LinkedList.java

```
public class LinkedList {

    Node first;
    Node current;
    Node last;

    // Default constructor
    public LinkedList()
    {
        first = current = last = null;
    }

    // Check whether the list is empty
    public boolean isEmpty()
    {
        return (first == null);
    }

    // Insert at the front of the list
    public void insertAtFront(Object insertItem)
    {
        Node newNode = new Node(insertItem);

        if (isEmpty())
        {
            first = newNode;
            last = newNode;
        }
        else
        {
            newNode.next = first;
            first = newNode;
        }
    }

    // Insert at the end of the list
    public void insertAtBack(Object insertItem) {
        Node newNode = new Node(insertItem);

        if (isEmpty())
        {
            first = newNode;
            last = newNode;
        }
        else
        {
            last.next = newNode;
            last = newNode;
        }
```

```
}

    // Delete element from the front
    public Object removeFromFront()
    {
        Object removeItem = null;

        if (isEmpty())
        {
            return removeItem;
        }

        removeItem = first.data;

        if (first == last)
        {
            first = null;
            last = null;
        }
        else
            first = first.next;
        return removeItem;
    }

    // Delete element from the back
    public Object removeFromBack()
    {
        Object removeItem = null;

        if (isEmpty())
        {
            return removeItem;
        }

        removeItem = last.data;

        if (first == last)
        {
            first = null;
            last = null;
        }
        else
        {
            current = first;
            while (current.next != last)
                current = current.next;
            last = current;
            last.next = null;
        }

        return removeItem;
```

```
}

// Get the first node
public Object getFirst()
{
    if (isEmpty())
        return null;
    else
    {
        current = first;
        return current.data;
    }
}

// Get the next node pointed by current node
public Object getNext()
{
    if (current == last)
        return null;
    else
    {
        current = current.next;
        return current.data;
    }
}

// Get the size of the list
public int getSize() {
    Node current = first;
    int size = 0;
    while (current != null) {
        size++;
        current = current.next;
    }

    return size;
}

// Remove the node at the given index
public void removeAtIndex(int index) {
    if (index < 0) {
        System.out.println("Invalid index");
        return;
    }

    if (index == 0) {
        first = first.next;
        return;
    }

        Node current = first;
```

```
            Node prev = null;
            int count = 0;

            while (current != null && count < index)
            {
                prev = current;
                current = current.next;
                count++;
            }

            if (current == null) {
                System.out.println("Index out of range");
                return;
            }

            prev.next = current.next;
    }

            public int indexOf (TravellerDetail td) {
                int index = 0;
                Node current = first;

                while (current != null) {
                    if (current.data.equals(td)) {
                        return index;
                    }
                    current = current.next;
                    index++;
                }

                return -1; // Element not found

    }//end class LinkedList user define
}
```

Queue.java

```
import java.util.LinkedList;

public class Queue<E> {
    LinkedList<E> list;

    public Queue() {
        //the constructor
        list = new LinkedList<E>();
    }

    public int size() {
        //return number of elements
        return list.size();
```

```
    }

    public boolean isEmpty() {
        //return true if queue has no element
        return list.isEmpty();
    }

    public void enqueue(E item) {
        //add item at the rear end of a queue
        list.addLast(item);
    }

    public E dequeue() {
        //remove and return item located at the front of a queue
        return list.removeFirst();
    }

    public E front() {
        //return item located at the front of a queue
        return list.getFirst();
    }
}
```

Node.java

```
public class Node {
    Object data;
    Node next;

    //default constructor
    public Node()
    {
        data = null;
        next = null;
    }

    //normal constructor
    public Node(Object data) {
        this.data = data;
        next = null;
    }
}
```

Customer.java

```
public class Customer {

    private String name;
    private String noIC;
```

```
    private String noPhone;
    private String custEmail;
    private String departDate;
    private String returnDate;
    private TravelPackage tp;

    public Customer() {
        name = "";
        noIC = "";
        noPhone = "";
        custEmail = "";
        departDate = "";
        returnDate = "";
    }

    public void setDetails(String nm, String IC, String np, String Cemail, String Ddate, String
rDate, int aCust, char tof, double p) {
        name = nm;
        noIC = IC;
        noPhone = np;
        custEmail = Cemail;
        departDate = Ddate;
        returnDate = rDate;
        tp = new TravelPackage(aCust, tof, p);
    }

    public void setName(String nm) {
