
       cout << "Package Name : " << pName << endl << endl ;</pre>
}
```

```
/*----*/
Customer :: Customer(){
      customerID = "";
 contactNo = 0;
      email = "";
      address = "";
}
Customer:: Customer(string CID,int CNO,string mail,string Caddress){
      customerID = CID;
      contactNo = CNO;
      email = mail;
      address = Caddress;
}
void Customer ::regiterUser(){
}
void Customer ::login(){
}
void Customer ::editUser(){
```

```
}
void Customer ::display(){
       cout << endl << "customer Info" << endl;</pre>
       cout << "customerID : " << customerID << endl ;</pre>
       cout << "Contact NO : " << contactNo << endl ;</pre>
       cout << "email : " << email << endl ;</pre>
       cout << "Address : " << address << endl << endl ;</pre>
}
/*----*/
Subscription :: Subscription(){
       subscriberID = "";
       sPacakge = "";
       duraiton = "";
}
Subscription :: Subscription(string subID, string pkg, string dura){
       subscriberID = subID;
       sPacakge = pkg;
       duraiton = dura;
}
void Subscription ::displaySubscription(){
}
void Subscription ::display(Customer*customer,Package*package){
```

```
cout << endl << "Subscriber Info" << endl ;</pre>
       cout << "subscriberID : " << subscriberID << endl ;</pre>
       cout << "Subscriber Pacakge : " << sPacakge << endl ;</pre>
       cout << "Duration : " << duraiton << endl << endl;</pre>
       customer->display();
       package->display();
}
/*----*/
Report::Report()
{
        reportType = "";
       reportID = "";
}
Report::Report(string ID, string type)
{
       reportID = ID;
       reportType = type;
}
void Report:: display()
{
       cout << endl << "Report Infro ->" << endl ;</pre>
       cout << "Report ID : " << reportID << endl;</pre>
```

```
cout <<"Report Type : " << reportType << endl << endl ;</pre>
}
void Report::displayOrdersReports()
{
}
void displayInvoiceReports()
{
}
void displayLaundaryItemReports()
{
}
/*----*/
Invoice::Invoice()
{
      invoiceNo = "";
}
Invoice::Invoice(string No)
{
      invoiceNo = No;
}
```

```
void Invoice::display()
{
        cout << "Invoice Infor ->" << endl;</pre>
        cout << "Invoice No : " << invoiceNo << endl << endl ;</pre>
}
void Invoice::getOrderDetails()
{
}
void Invoice::getCustomerDetails()
{
}
void Invoice::getPaymentDetails()
{
}
Invoice::~Invoice()
{
                cout << "Deleted Invoice" << invoiceNo << endl;</pre>
}
```

```
/*-----*/
Payment::Payment()
{
       invoice = new Invoice("");
       paymentID = "";
       paymentType = "";
       PaymentDate = "";
}
Payment::Payment(string payID, string payType, string payDate, string No)
{
  invoice = new Invoice(No);
  paymentID = payID;
       paymentType = payType;
       PaymentDate = payDate;
}
void Payment::display()
{
       cout << "Payment Infro ->" << endl;
       cout << "Patment ID : " << paymentID << endl;</pre>
  cout <<"Payment Type : " << paymentType << endl ;</pre>
       cout << "payment Date : " << PaymentDate << endl ;</pre>
       invoice->display();
}
void Payment::validatePayment()
```

```
{
}
void Payment::getOrderDetails()
{
}
Payment::~Payment()
{
      cout << "Deleted Payment " << paymentID << endl ;</pre>
      delete invoice;
}
/*-----*/
Laundry_Item::Laundry_Item(){
      itemID = "";
      itemName = "";
      itemPrice = 0.0;
      itemDescription = "";
};
Laundry_Item::Laundry_Item(string id, string name, float price, string desc){
      itemID = id;
      itemName = name;
```

```
itemPrice = price;
       itemDescription = desc;
};
void Laundry_Item::display(){
       cout<<"Item ID : "<<itemID << endl;</pre>
       cout<<"Item Name : "<<itemName << endl;</pre>
       cout<<"Item Price : "<<itemPrice << endl;</pre>
       cout<<"Item Description : "<<itemDescription <<endl<<endl;</pre>
};
/*----*/
Cart::Cart(){
       itemQuantity = 0;
};
Cart::Cart(int quantity){
       itemQuantity = quantity;
};
void Cart::addLaundryItem( Laundry_Item *item, int index){
       items[index] = item;
};
void Cart::addCustomer(Customer * cus){
       customer = cus;
};
```

