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New Features:

- Calculation of cargo fare added.
 File Handling:-
- Flight Schedule printing
- Feedback record maintained on files.
- Ticket Information print

Classes:

1.Interface Fare:

```
package com.example.myfx;

public interface Fare {
    static double baseFare=10000;
    static double tax=15000;
    static double discount=10000;
    public double CalculateFare(); // Method for calculating fare and
}
```

2.Ticket class:

```
public double getFare() {
        return fare;
    public String getReservationNumber() {
        return reservationNumber;
    public ArrayList<Passenger> getPassengersList() {
        return passengersList;
    public ArrayList<Flight> getFlightList() {
        return FlightList;
    public static double handleTicketClass(String passName, String email, Long
number, int age, String ticketClass, double flightDuration) {      // Static method
to handle ticket class and calculate fare
        double fare=0.0;
        if (ticketClass.equalsIgnoreCase("Economy")) {
          Economic e1 = new Economic(passName, email, number, age, ticketClass,
number);
          fare = e1.CalculateFare();
        } else if (ticketClass.equalsIgnoreCase("Business")) {
          Business b1 = new Business(passName, email, number, age, ticketClass,
number);
          fare = b1.CalculateFare();
        } else if (ticketClass.equalsIgnoreCase("FirstClass")) {
          FirstClass first = new FirstClass(passName, email, number, age,
ticketClass, number);
          fare = first.CalculateFare();
        return fare;
```

}

3. Reservation Class

```
package com.example.myfx;
import java.util.ArrayList;
public class Reservation {
    private String reservationNumber;
    ArrayList<Flight> flightList;
    ArrayList<Passenger> passengersList;
    ArrayList<Ticket> TicketList;
    public Reservation(String reservationNumber, ArrayList<Flight> flightList,
ArrayList<Passenger> passengersList,
            ArrayList<Ticket> ticketList) {
        this.reservationNumber = reservationNumber;
        this.flightList = flightList;
        this.passengersList = passengersList;
        TicketList = ticketList;
    public String getReservationNumber() {
        return reservationNumber;
    public ArrayList<Flight> getFlightList() {
        return flightList;
    public ArrayList<Passenger> getPassengersList() {
        return passengersList;
    public ArrayList<Ticket> getTicketList() {
        return TicketList;
```

4. Passenger Class

```
package com.example.myfx;
public class Passenger {
private String name;
```

```
private String email;
private long PhoneNumber;
private int age;
private String ticketClass;
    public Passenger (String name, String email, long phoneNumber, int age, String
ticketClass) {
    this.name = name;
    this.email = email;
    PhoneNumber = phoneNumber;
    this.age = age;
    this.ticketClass = ticketClass;
    public String getName() {
        return name;
    public String getEmail() {
        return email;
    public long getPhoneNumber() {
        return PhoneNumber;
    public int getAge() {
        return age;
    public String getTicketClass() {
        return ticketClass;
```

5.Flight Class

```
package com.example.myfx;

import java.util.Date;
import java.util.ArrayList;

public class Flight {
    private String flightNumber;
    private Date departureTime;
    private Date arrivalTime;
    private double flightDuration;
    private String departueAirport;
    private String destinationAirport;
```

```
public Flight(String flightNumber, Date departureTime, Date arrivalTime,
double flightDuration,
            String departueAirport, String destinationAirport) {
        this.flightNumber = flightNumber;
        this.departureTime = departureTime;
        this.arrivalTime = arrivalTime;
        this.flightDuration = flightDuration;
        this.departueAirport = departueAirport;
        this.destinationAirport = destinationAirport;
    public String getFlightNumber() {
        return flightNumber;
    public Date getDepartureTime() {
        return departureTime;
    public Date getArrivalTime() {
        return arrivalTime;
    public double getFlightDuration() {
        return flightDuration;
    public String getDepartueAirport() {
        return departueAirport;
    public String getDestinationAirport() {
        return destinationAirport;
    public static void displayFlightSchedule(ArrayList<Flight> FlightList)
         // Static method to display the flight schedule
        if (FlightList.isEmpty()) {
            System.out.println("No flights available.");
            return;
        System.out.println("----Flight Schedule----");
        for (int i = 0; i < FlightList.size(); i++) {</pre>
            Flight flight = FlightList.get(i);
            System.out.println("Flight Number: " + flight.getFlightNumber());
            System.out.println("Destination Airport: " +
flight.getDestinationAirport());
            System.out.println("Departure Airport: " +
flight.getDepartueAirport());
            System.out.println("Arrival Time: " + flight.getArrivalTime());
            System.out.println("Departure Time: " + flight.getDepartureTime());
```

6.feedback(changes made)

```
package com.example.myfx;
import java.util.ArrayList;
   private String feedBackContent;
   private String SubmissionDate;
    public Feedback(String passengerName, String feedBackContent, int rating,
String submissionDate) {
        this.passengerName = passengerName;
           throw new invalidRatingException();
    public String getFeedbackContent() {
    public String getSubmissionDate() {
   public static void printFeedback(List<Feedback> feedbackList) {
        for (Feedback f : feedbackList) {
            System.out.println("Review " + index + ":");
            System.out.println("Rating: " + f.rating);
```

```
-----");
}
}
```

7. Economic class:

8. Business class:

9.FirstClass class:

```
package com.example.myfx;
public class FirstClass extends Passenger implements Fare {
                                                                 // FirstClass
class extends Passenger class and implements Fare interface
    private final double superTax=20000;
    private double FlightDuration;
    public FirstClass(String name, String email, long phoneNumber, int age,
String ticketClass, double flightDuration) {
        super(name, email, phoneNumber, age, ticketClass);
                                                            // Calling the
constructor of Passenger class to initialize passenger details
        FlightDuration = flightDuration;
    public double getSuperTax() {
        return superTax;
    public double getFlightDuration() {
        return FlightDuration;
    @Override
                         // Implementation of the CalculateFare method from the
Fare interface
    public double CalculateFare() {
        return (baseFare*FlightDuration) + tax - discount + superTax;
```