        name = nm;
    }

    public void setnoIC(String IC) {
        noIC = IC;
    }

    public void setnoPhone(String np) {
        noPhone = np;
    }

    public void setCustEmail(String Cemail) {
        custEmail = Cemail;
    }

    public void setDepartDate(String Ddate) {
        departDate = Ddate;
    }

    public void setReturnDate(String rDate) {
        returnDate = rDate;
    }

    public String getName() {
```

```
        return name;
    }

    public String getNoIC() {
        return noIC;
    }

    public String getNoPhone() {
        return noPhone;
    }

    public String getCustEmail() {
        return custEmail;
    }

    public String getDepartDate() {
        return departDate;
    }

    public String getReturnDate() {
        return returnDate;
    }

    public String toString() {
        return ("\nName: " + name + "\nNumber IC: " + noIC + "\nNumber Phone: " + noPhone
+ "\nEmail: " + custEmail + "\nDeparture Date: " + departDate + "\nReturn Date:" +
returnDate + "\n");
    }

    public double totalPayment(int size) {

        return (tp.calcPayment(size) + tp.calcTypeOfFlight(size));
    }
}
```

TravelPackage.java

```
public class TravelPackage {
    protected int amountPeople;
    protected char typeOfFlight;
    private double price;

    public TravelPackage(int op, char tof, double p) {
        amountPeople = op;
        typeOfFlight = tof;
        price = p;
    }

    public int getAmountOfPeople() {
        return amountPeople;
```

```
    }

    public char getTypeOfFlight() {
        return typeOfFlight;
    }

    public double calcTypeOfFlight(int size) {
        double typePrice = 0.0;

        if (typeOfFlight == 'D' || typeOfFlight == 'd') {
            typePrice = 600.00 * size;
        }
        return typePrice;
    }

    public double calcPayment(int size) {
        double fee = 0;

        if (size >= 4) {
            fee = size * price * 0.95;
        } else if (size < 4) {
            fee = size * price;
        }

        return fee;
    }
}
```

TravellerDetail.java

```
public class TravellerDetail {

    private String tName;
    private String tNoIC;
    private String tNoPhone;

    public TravellerDetail(String name, String ic, String phone) {
        tName = name;
        tNoIC = ic;
        tNoPhone = phone;
    }

    public TravellerDetail() {
        tName = "";
        tNoIC = "";
        tNoPhone = "";
    }

    public void setTName(String nm) {
        tName = nm;
```

```
    }

    public void setTNoIC(String ic) {
        tNoIC = ic;
    }

    public void setTNoPhone(String hp) {
        tNoPhone = hp;
    }

    public void setDetails(String nm, String ic, String hp) {
        tName = nm;
        tNoIC = ic;
        tNoPhone = hp;
    }

    public String getTName() {
        return tName;
    }

    public String getTNoIC() {
        return tNoIC;
    }

    public String getTNoPhone() {
        return tNoPhone;
    }

    public String toString() {
        return ("\nName: " + tName + "\nIC Number: " + tNoIC + "\nPhone Number: " +
tNoPhone);
    }
}
```

Destination .java

```
public class Destination {
    private String dest;
    private double price;

    public Destination() {
        dest = "";
        price = 0.0;
    }

    public Destination(String d, double p) {
        dest = d;
        price = p;
    }
```

```
    public String getDestination() {
        return dest;
    }

    public double getPrice() {
        return price;
    }

    public String toString() {
        return (dest + "\t\tRM " + price);
    }
}
```

LinkedListMain.java

```
import java.io.*;
import java.util.*;

public class LinkedListMain {

    public static void main(String[] args) {
        try {
            Scanner sc = new Scanner(System.in);
            Customer cust = new Customer();
            LinkedList TravellerLL = new LinkedList();
            LinkedList DestinationLL = new LinkedList(); //

            FileReader fr = new FileReader("C:\\Users\\user\\Documents\\Package.txt");
            BufferedReader br = new BufferedReader(fr);
            FileWriter wr = new FileWriter("C:\\Users\\user\\Documents\\TravellerDetail.txt");
            PrintWriter pw = new PrintWriter(wr);
            String strLine;

            while ((strLine = br.readLine()) != null) {
                StringTokenizer data = new StringTokenizer(strLine, "/");
                String destination = data.nextToken();
                double price = Double.parseDouble(data.nextToken());
                Destination dn = new Destination(destination, price);
                DestinationLL.insertAtBack(dn);   //
            }


            System.out.print("\n_____"
                    + "\n|                                |"
                    + "\n| Welcome to RAAIN's travel agency |"
                    + "\n|_____|");

            System.out.print("\n\nEnter Name: ");
            String name = sc.next();
            System.out.print("Enter IC Number: ");
```

```
            String noIC = sc.next();
            System.out.print("Enter Phone Number: ");
            String noPhone = sc.next();
            System.out.print("Enter Email: ");
            String custEmail = sc.next();
            System.out.print("Enter Departure Date [dd/mm/yyyy]: ");
            String dDate = sc.next();
            System.out.print("Enter Return Date [dd/mm/yyyy]: ");
            String rDate = sc.next();
            System.out.print("[ 5% discount will be provided for booking more than 3 persons !!!
