UNIVERSITY MALAYSIA TERENGGANU

FACULTY OF COMPUTER SCIENCE AND MATHEMATICS

CSM3023

DEVELOPMENT OF WEB BASED APPLICATIONS

Group Project Final Report

[Parcel Management System]

Prepared by:

Group No. 4

S67383	NURHASLINDA BINTI BAHARUDDIN
S65361	NUR ARINA BINTI ABDUL MALEK
S67335	MUHAMMAD HARITH BIN ZULKIFLI

Prepared for:

DR. MOHAMAD NOR BIN HASSAN

SEMESTER 2 2023/2024

Contents

Executive Summary 3

Use Case 4

Class Diagram 5
User traceability matrix 5
ER Diagram.. 7
MVC Model 8
Interfaces 9
Sample of coding 12
Database Connection.. 12
CRUD Process 17
Javabeans 18
Contribution.. 19
Conclusion 19
References.. 20

Executive Summary

The main objective of this project is to develop a web application for post siswa in UMT which is Parcel Management System that helps staff handling and manage the parcel easily . This system address the current challenges faced in parcel logistics within the university campus. The website aims to provide UMT's staff manage the parcel more organized and neat. Another purpose of our system is to manage unclaim parcel who had been not claim for days to days. Our system is to maintain a sustainable website with user-friendly interfaces to allow users to easily navigate through our website smoothly without any restraint.

Interview

The main objective of this project is to develop a web application for post siswa in UMT which is Parcel Management System that helps staff handling and manage the parcel easily. To achieve this, we conducted interviews with UMT staff who is Puan Nurul Farhanah binti Mohd Amin to understand their current challenges and requirements. This system addresses the current challenges faced in parcel logistics within the university campus. Based on the insights gained from the interviews, the website aims to provide UMT's staff with a more organized and neat way to manage parcels. Another purpose of our system, identified through stakeholder feedback, is to manage unclaimed parcels that have not been claimed for days. Our system is designed to maintain a sustainable website with user-friendly interfaces, allowing users to easily navigate through the website smoothly without any restraint.