10.Airport class

```
package com.example.myfx;
import java.util.ArrayList;
public class Airport {
    private String airportName;
    private String code;
    private String city;
    private String country;
    public Airport(String airportName, String code, String city, String country)
        this.airportName = airportName;
        this.code = code;
        this.city = city;
        this.country = country;
    public String getAirportName() {
        return airportName;
    public String getCode() {
        return code;
    public String getCity() {
        return city;
    public String getCountry() {
        return country;
    public static ArrayList<Airport> getArrivalAirports() {
Static method to get a list of sample Arrival Airports:
        ArrayList<Airport> arrivalAirports = new ArrayList<>();
        arrivalAirports.add(new Airport("Allama Iqbal Airport", "1092", "Lahore",
"Pakistan"));
        arrivalAirports.add(new Airport("Jinnah International", "1091",
 Karachi", "Pakistan"));
        arrivalAirports.add(new Airport("Multan International", "1094", "Multan",
'Pakistan"));
        arrivalAirports.add(new Airport("Faisalabad International", "1082",
'Faisalabad", "Pakistan"));
        return arrivalAirports;
```

11.invalid rating exception class:

```
package com.example.myfx;

public class invalidRatingException extends RuntimeException {
    public invalidRatingException() {
    }
```

12.emptyfieldException class:

```
package com.example.myfx;

public class EmptyFieldException extends RuntimeException {
    public EmptyFieldException() {
        super();
    }
}
```

13.cargo(new feature):

```
package com.example.myfx;

public class Cargo{
    private double weight;
    private double perkm;
    private double duration;
    private String destination;
    private boolean fastTrack;
```

```
this.destination = destination;
       this.fastTrack = fastTrack;
   public String getDestination() {
   public static double cargofare (double weight, String destination , boolean
       double total=0;
       final double perkm=1000;
(destination.equalsIgnoreCase("Islamabad")&&origin.equalsIgnoreCase("Lahore")
(destination.equalsIgnoreCase("London")&&origin.equalsIgnoreCase("Lahore")){
           duration=22;
           duration=1.5;
```

```
duration=1.5;
           duration=1.5;
(destination.equalsIgnoreCase("london")&&origin.equalsIgnoreCase("karachi")) {
            total = weight * perkm * duration ;
(destination.equalsIgnoreCase("newyork")&&origin.equalsIgnoreCase("karachi"))
           total = weight * perkm * duration ;
(destination.equalsIgnoreCase("doha") &&origin.equalsIgnoreCase("karachi")) {
            total = weight * perkm * duration ;
(destination.equalsIgnoreCase("dubai") &&origin.equalsIgnoreCase("karachi")) {
            total = weight * perkm * duration ;
(destination.equalsIgnoreCase("islamabad")&&origin.equalsIgnoreCase("multan")
           total = weight * perkm * duration ;
(destination.equalsIgnoreCase("newyork") &&origin.equalsIgnoreCase("multan")) {
            total = weight * perkm * duration ;
(destination.equalsIgnoreCase("london") &&origin.equalsIgnoreCase("multan")) {
            total = weight * perkm * duration ;
(destination.equalsIgnoreCase("doha") &&origin.equalsIgnoreCase("multan")) {
            total = weight * perkm * duration ;
           duration=1.5;
            total = weight * perkm * duration ;
           duration=1.5;
```