```
void Cart::display(){
       cout<<"Cart Details >>" << endl;</pre>
       cout<< "Cart Item Quantity : "<<itemQuantity << endl;</pre>
       for (int i = 0; i < itemQuantity; i++){
              items[i] -> display();
       };
       cout<<endl;
}
/*----*/
Order::Order(){
       orderID = "";
       oDate = "";
       itemAmount = 0;
       payment = new Payment();
};
Order::Order(string oID, string oD, int amount, string payID, string payType, string payDate, string
No){
       orderID = oID;
       oDate = oD;
       itemAmount = amount;
       payment = new Payment(payID,payType,payDate,No);
};
void Order::addLaundryItem( Laundry_Item *item, int index){
```

```
items[index] = item;
};
void Order::addCustomer(Customer *cus){
        customer = cus;
};
void Order::addDelivery_Person(Delivery_Person *d){
        delivery = d;
};
void Order::addStaff_Member(Staff_Member *s){
        staff = s;
};
void Order::display (){
        cout<<"Order Info ->"<< endl;
        cout<<"Order ID :"<< orderID << endl;</pre>
        cout<<"Order Date :"<< oDate << endl;</pre>
        cout<<"Order Item Amount :"<< itemAmount << endI<<endI;</pre>
        cout<<"Order Item Details >>" << endl;</pre>
        for ( int i = 0; i < itemAmount; i++){
                items[i] -> display();
        };
        cout<<endl;
        payment -> display();
};
```

```
Order::~Order(){
      cout << "Deleted Order "<< orderID <<endl;</pre>
      delete payment;
};
/*-----*/
feedback::feedback(){
      feedbackNo= "";
      feedbackReply="";
}
feedback::feedback(string fNo , string fReply){
      feedbackNo=fNo;
      feedbackReply=fReply;
}
void feedback::getCustomerDetails(Customer *customer)
{
      customer->display();
}
```

```
void feedback::display(){
      cout<<"Customer Feedback "<< endl;</pre>
      cout<<"Feedback Number :" << feedbackNo << endl;</pre>
      cout<<"Feedback : " << feedbackReply << endl;</pre>
}
void feedback::setfeedbackReply(){
}
/*----*/
Notification::Notification(){
      notificationNo = "";
}
```

Notification::Notification(string nNo /\*, Customer \*nCus\*/){

```
notificationNo = nNo;
     //customer = nCus;
}
void Notification::display(){
     cout << "\n";
     cout << "Notification Number : " << notificationNo << endl ;</pre>
}
void Notification::viewDiscription(){
}
int main (){
/*----*/
     Staff_Member *s;
     s = new Staff_Member("S1011", "Washer", "Saman", "Male", 28);
     s -> display();
     Accountant *a;
     a = new Accountant("A1234", "Finance", "Sashi", "Female", 25);
```

```
a -> display();
     Delivery_Person *d;
     d = new Delivery_Person("D1234", "Rider", "Kasun", "Male", 30);
     d -> display();
/*-----*/
     Package *pkg;
     pkg = new Package("P1000", "Silver");
     pkg -> display();
     Customer *cus;
     cus = new Customer("C1000", 76785643, "nima@gmail.com", "NO 123 KAndy");
     cus -> display();
     Subscription *sub;
     sub = new Subscription("S1000", "Silver","2 year");
     sub -> display(cus,pkg);
     delete pkg;
     delete cus;
     delete sub;
/*-----*/
/*----*/
```

Payment \* payObj;

```
payObj = new Payment("P1020", "Paypal", "2021/05/20", "I1020");
     payObj -> display(); //Display sample details
/*-----*/
 Report * repoObj1;
 repoObj1 = new Report("R567", "InvoiceFile");
 repoObj1->display(); //Display sample details
/*----*/
Invoice * invoObj;
invoObj = new Invoice("I2033");
invoObj->display();
/*----*/
delete payObj;
delete repoObj1;
delete invoObj;
/*----*/
     Laundry_Item *I1 = new Laundry_Item("L001","Shirt",200.00,"Shirt Wash");
     Laundry Item *I2 = new Laundry Item("L002", "Short", 300.00, "Short Wash");
```

```
Cart * cart = new Cart(2);
     cart -> addLaundryItem(I1,0);
     cart -> addLaundryItem(I2,1);
     cart -> display();
     Order * order = new Order("O1001","2021/05/16", 2,
"P1001","Paypal","2021/05/16","I1001");
     order -> addLaundryItem(I1,0);
     order -> addLaundryItem(I2,1);
     order -> display();
     delete order;
     delete l1,l2;
     delete cart;
/*----*/
/*----*/
     Inquiry * inquObj;
     //inquObj = new Inquiry(78);
     //inquObj->display();
/*-----*/
     feedback *feedbackobj;
     feedbackobj = new feedback("678","Service was good as well");
     feedbackobj->display();
```

```
/*-----*/
Notification *notifiobj;
notifiobj = new Notification("678");
notifiobj->display();

delete inquObj;
delete feedbackobj;
```

}