Use Case

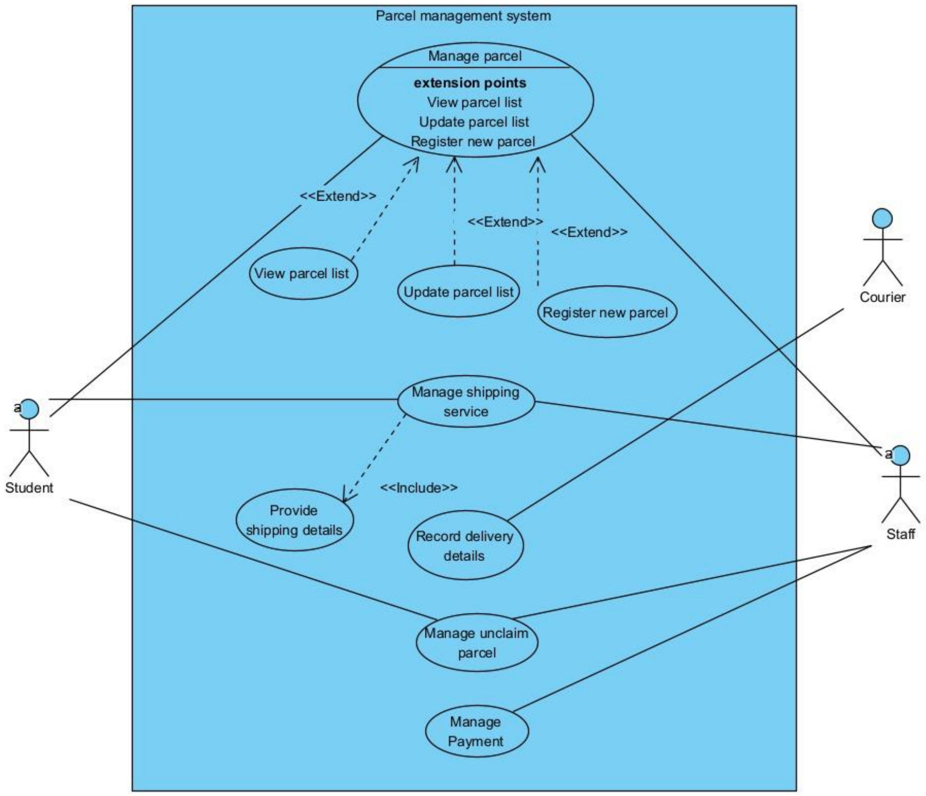


Diagram 1

Diagram 1 show a parcel management system that involves multiple actors like Student, Staff, Courier . The use case show how various actors interact with parcel management system to perform actions like registering, updating, shipping and managing parcels.

Class Diagram

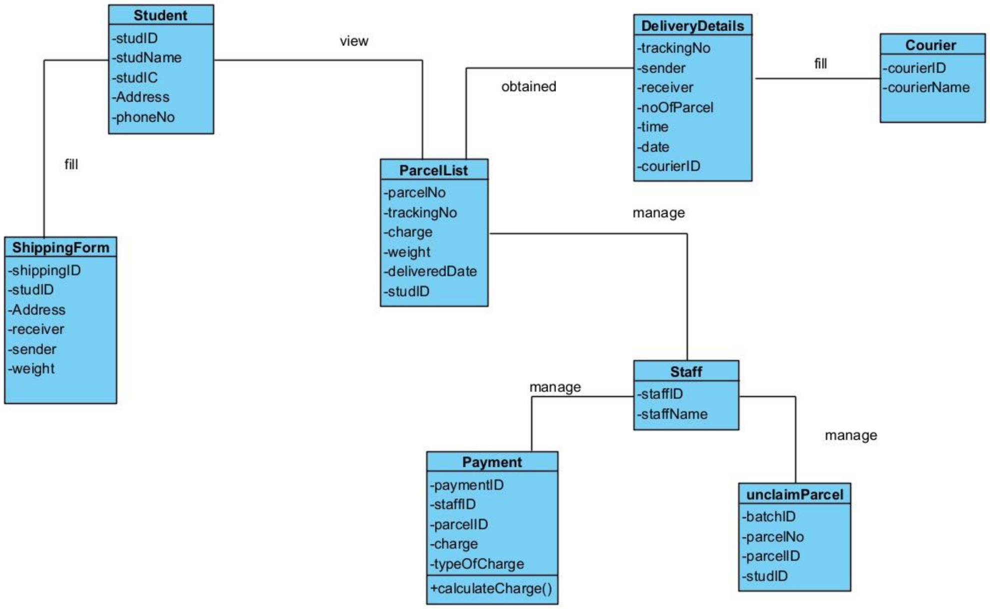


Diagram 2

Diagram 2 shows a system for managing parcels and deliveries. The diagram depicts the process of a student creating a shipping form, the parcel being added to a list and managed by staff members, the delivery being handled by a courier and the payment for the parcel being managed

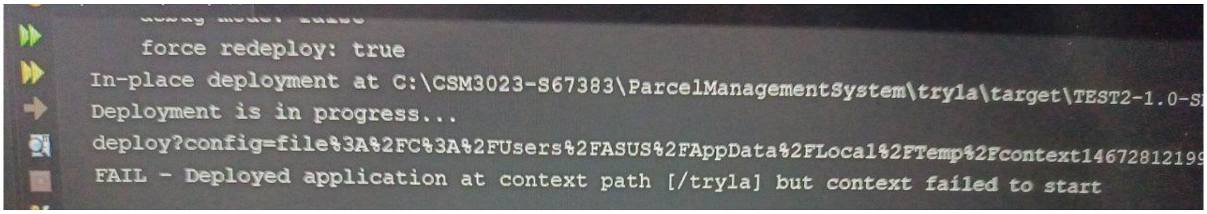
User traceability matrix

User Requirement ID	User Requirement Description	System Feature ID	System Feature Description	Status
UR01	Users need to add new shipping form into the system	SF01	Provide a shipping form.	Not Passed

UR02	Users can to view details of shipping form.	SF02	Display detailed shipping form information.	Not Passed
UR03	User can update shipping form	SF03	Provide update shipping form.	Not Passed
UR04	Courier need to register delivery details	SF04	Provide a delivery details.	Not Passed
UR05	Staff can view details of unclaim parcel.	SF05	Display unclaim parcel	Not Passed
UR06	Staff can manage payment	SF06	Display detailed of payment.	Not Passed

Diagram 3 shows the traceability matrix for parcel management system.