14.Gui Class named HelloApplication (with file handling):

```
package com.example.myfx;
import javafx.application.Application;
import javafx.fxml.FXMLLoader;
import javafx.geometry.Insets;
import javafx.scene.Scene;
import javafx.scene.layout.*;
import javafx.scene.paint.Color;
import javafx.stage.Stage;
import java.io.FileNotFoundException;
import java.io.FileOutputStream;
import java.io.FileWriter;
import java.io.IOException;
import javafx.application.Application;
import javafx.collections.FXCollections;
import javafx.collections.ObservableList;
import javafx.scene.control.cell.PropertyValueFactory;
import javafx.scene.text.Font;
import javafx.scene.text.Foxt;
import javafx.scene.text.Text;
import javafx.scene.text.Text;
import javafx.scene.text.Text;
import javafx.scene.control.*;
import javafx.scene.image;
import javafx.scene.image.Image;
import javafx.scene.image.Image;
import javafx.scene.image.ImageView;
import java.text.SimpleDateFormat;
import java.text.SimpleDateFormat;
import java.time.LocalDate;
import java.util.*;
import java.aut.Desktop;
import java.aut.Desktop;
import java.aut.Desktop;
import java.aut.Desktop;
import java.net.URI;
```

```
ArrayList<Flight> flightlist = new ArrayList<>();
   ArrayList<Passenger> passengersList = new ArrayList<>();
    public void start(Stage stage) throws Exception {
        stage.setTitle("Bcatatic Air Booking System");
       GridPane pane1 = new GridPane();
       pane1.add(button0, 0, 0);
       panel.add(button1, 1, 0);
       pane1.add(button2, 2, 0);
       pane1.add(button4, 4, 0);
       scn1 = new Scene (pane1, 1200, 700);
       button1.setOnAction(e -> {
            displayForm(stage);
       TableView tableView5 = new TableView<>();
        flightno.setCellValueFactory(new
PropertyValueFactory<>("flightNumber"));
        DestinationAirport.setCellValueFactory(new
PropertyValueFactory<>("destinationAirport"));
TableColumn<>("Departure Airport");
        DepartureAirport.setCellValueFactory(new
PropertyValueFactory<>("departueAirport"));
```

```
ArrivalTime.setCellValueFactory(new
PropertyValueFactory<>("arrivalTime"));
        TableColumn<Flight, Date> DepartureTime = new
TableColumn<>("Departure Time");
        DepartureTime.setCellValueFactory(new
PropertyValueFactory<>("departureTime"));
        ArrayList<Airport> ArrivalAirportList = Airport.getArrivalAirports();
        ArrayList<Airport> DepartueAirportList =
Airport.getDepartureAirports();
        Date df = new Date();
        int flightNumberCounter = 100;
            for (int j = 0; j < DepartueAirportList.size(); j++) {</pre>
                double duration = flightDuration[flightNumberCounter %
flightDuration.length];
                String flightNumber = "LH" + flightNumberCounter;
ArrivalAirportList.get(i).getAirportName(),
DepartueAirportList.get(j).getAirportName()));
        printSchedule.setOnAction(e->{
                FileWriter writer = new
                for (Flight flight : flightlist) {
                    writer.write("Flight Number: " + flight.getFlightNumber()
                    for (Airport a: ArrivalAirportList) {
                        writer.write("Arrival Airport: " + a.getAirportName()
                        writer.write("Departure Airport: " +
d.getAirportName() + "\n");
                    writer.write("Arrival Time: " + flight.getArrivalTime() +
                writer.close();
            } catch (IOException k) {
                System.out.println("print unsuccessfull!");
                k.printStackTrace();
```

```
tableView5.setItems(FXCollections.observableArrayList(flightlist));
Button back2 = new Button("Back");
back2.setOnAction(e -> stage.setScene(scn1));
VBox vBox5 = new VBox(tableView5, back2,printSchedule);
setHoverCustomEffect(printSchedule);
setHoverCustomEffect(back2);
button2.setOnAction(e -> {
    stage.setScene(scn5);
    System.out.println(flightlist.size());
Label feedL1 = new Label("
TextField tx1 = new TextField();
TextField tx2 = new TextField();
Label feedL3 = new Label("
GridPane pane6 = new GridPane();
pane6.add(feedL1, 1, 0);
pane6.add(tx1, 1, 1);
pane6.add(feedL2, 1, 2);
pane6.add(tx2, 1, 3);
pane6.add(feedL3, 1, 4);
pane6.add(tx3, 1, 5);
pane6.add(feedL4, 1, 6);
pane6.setHgap(5);
pane6.setVgap(0);
back3.setOnAction(e -> stage.setScene(scn1));
iconButton(back3);
pane6.add(back3, 2, 6);
scn6 = new Scene(pane6, 1200, 700);
button3.setOnAction(e -> stage.setScene(scn6));
TableView<Feedback> tableView = new TableView<>();
ArrayList<Feedback> feedbackList = new ArrayList<>();
Label label61 = new Label(" Your feedback is valuable for us!");
pane6.add(label61, 1, 7);
```

```
int rating = Integer.parseInt(tx2.getText());
                String content = tx3.getText();
                Date d1 = new Date();
                String dd1 = d1.toString();
                feedbackList.add(new Feedback(name, content, rating,dd1));
FileOutputStream("C:/Users/wajid/Desktop/Feedback.txt", true);
                Formatter myfile = new Formatter(obj);
                myfile.format("\n%s, %s, %d, %s", name, content, rating, dd1);
                myfile.close();
                label61.setText("
                System.out.println(feedbackList.size());
tableView.setItems(FXCollections.observableArrayList(feedbackList));
                tx1.setText("");
                tx2.setText("");
            } catch (NumberFormatException ex) {
                tx1.setText("");
                tx3.setText("");
            } catch (Exception ex) {
                ex.printStackTrace();
        ImageView imageView3 = new ImageView( new Image("file:/E://algorithms
        Pane pane11 = new Pane();
        scn6 = new Scene(panell, 800, 750);
        imageView3.fitHeightProperty().bind(scn6.heightProperty());
        feedL2.setStyle("-fx-padding: 0; -fx-margin: 0;");
        setHeight(back3);
       back3.setPrefWidth(200);
```

```
back3.setLayoutX(15);
back3.setLayoutY(400);
setHoverCustomEffect(back3);
feedL1.setPrefWidth(200);
feedsub.setPrefWidth(200);
feedsub.setLayoutX(15);
feedsub.setLayoutY(300);
setHoverCustomEffect(feedsub);
feedL1.setStyle("-fx-text-fill: black; -fx-background-color: #FFD700;
feedL1.setPrefHeight(50);
feedL2.setPrefWidth(210);
feedL2.setPrefHeight(50);
feedL3.setStyle("-fx-text-fill: black; -fx-background-color: #FFD700;
feedL3.setPrefWidth(210);
feedL3.setPrefHeight(50);
label61.setStyle("-fx-text-fill: black; -fx-background-color:
label61.setPrefWidth(210);
   while (scanner.hasNext()) {
        String line = scanner.nextLine();
        Scanner obj = new Scanner(line);
        obj.useDelimiter(",\\s");
            String passengerName = obj.next();
            String dateString = obj.nextLine().trim();
            Feedback feedback = new Feedback(passengerName,
            feedbackList.add(feedback);
            tableView.getItems().add(feedback);
        } catch (NoSuchElementException e) {
            e.getMessage();
         finally {obj.close();
```

```
System.out.println("feedback list size :"+feedbackList.size());
        }catch (IOException e) {
            e.getMessage();
        }catch (NoSuchElementException e) {
            e.getMessage();
        TableColumn<Feedback, String> nameColumn = new
        nameColumn.setCellValueFactory(new
PropertyValueFactory<> ("passengerName"));
        TableColumn<Feedback, String> contentColumn = new
        contentColumn.setCellValueFactory(new
PropertyValueFactory<>("feedbackContent"));
        TableColumn<Feedback, Integer> ratingColumn = new
        ratingColumn.setCellValueFactory(new
PropertyValueFactory<>("rating"));
        TableColumn<Feedback, Date> dateColumn = new
        dateColumn.setCellValueFactory(new
PropertyValueFactory<>("submissionDate"));
        tableView.getItems().addAll(feedbackList);
        setHeight(back7);
       back7.setPrefWidth(200);
       back7.setOnAction(e -> stage.setScene(scn1));
        tableView.setItems(FXCollections.observableArrayList(feedbackList));