]");
            System.out.print("\nEnter Number Of Pax : ");
            int amountCust = sc.nextInt();

            TravellerDetail[] TD = new TravellerDetail[amountCust];

            for (int i = 0; i < amountCust; i++) {
                TD[i] = new TravellerDetail();
                System.out.print("\nTraveller " + (i + 1));
                System.out.print("\nEnter Traveller Name: ");
                String tName = sc.next();
                System.out.print("Enter Traveller IC Number: ");
                String tNoIC = sc.next();
                System.out.print("Enter Traveller Phone Number: ");
                String tNoPhone = sc.next();
                TD[i].setDetails(tName, tNoIC, tNoPhone);
                TravellerLL.insertAtBack(TD[i]); //
            }
            Destination dn = (Destination) DestinationLL.getFirst();   ///

            while (dn != null) {
                System.out.println(dn.toString());
                dn = (Destination) DestinationLL.getNext();
            }

            System.out.print("\nChoose your destination: ");
            String typeOfPackage = sc.next();
            System.out.print("Do You Want Direct(+RM600) Or Transit Flight (D/T): ");
            char typeOfFlight = sc.next().charAt(0);
            double price = 0.0;

            dn = (Destination) DestinationLL.getFirst(); //

            while (dn != null) { ///
                if (dn.getDestination().contains(typeOfPackage))
                    price = dn.getPrice();

                dn = (Destination) DestinationLL.getNext();
            }

            cust.setDetails(name, noIC, noPhone, custEmail, dDate, rDate, amountCust,
```

```
typeOfFlight, price);

        System.out.print("\n\n0 - End program" + "\n1 - To calculate total payment" + "\n2 -
View customer details"
                + "\n3 - To change personal information" + "\n4 - To display traveller details"
                + "\n5 - To change traveller details" + "\n6 - To search traveller by name" +
"\nChoose your option:");
        int option = sc.nextInt();

        double finalPrice = 0.0; //
        while (option != 0) {
           if (option == 1) {

              finalPrice = cust.totalPayment(TravellerLL.getSize());///
              System.out.print("Total Payment: RM" + finalPrice + "\n");
           }
           else if (option == 2) { // Display detail
              System.out.print(cust.toString());
           }
           else if (option == 3) { // Change detail

              System.out.print("\n1 - Name" + "\n2 - IC Number" + "\n3 - Phone Number" +
"\n4 - Email"
                    + "\n5 - Depature Date" + "\n6 - Return Date" + "\nPlease select info to
change: ");
              int editUser = sc.nextInt();

              if (editUser == 1) {
                 System.out.print("Enter new name: ");
                 name = sc.next();
                 cust.setName(name);
              } else if (editUser == 2) {
                 System.out.print("Enter new IC number: ");
                 noIC = sc.next();
                 cust.setnoIC(noIC);
              } else if (editUser == 3) {
                 System.out.print("Enter new phone Number: ");
                 noPhone = sc.next();
                 cust.setnoPhone(noPhone);
              } else if (editUser == 4) {
                 System.out.print("Enter new email: ");
                 custEmail = sc.next();
                 cust.setCustEmail(custEmail);
              } else if (editUser == 5) {
                 System.out.print("Enter new depature date: ");
                 dDate = sc.next();
                 cust.setDepartDate(dDate);
              } else if (editUser == 6) {
                 System.out.print("Enter new return date: ");
                 rDate = sc.next();
                 cust.setReturnDate(rDate);
```

```
            }
        } else if (option == 4) { // Display traveller detail
            for (int i = 0; i < amountCust; i++) {
                System.out.println("\nTraveller " + (i + 1) + TD[i].toString() + "\n");
            }
        } else if (option == 5) { // Change traveler detail
            System.out.print("Enter name to search: ");
            String sName = sc.next();

            TravellerDetail td = (TravellerDetail) TravellerLL.getFirst();//

            while (td != null) {//
                if (td.getTName().contains(sName)) { //