We can’t manage to run all the requirements as the project keep falied as show as below



```
    force redeploy: true
In-place deployment at C:\CSM3023-S67383\ParcelManagementSystem\tryla\target\TEST2-1.0-S
Deployment is in progress...
deploy?config=file%3A%2FC%3A%2FUsers%2FASUS%2FAppData%2FLocal%2FTemp%2Fcontext1467281219
FAIL - Deployed application at context path [/tryla] but context failed to start
```

ER Diagram

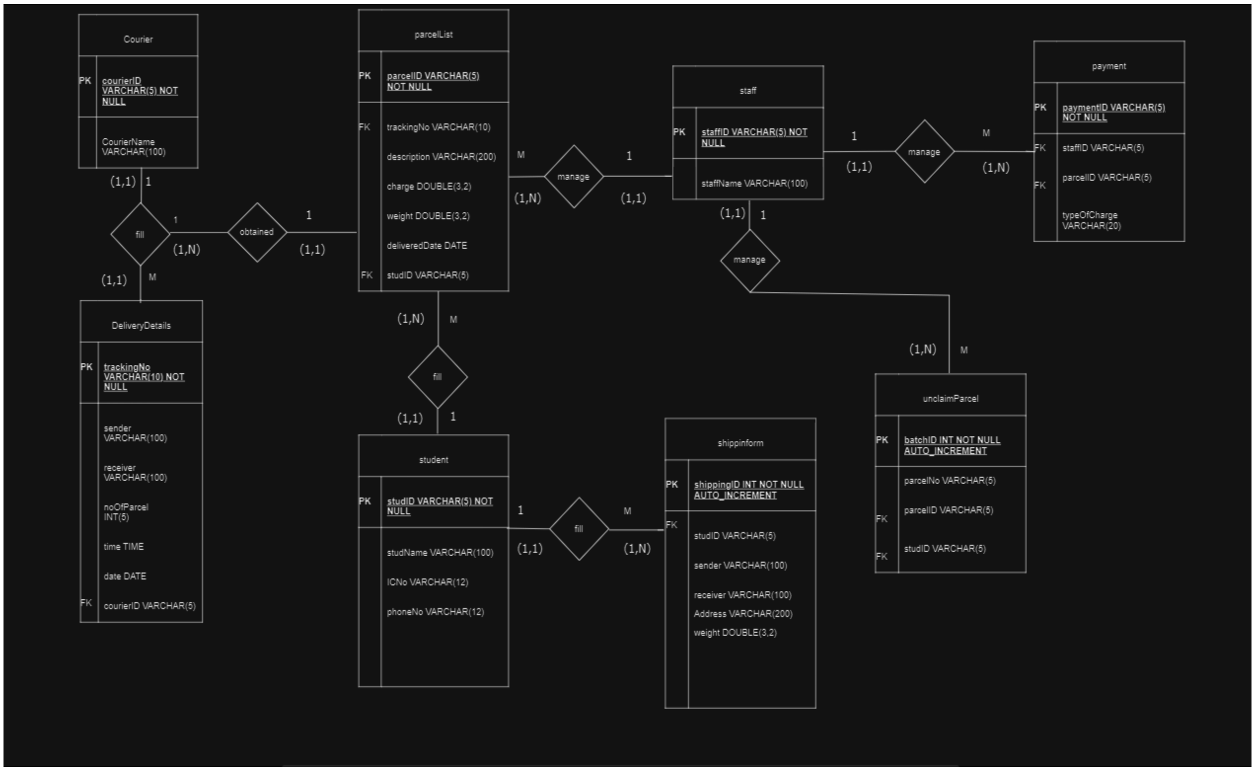


Diagram 4

Diagram 4 shows that staff will manage all the classes in the diagram.