        ImageView imageView8 = new ImageView(new Image("file:E:/algorithms
        Text airlineInfo1 = new Text(" Welcome aboard our airline! We're all
        Text airlineInfo6 = new Text(" unforgettable memories. That's why
```

```
we're committed to providing top-notch service that");
        airlineInfo5.setStyle("-fx-font-family: 'Lucida Handwriting'; -fx-
        airlineInfo8.setStyle("-fx-font-family: 'Lucida Handwriting'; -fx-
        text80.setFont(Font.font("Serif", 50));
        text80.setY(150);
        text80.setX(700);
        airlineInfo1.setX(700);
        airlineInfo1.setY(190);
        airlineInfo2.setX(700);
        airlineInfo2.setY(210);
        airlineInfo3.setX(700);
        airlineInfo3.setY(230);
        airlineInfo4.setY(250);
        airlineInfo5.setX(700);
        airlineInfo5.setY(270);
        airlineInfo6.setX(700);
        airlineInfo6.setY(290);
        airlineInfo7.setX(700);
        airlineInfo7.setY(310);
        airlineInfo8.setX(700);
        airlineInfo8.setY(330);
        Pane pane8 = new Pane();
        ImageView imageView8back = new ImageView(new
        imageView8back.setFitWidth(30);
        back8.setGraphicTextGap(90);
        pane8.getChildren().addAll(imageView8, back8,next8, text80,
airlineInfo1, airlineInfo2, airlineInfo3, airlineInfo4, airlineInfo5,
        scn8 = new Scene(pane8, 1200, 700);
```

```
imageView8.fitWidthProperty().bind(scn8.widthProperty());
        imageView8.fitHeightProperty().bind(scn8.heightProperty());
        back8.setOnAction(e -> stage.setScene(scn1));
       back8.setPrefWidth(200);
       back8.setLayoutX(700);
       back8.setLayoutY(400);
       next8.setPrefWidth(200);
        next8.setPrefHeight(70);
       next8.setLayoutX(1000);
       next8.setLayoutY(400);
        setHoverCustomEffect(back8);
        next8.setOnAction(e->stage.setScene(scn12));
        ImageView imageView91 = new ImageView( new Image("file:E:/algorithms
        ImageView imageView91back = new ImageView(new
        imageView91back.setFitWidth(30);
        imageView91back.setFitHeight(30);
        Button back91 = new Button("Back", imageView8back);
        back91.setGraphicTextGap(90);
        setHoverCustomEffect(back91);
        setHeight(back91);
       Button citybt4 = new Button();
       Button citybt5 = new Button();
        ImageView cityView1 = new ImageView(new Image("file:E:/algorithms
        ImageView cityView2 = new ImageView(new
        ImageView cityView5 = new ImageView(new
Image("file:///E:/algorithms%201/MyFx/src/main/java/com/example/myfx/london.j
```

```
cityView2.setFitHeight(200);
cityView3.setFitHeight(200);
cityView4.setFitWidth(200);
cityView4.setFitHeight(200);
cityView5.setFitWidth(200);
cityView5.setFitHeight(200);
citybt1.setGraphic(cityView1);
citybt2.setGraphic(cityView2);
citybt3.setGraphic(cityView3);
citybt4.setGraphic(cityView4);
citybt5.setGraphic(cityView5);
text91.setStyle("-fx-font-family: 'Lucida Handwriting'; -fx-font-
text91.setY(150);
text91.setX(700);
Pane pane9 = new Pane();
pane9.getChildren().addAll(imageView91, back91, text91, citybt1,
imageView91.fitHeightProperty().bind(scn9.heightProperty());
imageView91.fitWidthProperty().bind(scn9.widthProperty());
back91.setPrefWidth(200);
citybt1.setPrefHeight(100);
citybt1.setPrefWidth(200);
citybt2.setPrefHeight(100);
citybt2.setPrefWidth(200);
citybt3.setPrefHeight(100);
citybt3.setPrefWidth(200);
citybt4.setPrefHeight(100);
citybt5.setPrefHeight(100);
citybt5.setPrefWidth(200);
back91.setLayoutX(300);
back91.setLayoutY(400);
citybt1.setLayoutX(720);
citybt1.setLayoutY(420);
citybt2.setLayoutX(980);
citybt2.setLayoutY(420);
citybt3.setLayoutX(600);
citybt3.setLayoutY(200);
citybt4.setLayoutX(850);
citybt4.setLayoutY(200);
citybt5.setLayoutX(1100);
citybt5.setLayoutY(200);
back91.setOnAction(e -> stage.setScene(scn1));
```

```
iconButton(back91);
openWebpage("https://en.wikipedia.org/wiki/Doha"));
openWebpage("https://en.wikipedia.org/wiki/Islamabad"));
        citybt3.setOnAction(e ->
openWebpage("https://en.wikipedia.org/wiki/Dubai"));
openWebpage("https://en.wikipedia.org/wiki/New York City"));
        citybt5.setOnAction(e ->
openWebpage("https://en.wikipedia.org/wiki/London"));
        ImageView imageView101 = new ImageView(new Image("file:E:/algorithms
        text101.setStyle("-fx-font-family: 'Lucida Handwriting'; -fx-font-
        text101.setY(150);
        Pane pane101 = new Pane();
        Image back101icon = new
Image("file:/E:/algorithms%201/MyFx/src/main/java/com/example/myfx/left-
        ImageView imageView101back = new ImageView(back101icon);
        imageView101back.setFitWidth(30);
        imageView101back.setFitHeight(30);
        Button back101 = new Button("Back", imageView8back);
        back8.setGraphicTextGap(90);
       iconButton(back8);
        ImageView facebookImageView = new ImageView(new
        ImageView twitterImageView = new ImageView(new
Image("file:E:/algorithms
        ImageView instagramImageView = new ImageView(new
        Button twitter = new Button();
        Button instagram = new Button();
        facebook.setGraphic(facebookImageView);
        twitter.setGraphic(twitterImageView);
```

```
email.setGraphic(emailImageView);
        facebookImageView.setFitWidth(15);
        twitterImageView.setFitHeight(15);
        twitterImageView.setFitWidth(15);
        instagramImageView.setFitHeight(15);
        emailImageView.setFitHeight(15);
        emailImageView.setFitWidth(15);
        facebook.setOnAction(e -> openWebpage("https://www.facebook.com/"));
        twitter.setOnAction(e ->
openWebpage("https://twitter.com/home?lang=en"));
        instagram.setOnAction(e ->
openWebpage("https://www.instagram.com/"));
        email.setOnAction(e ->
openWebpage("https://mail.google.com/mail/u/0/#inbox"));
        Label facebookLabel = new Label("Facebook:
        Label twitterLabel = new Label("Twitter: twitter.com/Bacatatic");
        Label instagramLabel = new Label("Instagram:
       Label emailLabel = new Label ("Email: BacataticAir@qmail.com");
        facebookLabel.setStyle("-fx-font-family: 'Lucida Handwriting'; -fx-
        instagramLabel.setStyle("-fx-font-family: 'Lucida Handwriting'; -fx-
        facebook.setLayoutX(680);
        facebook.setLayoutY(160);
        facebookLabel.setLayoutX(720);
        facebookLabel.setLayoutY(165);
        twitter.setLayoutX(680);
        twitter.setLayoutY(190);
        twitterLabel.setLayoutX(720);
        twitterLabel.setLayoutY(195);
        instagram.setLayoutX(680);
        instagram.setLayoutY(220);
        instagramLabel.setLayoutX(720);
        instagramLabel.setLayoutY(225);
        email.setLayoutX(680);
        email.setLayoutY(250);
        emailLabel.setLayoutX(720);
        emailLabel.setLayoutY(255);
        pane101.getChildren().addAll(imageView101, text101, back101,
```

```
facebook, twitter, instagram, email,
        imageView101.fitWidthProperty().bind(scn10.widthProperty());
        imageView101.fitHeightProperty().bind(scn10.heightProperty());
        back101.setOnAction(e -> stage.setScene(scn1));
        setHeight(back101);
        back101.setPrefWidth(200);
        back101.setLayoutX(700);
        back101.setLayoutY(400);
        setHoverCustomEffect(back101);
        button7.setOnAction(e -> stage.setScene(scn10));
        ImageView imageView111 = new ImageView(new Image("file:E:/algorithms
        Label 1000= new Label("");
        Label 1002= new Label ("Select Category");
        Label 1111 = new Label ("Enter Parcel Weight");
        ObservableList<String> destination =
FXCollections.observableArrayList();
        destination.add("islamabad");
        destination.add("london");
        destination.add("newyork");
        destination.add("doha");
        destination.add("dubai");
        ObservableList<String> origin = FXCollections.observableArrayList();
        origin.add("lahore");
        origin.add("faisalabad");