                    System.out.print("1. Name" + "\n2. IC Number" + "\n3. Phone Number" +
"\nChoose information you want to change: ");
                    int editTraveller = sc.nextInt();

                    if (editTraveller == 1) {
                        System.out.print("Enter new name: ");
                        String tName = sc.next();
                        td.setTName(tName);
                    } else if (editTraveller == 2) {
                        System.out.print("Enter new IC number: ");
                        String tIC = sc.next();
                        td.setTNoIC(tIC);
                    } else if (editTraveller == 3) {
                        System.out.print("Enter new phone number: ");
                        String tPhoneNumber = sc.next();
                        td.setTNoPhone(tPhoneNumber);
                    }
                }
                td = (TravellerDetail) TravellerLL.getNext();//
            }
        } else if (option == 6) {
            System.out.print("Enter name to search: ");
            String sName = sc.next();
            TravellerDetail td = (TravellerDetail) TravellerLL.getFirst(); //

            while (td != null) { //
                if (td.getTName().contains(sName)) {
                    System.out.println(td.toString());
                }
                td = (TravellerDetail) TravellerLL.getNext();
            }
        }

        System.out.print("\n\n0 - End program" + "\n1 - To calculate total payment" + "\n2 -
View customer details"
                + "\n3 - To change personal information" + "\n4 - To display traveller details"
                + "\n5 - To change traveller details" + "\n6 - To search traveller by name" +
"\nChoose your option: ");
```

```
            option = sc.nextInt();
        } // end while

        pw.println("Customer Details: ");
        pw.println(cust.toString());
        pw.println("-----------------------------------");
        pw.println("Name" + "\ttraveller IC" + "\tphone number");
        pw.println("-----------------------------------");
        TravellerDetail td = (TravellerDetail) TravellerLL.getFirst();


        while (td != null) { //
            pw.println(td.getTName() + "\t" + td.getTNoIC() + "\t" + td.getTNoPhone());
            td = (TravellerDetail) TravellerLL.getNext();
        }

        System.out.println("\n-----------------------------------");
        System.out.println("Payment Invoice"
                + "\n-----------------------------------");
        System.out.println(cust.toString());
        System.out.println("-----------------------------------");
        System.out.println("Total Price : " + finalPrice);
        System.out.println("-----------------------------------");

        sc.close();
        pw.close();
    } catch (Exception e) {
        System.err.println("Error: " + e.getMessage());
    } finally {
        System.out.println("\nThank you. Thank you for travelling with us!");
    }
  }
}
```

QueueMain.java

```
import java.io.*;
import java.util.*;

public class QueueMain {

   public static void main(String[] args) {
      try {
         Scanner sc = new Scanner(System.in);
         Customer cust = new Customer();
         Queue<TravellerDetail> TravellerQ = new Queue<>();
         Queue<Destination> DestinationQ = new Queue<>();
         Queue<TravellerDetail> TravellerTemp = new Queue<>();
         Queue<Destination> DestinationTemp = new Queue<>();
         Destination obj;
```

```
        TravellerDetail obj1;

        FileReader fr = new FileReader("C:\\Users\\user\\Documents\\Package.txt"); // Open
input file
        BufferedReader br = new BufferedReader(fr);
        FileWriter wr = new FileWriter("C:\\Users\\user\\Documents\\TravellerDetail.txt"); //
Open output file
        PrintWriter pw = new PrintWriter(wr);

        String strLine;

        while ((strLine = br.readLine()) != null) { // Read one line from the file
           StringTokenizer data = new StringTokenizer(strLine, "/");
           String destination = data.nextToken();
           double price = Double.parseDouble(data.nextToken());
           Destination dn = new Destination(destination, price);
           DestinationQ.enqueue(dn);
        }
        System.out.println("\n_____"
              + "\n|                          |                                    "
              + "\n| Welcome to RAAIN's travel agency |"