MVC Model

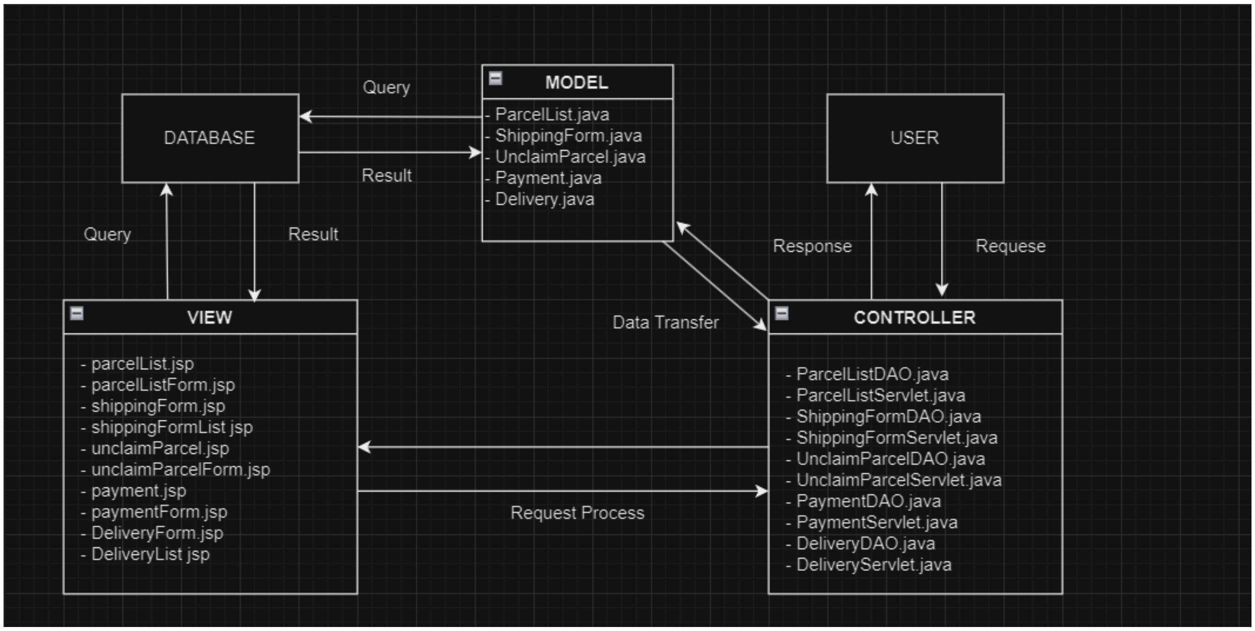
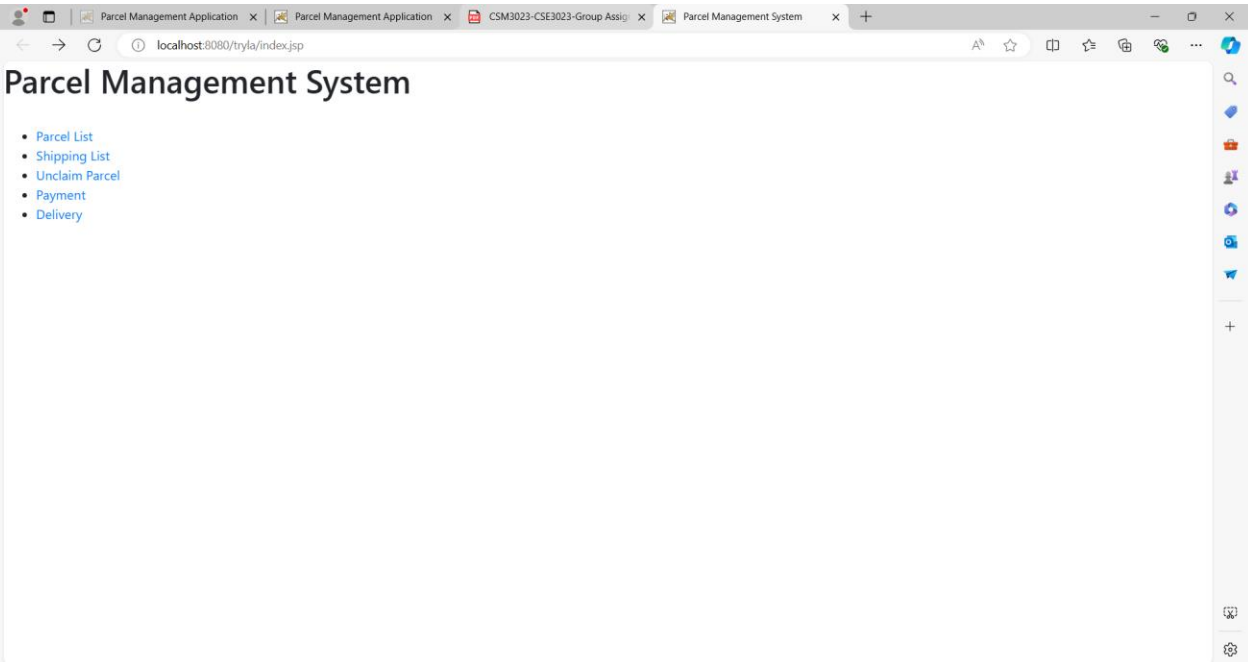