        origin.add("karachi");
        origin.add("multan");
        ComboBox comboBox111 = new ComboBox(destination);
        ComboBox comboBox112 = new ComboBox(origin);
        comboBox112.setPromptText("Select Origin");
        comboBox111.setPromptText("Select Destination");
        ToggleGroup tg111 = new ToggleGroup();
        r111.setToggleGroup(tg111);
        r112.setToggleGroup(tg111);
        GridPane pane111 = new GridPane();
        panell1.add(t1113,4,6);
        panell1.add(t1114,4,7);
```

```
pane111.add(1000,5,8);
pane111.add(1001,7,9);
pane111.add(1002,6,12);
setDefaultFont(1002);
setDefaultFont(1001);
panell1.add(ll11, 6, 10);
setDefaultFont(1111);
pane111.add(t111, 7, 10);
panell1.add(r111, 7, 12);
pane111.add(r112, 7, 14);
panel11.add(comboBox111, 7, 16);
pane111.add(comboBox112, 7, 18);
Button submit111 = new Button("Calculate");
pane111.add(back111, 7, 19);
panell1.add(submit111, 7, 25);
setHoverCustomEffect(back111);
StackPane sp111 = new StackPane();
sp111.getChildren().addAll(imageView111, pane111);
Label 1113 = new Label ("Visit our offices to book ");
Label 1118= new Label("> New York");
Label 1119= new Label ("> London ");
Label 11110= new Label("> Faisalabad");
panell1.add(l113,17,1);
pane111.add(1114,22,2);
pane111.add(1115,22,3);
pane111.add(1116,22,4);
pane111.add(1117,22,5);
pane111.add(1118,22,6);
pane111.add(1119,22,7);
pane111.add(11110,22,8);
pane111.add(11111,22,9);
pane111.add(11112,22,10);
setDefaultFont(11111);
setDefaultFont(11112);
setDefaultFont(1114);
setDefaultFont(1115);
setDefaultFont(1116);
setDefaultFont(1117);
```

```
setDefaultFont(1118);
        setDefaultFont(1119);
        setDefaultFont(11110);
        scn11 = new Scene(sp111, 1400, 700);
        setHoverCustomEffect(submit111);
        imageView111.fitHeightProperty().bind(scn11.heightProperty());
        imageView111.fitWidthProperty().bind(scn11.widthProperty());
        back111.setOnAction(e->stage.setScene(scn1));
        Text fare = new Text();
        submit111.setOnAction(e -> {
            String dest = null;
            boolean type = false;
                1112.setText("");
                fare.setText("");
                weight = Double.parseDouble(t111.getText());
                dest = comboBox111.getValue().toString();
                RadioButton selectedtype = (RadioButton)
tg111.getSelectedToggle();
                type = Boolean.parseBoolean(selectedtype.getText());
                1112.setText("Your Fare will be ");
                double f = Cargo.cargofare(weight, dest, type, origi);
                fare.setText(Double.toString(f));
                panell1.add(l112, 7, 20);
                panell1.add(fare, 7, 22);
                if (t111.getText().equals("")){
                    throw new EmptyFieldException();
                    throw new InvalidWeightException ("Weight must be between
                t111.setText("");
               comboBox111.setValue(null);
               comboBox112.setValue(null);
               tg111.selectToggle(null);
            } catch (NumberFormatException | InvalidWeightException o) {
                t111.setText("");
            } catch ( EmptyFieldException eo) {
```

```
ImageView imageView121 = new ImageView(new Image("file:E:/algorithms
 setHoverCustomEffect(hitler);
 Text t122= new Text("Today our world suffers from a cancer called
 Text t124= new Text("Special discounts will be provided to anti-
 Text t126= new Text("Chamber was the best part of it . So grab your
t123.setStyle("-fx-font-family: 'Lucida Handwriting'; -fx-font-size:
t125.setStyle("-fx-font-family: 'Lucida Handwriting'; -fx-font-size:
t127.setStyle("-fx-font-family: 'Lucida Handwriting'; -fx-font-size:
 t121.setY(190);
 t122.setY(210);
 t123.setX(500);
 t123.setY(230);
 t124.setX(500);
 t124.setY(250);
```

```
t126.setY(290);
        t127.setY(310);
        t128.setX(500);
        t128.setY(330);
        hitler.setLayoutY(370);
        hitler.setLayoutX(500);
        hitler.setOnAction(e->stage.setScene(scn1));
Pane pane121= new Pane(t121,t122,t123,t124,t125,t126,t127,t128,hitler);
StackPane sp121= new StackPane(imageView121, hitlerview, pane121);
scn12= new Scene(sp121,1400,700);
imageView121.fitWidthProperty().bind(scn12.widthProperty());
imageView121.fitHeightProperty().bind(scn12.heightProperty());
        DropShadow shadow = new DropShadow();
        text10.setX(310);
        text11.setX(320);
        text10.setY(400);
        text11.setY(430);
        button5.setLayoutX(1000);
        button6.setLayoutX(1000);
        button7.setLayoutX(1000);
        button5.setLayoutY(300);
        button6.setLayoutY(400);
        button7.setLayoutY(500);
        button8.setLayoutY(600);
        button8.setLayoutX(1000);
        button8.setOnAction(e->stage.setScene(scn11));
```

```
Pane pane = new Pane();
button6, button7, button8, pane1);
        scn1 = new Scene(pane, 1200, 700);
        imageView.fitWidthProperty().bind(scn1.widthProperty());
        imageView.fitHeightProperty().bind(scn1.heightProperty());
        stage.getIcons().add(new Image("file:E:/algorithms
        button0.setStyle(
        setHeight(button0);
        setHeight(button1);
        setHeight(button2);
        setHeight(button3);
        setHeight(button7);
        button0.setPrefSize(113, 70);
        button1.setPrefWidth(314);
        button2.setPrefWidth(313);
        button3.setPrefWidth(313);
        button4.setPrefWidth(314);
        button5.setPrefWidth(314);
        button6.setPrefWidth(314);
        button7.setPrefWidth(314);
        button1.toFront();
        button2.toFront();
        setHoverEffect(button3);
        setHoverCustomEffect(button5);
        setHoverCustomEffect(button6);
        setHoverCustomEffect(button7);
        stage.setScene(scn1);
```

```
private void setHoverEffect(Button button) {
       button.setOnMouseEntered(event -> {
           button.setStyle("-fx-background-color: purple; -fx-text-fill:
       button.setOnMouseExited(event -> {
           button.setStyle("-fx-background-color: black; -fx-text-fill:
   private void iconButton(Button button) {
Image("file:/E:/algorithms%201/MyFx/src/main/java/com/example/myfx/left-
        ImageView imageView = new ImageView(backIcon);
       imageView.setFitWidth(24);
       imageView.setFitHeight(24);
       button.setGraphic(imageView);
       button.setGraphicTextGap(graphicTextGap);
       button.setPrefWidth(200);
       button.setPrefHeight(70);
   private void setHoverCustomEffect(Button button) {
       button.setOnMouseEntered(event -> {
       button.setOnMouseExited(event -> {
```

```
private void openWebpage(String url) {
        Desktop.getDesktop().browse(new URI(url));
    } catch (Exception e) {
        e.printStackTrace();
private void setHeight(Button button) {
   button.setPrefHeight(70);
public static void main(String[] args) {
    launch(args);
private Flight getSelectedFlight(String flightNumber) {
        if (flight.getFlightNumber().equals(flightNumber)) {
            return flight;
private void ErrorAlertMethod(String title, String content) {
    Alert alert = new Alert(Alert.AlertType.ERROR);
    alert.setContentText(content);
    alert.show();
public void displayForm(Stage stage) {
    Label label1 = new Label("Name :");
    TextField tf1 = new TextField();
    Label label2 = new Label("Age :");
    TextField tf2 = new TextField();
    Label label3 = new Label("Email:");
    TextField tf4 = new TextField();
    ToggleGroup toggleGroup = new ToggleGroup();
    rbt1.setToggleGroup(toggleGroup);
    rbt2.setToggleGroup(toggleGroup);
    rbt3.setToggleGroup(toggleGroup);
```

```
combo box.setPromptText("Select Airport");
        Button backForm = new Button("Back form");
        setHoverCustomEffect(submitForm);
        setHoverCustomEffect(backForm);
        GridPane pane2= new GridPane();
        pane2.getChildren().clear();
        pane2.setVgap(5);
        pane2.setHgap(5);