              + "\n|_____|
|");

        System.out.print("\nEnter Name: ");
        String name = sc.next();
        System.out.print("Enter IC Number: ");
        String noIC = sc.next();
        System.out.print("Enter Phone Number: ");
        String noPhone = sc.next();
        System.out.print("Enter Email: ");
        String custEmail = sc.next();
        System.out.print("Enter Departure Date [dd/mm/yyyy]: ");
        String dDate = sc.next();
        System.out.print("Enter Return Date [dd/mm/yyyy]: ");
        String rDate = sc.next();
        System.out.print(" 5% discount will be provided for booking more than 3 persons");
        System.out.print("\nEnter Number Of Pax: ");
        int amountCust = sc.nextInt();

        TravellerDetail[] TD = new TravellerDetail[amountCust];

        for (int i = 0; i < amountCust; i++) {
           TD[i] = new TravellerDetail();
           System.out.print("\nTraveller " + (i + 1));
           System.out.print("\nEnter Traveller Name: ");
           String tName = sc.next();
           System.out.print("Enter Traveller IC Number: ");
           String tNoIC = sc.next();
           System.out.print("Enter Traveller Phone Number: ");
           String tNoPhone = sc.next();
```

```
            TD[i].setDetails(tName, tNoIC, tNoPhone);
            TravellerQ.enqueue(TD[i]);
        }

        while (!DestinationQ.isEmpty()) {
            obj = DestinationQ.dequeue();
            System.out.println(obj.toString());
            DestinationTemp.enqueue(obj);
        }

        while (!DestinationTemp.isEmpty()) {
            obj = DestinationTemp.dequeue();
            DestinationQ.enqueue(obj);
        }

        System.out.print("\nChoose your destination: ");
        String typeOfPackage = sc.next();
        System.out.print("Do You Want Direct(+RM600) Or Transit Flight (D/T): ");
        char typeOfFlight = sc.next().charAt(0);
        double price = 0.0;

        while (!DestinationQ.isEmpty()) {
            obj = DestinationQ.dequeue();
            if (obj.getDestination().contains(typeOfPackage))
                price = obj.getPrice();
            DestinationTemp.enqueue(obj);
        }

        while (!DestinationTemp.isEmpty()) {
            obj = DestinationTemp.dequeue();
            DestinationQ.enqueue(obj);
        }
        cust.setDetails(name, noIC, noPhone, custEmail, dDate, rDate, amountCust,
typeOfFlight, price);

        System.out.print("\n\nEnd program" + "\n1 To calculate total payment" + "\n2 View
customer details"
                + "\n3 To change personal information" + "\n4 To display traveller details"
                + "\n5 To change traveller details" + "\n6 To search traveller by name" +
"\nChoose your option: ");
        int option = sc.nextInt();

        double totalF = 0.0;
        while (option != 0) {

            if (option == 1) { // Calcpayment
                totalF = cust.totalPayment(TravellerQ.size());

                System.out.print("Total Payment: RM" + totalF + "\n");
            }
            else if (option == 2) { // Display detail
```

```
                System.out.print(cust.toString());
            }
            else if (option == 3) { // Change detail

                System.out.print("\n1 Name" + "\n2 IC Number" + "\n3 Phone Number" + "\n4
Email"
                        + "\n5 Depature Date" + "\n6 Return Date" + "\nPlease select info to
change: ");

                int editUser = sc.nextInt();

                if (editUser == 1) {

                    System.out.print("Enter new name: ");
                    name = sc.next();
                    cust.setName(name);
                } else if (editUser == 2) {
                    System.out.print("Enter new IC number: ");
                    noIC = sc.next();
                    cust.setnoIC(noIC);
                } else if (editUser == 3) {
                    System.out.print("Enter new phone number : ");
                    noPhone = sc.next();
                    cust.setnoPhone(noPhone);
                } else if (editUser == 4) {
                    System.out.print("Enter new email: ");
                    custEmail = sc.next();
                    cust.setCustEmail(custEmail);
                } else if (editUser == 5) {
                    System.out.print("Enter new depature date: ");
                    dDate = sc.next();
                    cust.setDepartDate(dDate);