Diagram 5

Diagram 5 shows that model and controller will exchange data base on user request, model will request for data from database and database will request information from view to show results based on requested data.

Interfaces



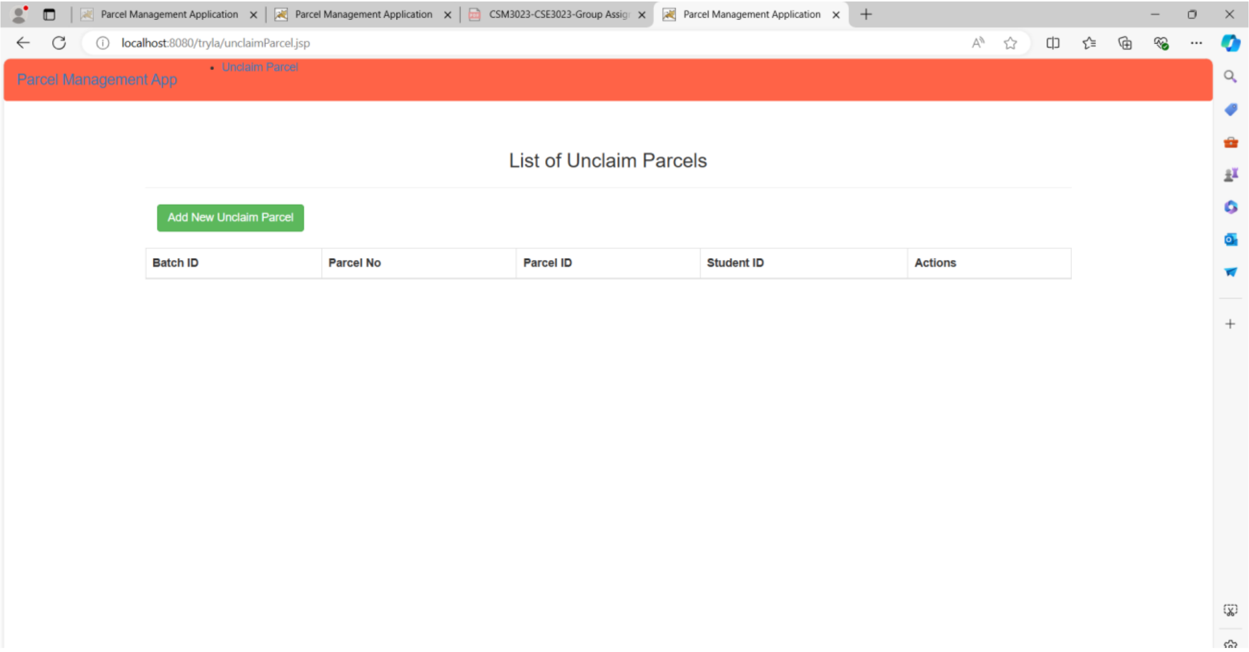
Parcel Management Application
Parcel Management Application
CSM3023-CSE3023-Group Assig
Parcel Management System
localhost:8080/tryla/index.jsp