        pane2.add(label1, 0, 0);
        pane2.add(tf1, 1, 0);
        pane2.add(label2, 0, 1);
        pane2.add(tf2, 1, 1);
        pane2.add(label3, 0, 2);
        pane2.add(tf3, 1, 2);
        pane2.add(label4, 0, 3);
        pane2.add(tf4, 1, 3);
        pane2.add(label5, 0, 4);
        pane2.add(rbt1, 1, 4);
        pane2.add(rbt2, 2, 4);
        pane2.add(rbt3, 3, 4);
        pane2.add(label6, 0, 5);
        pane2.add(combo_box, 1, 5);
        pane2.add(submitForm, 1, 6);
        pane2.add(backForm, 0, 6);
        backForm.setOnAction(e ->{
            pane2.getChildren().clear();
            stage.setScene(scn1);
        submitForm.setOnAction(e -> {
            if (name.isEmpty() || ageText.isEmpty() || email.isEmpty() ||
phoneText.isEmpty()) {
            int age;
                age = Integer.parseInt(ageText);
```

```
} catch (NumberFormatException ex) {
                phone = Long.parseLong(phoneText);
            } catch (NumberFormatException ex) {
                ErrorAlertMethod("Invalid Phone Number", "Please enter a
displayDepartureSchedule(stage,combo box,toggleGroup,tf1,tf2,tf3,tf4);
        Image image2 = new Image("file:/E://algorithms
        ImageView imageView2 = new ImageView(image2);
        StackPane pane21 = new StackPane();
        pane21.getChildren().addAll(imageView2,pane2);
        setDefaultFont(label1);
        setDefaultFont(label2);
        setDefaultFont(label3);
        setDefaultFont(label4);
        setDefaultFont(label5);
        setDefaultFont(label6);
        scn2 = new Scene(pane21, 1200, 700);
        imageView2.fitWidthProperty().bind(scn2.widthProperty());
        imageView2.fitHeightProperty().bind(scn2.heightProperty());
        stage.setScene(scn2);
    public void displayDepartureSchedule(Stage stage,ComboBox
combo box, ToggleGroup toggleGroup, TextField tf1, TextField tf2, TextField
tf3, TextField tf4) {
        GridPane pane3 = new GridPane();
        pane3.setVgap(10);
        pane3.setHgap(10);
        Label 151 = new Label("Flight number");
        Label 153 = new Label("Flight Destination");
        Label 154 = new Label ("Flight Departure Time");
```

```
pane3.add(151,0,0);
        pane3.add(152,1,0);
        pane3.add(153,2,0);
        pane3.add(154,3,0);
        pane3.add(155, 4, 0);
        for (int i = 0; i < flightlist.size(); i++) {</pre>
(flightlist.get(i).getDepartueAirport().equals(combo box.getValue().toString()
                System.out.println(i);
                String destinationAirport =
flightlist.get(i).getDestinationAirport();
                SimpleDateFormat dateFormat = new SimpleDateFormat("yyyy-MM-
                String formattedDate1 = dateFormat.format(arrivalTime);
                Date departureTime = flightlist.get(i).getDepartureTime();
                String formattedDate2 = dateFormat.format(departureTime);
                Label 1b13 = new Label();
                Label 1b14 = new Label();
                lbl0.setText(flightNumber);
                lbl1.setText(flightlist.get(i).getDepartueAirport());
                lbl2.setText(destinationAirport);
                lbl4.setText(formattedDate2);
                pane3.add(lb10, 0, counter);
                pane3.add(lbl2, 2, counter);
                pane3.add(lbl4, 4, counter);
        Label 156 = new Label ("Enter Flight Number you want :");
        TextField txt56=new TextField();
        pane3.add(156,0,counter+1);
        pane3.add(txt56,1,counter+1);
        pane3.add(submitFlight, 1, counter+2);
        Label 157 = new Label ("Flight Duration: "); //display flight duration
        pane3.add(157, 0, counter+5);
```

```
pane3.add(158, 0, counter+6);
        pane3.add(print, 0, counter+7);
        158.setVisible(false);
        print.setVisible(false);
        backFlight.setOnAction(e -> {
            displayForm(stage);
        int finalCounter = counter;
        submitFlight.setOnAction(e -> {
            String passname = tf1.getText();
            int ageText = Integer.parseInt(tf2.getText());
            Long phone = Long.valueOf(tf4.getText());
toggleGroup.getSelectedToggle();
            String ticketClass = selectedRadioButton.getText();
            selectedFlightNumber = txt56.getText();
            String selectedDepartureAirport =
combo box.getValue().toString();
            if (selectedDepartureAirport == null ||
selectedDepartureAirport.isEmpty()) {
!selectedFlight.getDepartueAirport().equalsIgnoreCase(selectedDepartureAirpor
                ErrorAlertMethod("Invalid Flight Number", "Please enter a
            Passenger newPassenger = new
Passenger(passname, email, phone, ageText, ticketClass);
            passengersList.add(newPassenger);
Ticket("LH00000092", passengersList, flightlist);
            TicketList.add(newTicket);
                double fare = Ticket.handleTicketClass(passname, email,
phone, ageText, ticketClass, selectedFlight.getFlightDuration());
                print.setVisible(true);
```

```
Label lblDuration = new Label();
               pane3.add(lblDuration, 1, finalCounter +5);
               Label lblFare = new Label();
               lblFare.setText("$ "+(fare));
               pane3.add(lblFare, 1, finalCounter +6);
               System.out.println("Selected flight not found");
       print.setOnAction(e -> {
           printTicket(stage);
           stage.setScene(scn4);
       Image image3 = new Image("file:/E://algorithms
       ImageView imageView3 = new ImageView(image3);
       StackPane pane31 = new StackPane();
       pane31.getChildren().addAll(imageView3,pane3);
       scn3= new Scene(pane31,750,650);
       imageView3.fitHeightProperty().bind(scn3.heightProperty());
       imageView3.fitWidthProperty().bind(scn3.widthProperty());
       setHoverCustomEffect(backFlight);
       setHoverCustomEffect(print);
       stage.setScene(scn3);
   private void setDefaultFont(Label label) {
       double defaultFontSize = 13;
       label.setStyle(
size: " + defaultFontSize + "px;"
       Label 1f3= new Label("");
       Label 1b3 = new Label();
       Label 1b4 = new Label();
       Label 1f5= new Label("");
```

```
Label 1b5 = new Label();
        Label lf8 = new Label("");
        Label 1b8 = new Label();
        Label 1b9 = new Label();
        setDefaultFont(lf1);
        setDefaultFont(1f2);
        setDefaultFont(1f3);
        setDefaultFont(lf4);
        setDefaultFont(lf5);
        setDefaultFont(lf7);
        setDefaultFont(1f8);
        setDefaultFont(1f9);
        Reservation newReservation = new Reservation("LH00000092",
flightlist, passengersList, TicketList);
        ReservationList.add(newReservation);
        for (Reservation res : ReservationList) {
(selectedFlightNumber.equalsIgnoreCase(flight.getFlightNumber())) {
                        lb3.setText(flight.getDepartueAirport());
                        lb4.setText(flight.getDestinationAirport());
                        lb5.setText(newReservation.getReservationNumber());
                        lb6.setText(passenger.getName());
                        lb7.setText(currentDate.toString());
                        lb8.setText(currentDate.toString());
                        lb9.setText(passenger.getTicketClass());
                        String fnum=flight.getFlightNumber();
                        String dair=flight.getDepartueAirport();
                        String aair =flight.getDestinationAirport();
                        String resnum=newReservation.getReservationNumber();
                        String name=passenger.getName();
                        String ddate=currentDate.toString();
                        String adate=currentDate.toString();
                        String tclass=passenger.getTicketClass();
FileOutputStream("C:/Users/wajid/Desktop/Ticket.txt", true);
                            myfile.close();
                        } catch (FileNotFoundException e) {
                            throw new RuntimeException(e);
```