                } else if (editUser == 6) {
                    System.out.print("Enter new return date: ");
                    rDate = sc.next();
                    cust.setReturnDate(rDate);
                }

            } else if (option == 4) { // Display traveller detail
                for (int i = 0; i < amountCust; i++) {

                    System.out.println("\nTraveller " + (i + 1) + TD[i].toString() + "\n");
                }

            } else if (option == 5) { // Change traveler detail
                System.out.print("Enter name to search: ");
                String sName = sc.next();

                while (!TravellerQ.isEmpty()) {
```

```
                obj1 = TravellerQ.dequeue();
                if (obj1.getTName().contains(sName)) {

                    System.out.print("1 - Name" + "\n2 - IC Number" + "\n3 - Phone Number" +
"\nChoose information you want to change: ");

                    int editTraveller = sc.nextInt();
                    if (editTraveller == 1) {
                        System.out.print("Enter new name: ");
                        String tName = sc.next();
                        obj1.setTName(tName);
                    } else if (editTraveller == 2) {
                        System.out.print("Enter new IC number: ");
                        String tIC = sc.next();
                        obj1.setTNoIC(tIC);
                    } else if (editTraveller == 3) {
                        System.out.print("Enter new phone number: ");
                        String tPhoneNumber = sc.next();
                        obj1.setTNoPhone(tPhoneNumber);
                    }
                }

                TravellerTemp.enqueue(obj1);

            }

            while (!TravellerTemp.isEmpty()) {
                TravellerQ.enqueue(TravellerTemp.dequeue());
            }

        } else if (option == 6) {

            System.out.print("Enter name to search: ");
            String sName = sc.next();

            while (!TravellerQ.isEmpty()) {
                obj1 = TravellerQ.dequeue();

                if (obj1.getTName().contains(sName)) {
                    System.out.println(obj1.toString());

                }
                TravellerTemp.enqueue(obj1);
            }

            while (!TravellerTemp.isEmpty()) {
                TravellerQ.enqueue(TravellerTemp.dequeue());
            }
            }

            System.out.print("\n\n0 - End program" + "\n1 - To calculate total payment" +
```

```
"\n2 - View customer details"
                    + "\n3 - To change personal information" + "\n4 - To display traveller
details"
                    + "\n5 - To change traveller details" + "\n6 - To search traveller by name" +
"\nChoose your option:");
                option = sc.nextInt();

            } // end while

            while (!TravellerQ.isEmpty()) {
                obj1 = TravellerQ.dequeue();
                TravellerTemp.enqueue(obj1);
            }

            while (!TravellerTemp.isEmpty()) {
                TravellerQ.enqueue(TravellerTemp.dequeue());
            }

            pw.println("Customer Details: ");
            pw.println(cust.toString());
            pw.println("_____");
            pw.println("Name" + "\ttraveller IC" + "\tphone number");
            pw.println("_____");

            while (!TravellerQ.isEmpty()) {
                obj1 = TravellerQ.dequeue();
                pw.println(obj1.getTName() + "\t" + obj1.getTNoIC() + "\t" +
obj1.getTNoPhone());
                TravellerTemp.enqueue(obj1);
            }

            while (!TravellerTemp.isEmpty()) {
                TravellerQ.enqueue(TravellerTemp.dequeue());
            }
            System.out.println("-----------------------------------");
            System.out.println("Payment Invoice"
                  + "\n--------------------------------");
            System.out.println(cust.toString());
            System.out.println("-----------------------------------");
            System.out.println("Total Price : "+ totalF);
            System.out.println("-----------------------------------");
            sc.close();
            pw.close();
        }

        catch(Exception e){
            System.err.println("Error: " + e.getMessage());
        }

        finally{
            System.out.println("\nThank you. Thank you for travelling with us!");
```

```
        }

    }
}
```