Parcel Management System

- Parcel List
- Shipping List
- Unclaim Parcel
- Payment
- Delivery

Diagram 6

Diagram 6 shows that shows that interfaces the index.jsp


Parcel Management Application
Parcel Management Application
CSM3023-CSE3023-Group Assig
Parcel Management Application
localhost:8080/tryla/unclaimParcel.jsp
Parcel Management App
• Unclaim Parcel
Add New Unclaim Parcel

List of Unclaim Parcels

Batch ID	Parcel No	Parcel ID	Student ID	Actions

Diagram 7

Diagram 7 shows that interfaces of unclaimParcel.jsp

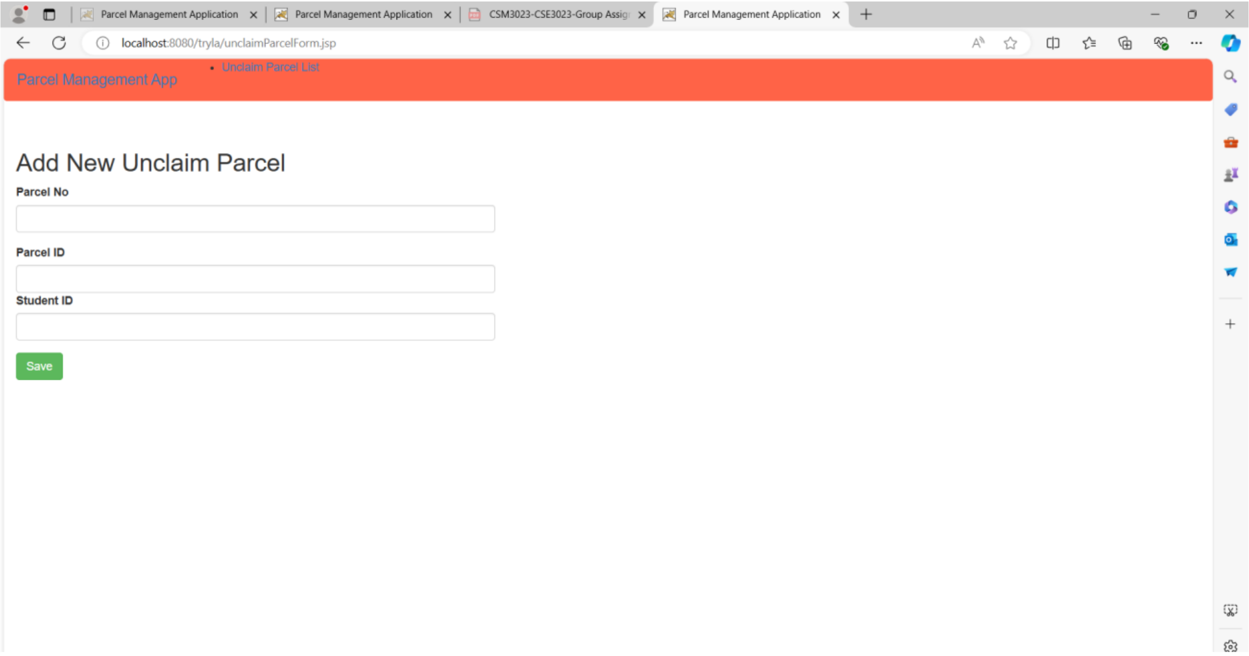
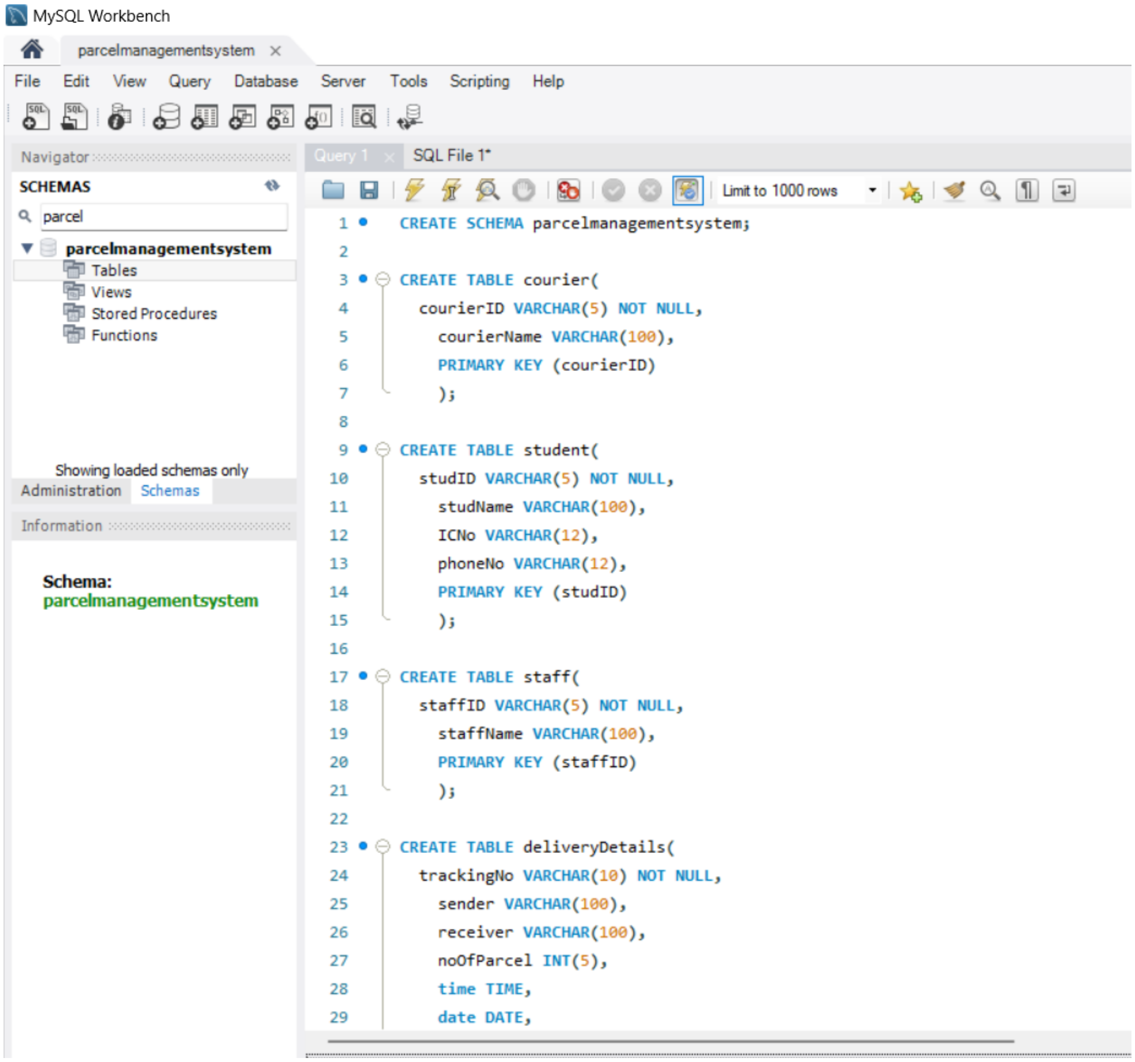

Parcel Management Application
Parcel Management Application
CSM3023-CSE3023-Group Assig
Parcel Management Application
localhost:8080/tryla/unclaimParcelForm.jsp
Parcel Management App
Unclaim Parcel List
Add New Unclaim Parcel
Parcel No
Parcel ID
Student ID
Save