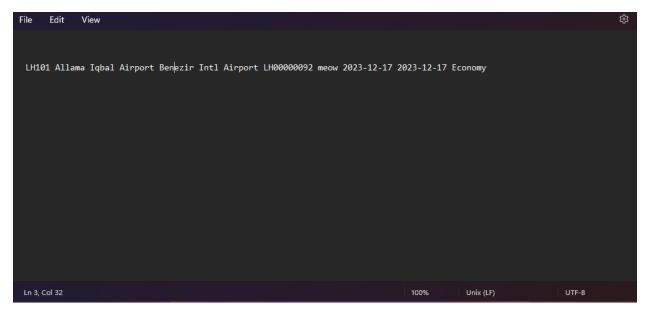
```
GridPane pane4= new GridPane();
pane4.setVgap(5);
pane4.setHqap(10);
pane4.add(1f0,0,0);
pane4.add(lf1,0,1);
pane4.add(lb1,28,21);
pane4.add(1f2,0,3);
pane4.add(1b2,0,4);
pane4.add(1f3,0,5);
pane4.add(1b3,19,26);
pane4.add(lf4,0,0);
pane4.add(lb4,19,31);
pane4.add(1f5,0,9);
pane4.add(lb5,40,21);
pane4.add(lf6,0,11);
pane4.add(lb6,19,21);
pane4.add(lf7,0,13);
pane4.add(lb7,36,31);
pane4.add(lf8,0,15);
pane4.add(lb8,36,26);
pane4.add(lf9,0,17);
pane4.add(lb9,36,21);
pane4.add(exit, 0, 30);
setHoverCustomEffect(exit);
Image image4 = new Image("file:/E://algorithms
ImageView imageView4= new ImageView(image4);
Image image42= new Image("file:/E://algorithms
ImageView imageView42= new ImageView(image42);
StackPane pane41= new StackPane();
pane41.getChildren().addAll(imageView4,imageView42,pane4);
scn4 = new Scene(pane41, 750, 650);
    stage.setScene(scn1);
```

new Features

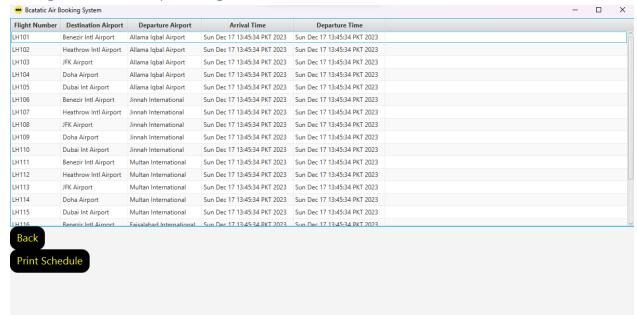
1.Ticket Printing



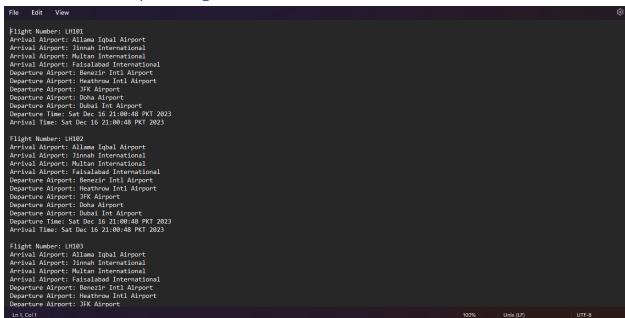
Press show ticket which displays the ticket and prints it information:



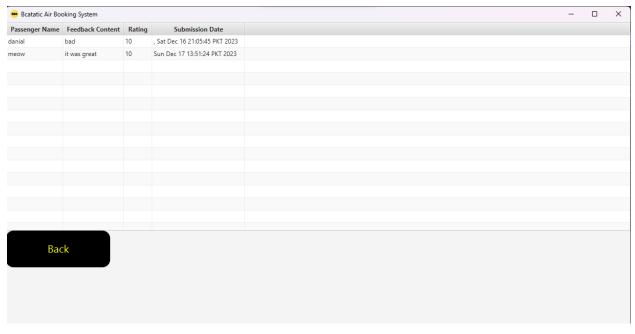
2.Flight schedule printing



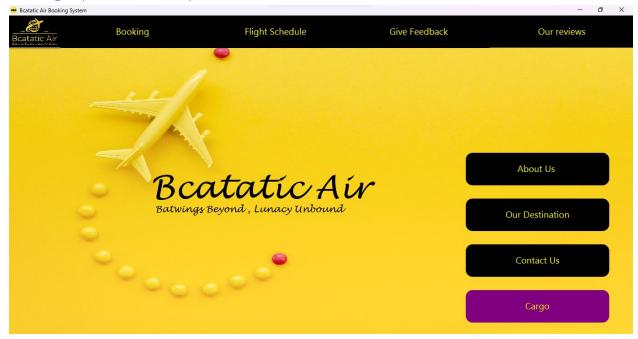
Press button to print flight schedule



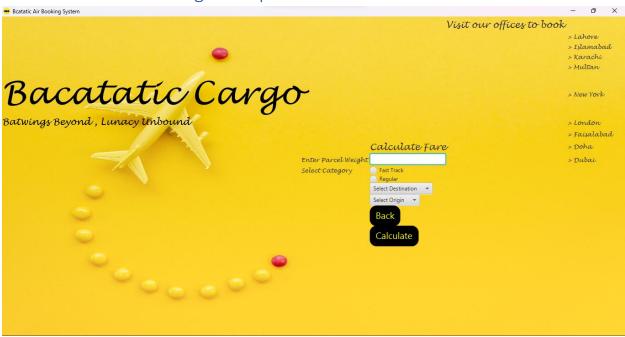
3.feedback record maintenance:

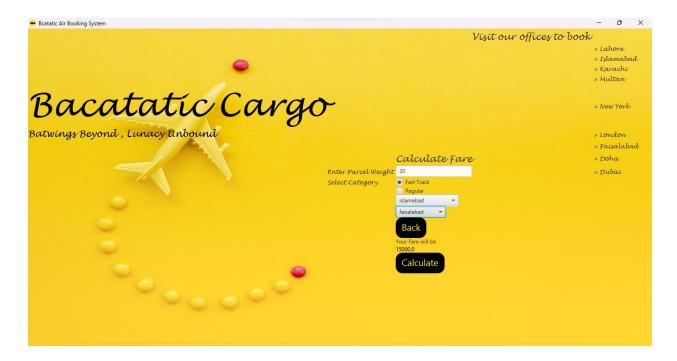


4.Cargo (new feature)

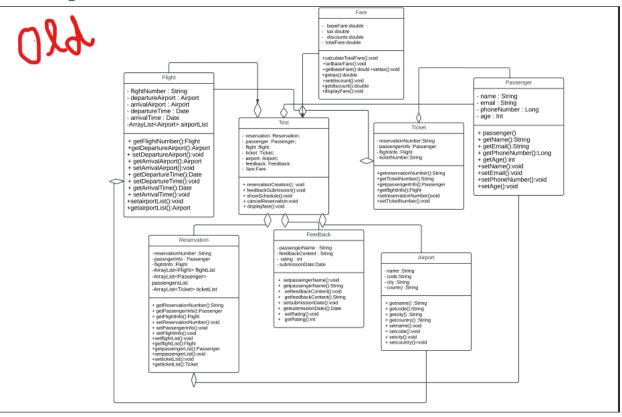


Helps you determine you delivery fare of your parcel at one touch, you can visit our offices to get the parcel booked.





UML diagram



New UML diagram looks quite different from Old because of Gui, file handling and creation of exception classes. Date type attributes have changed into Strings in some classes for file handling purposes.

(new uml might not be clear because of the large size)

New UML