Diagram 8

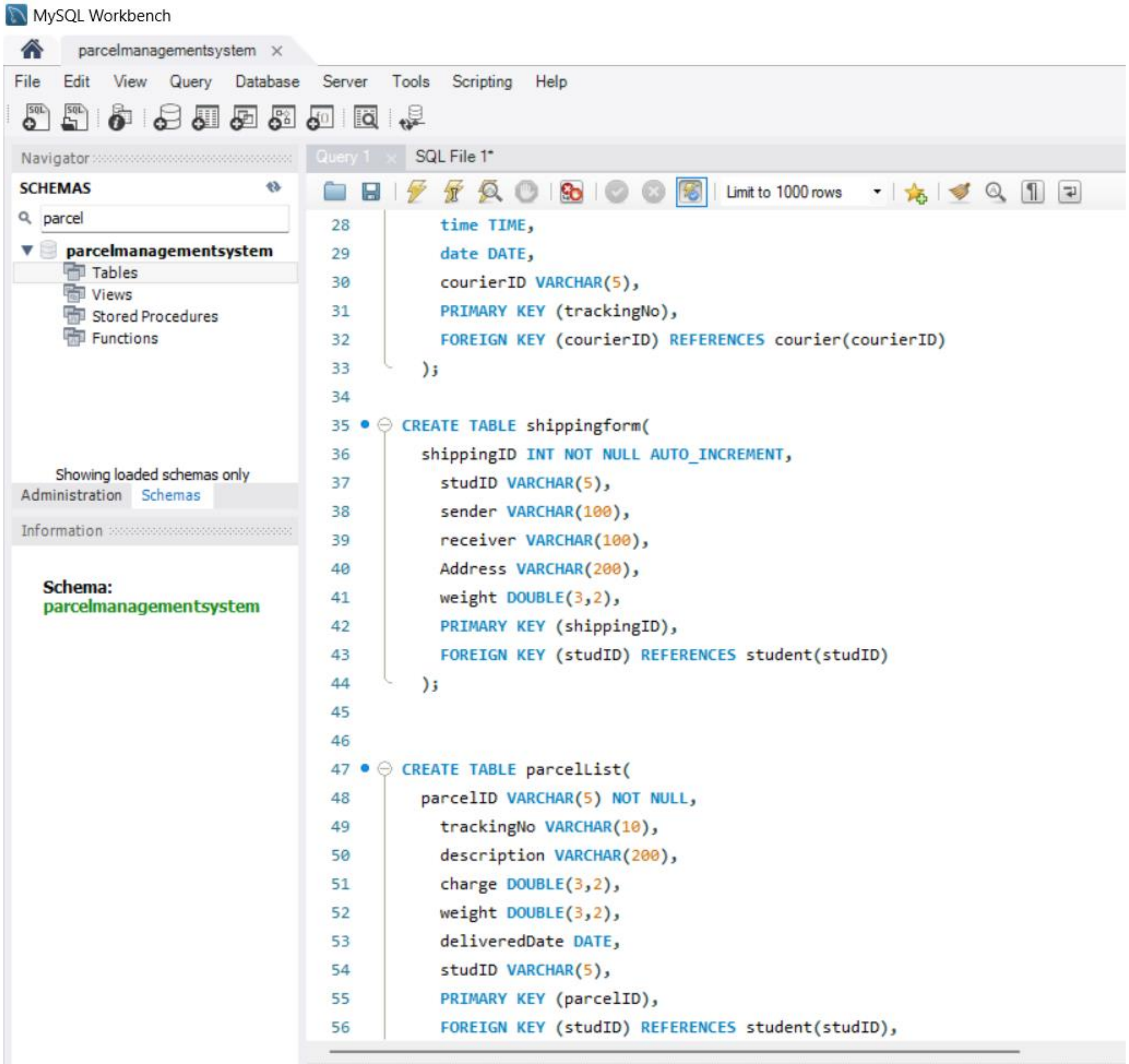
Diagram 8 shows that interfaces of unclaimParcelForm.jsp

Sample of coding

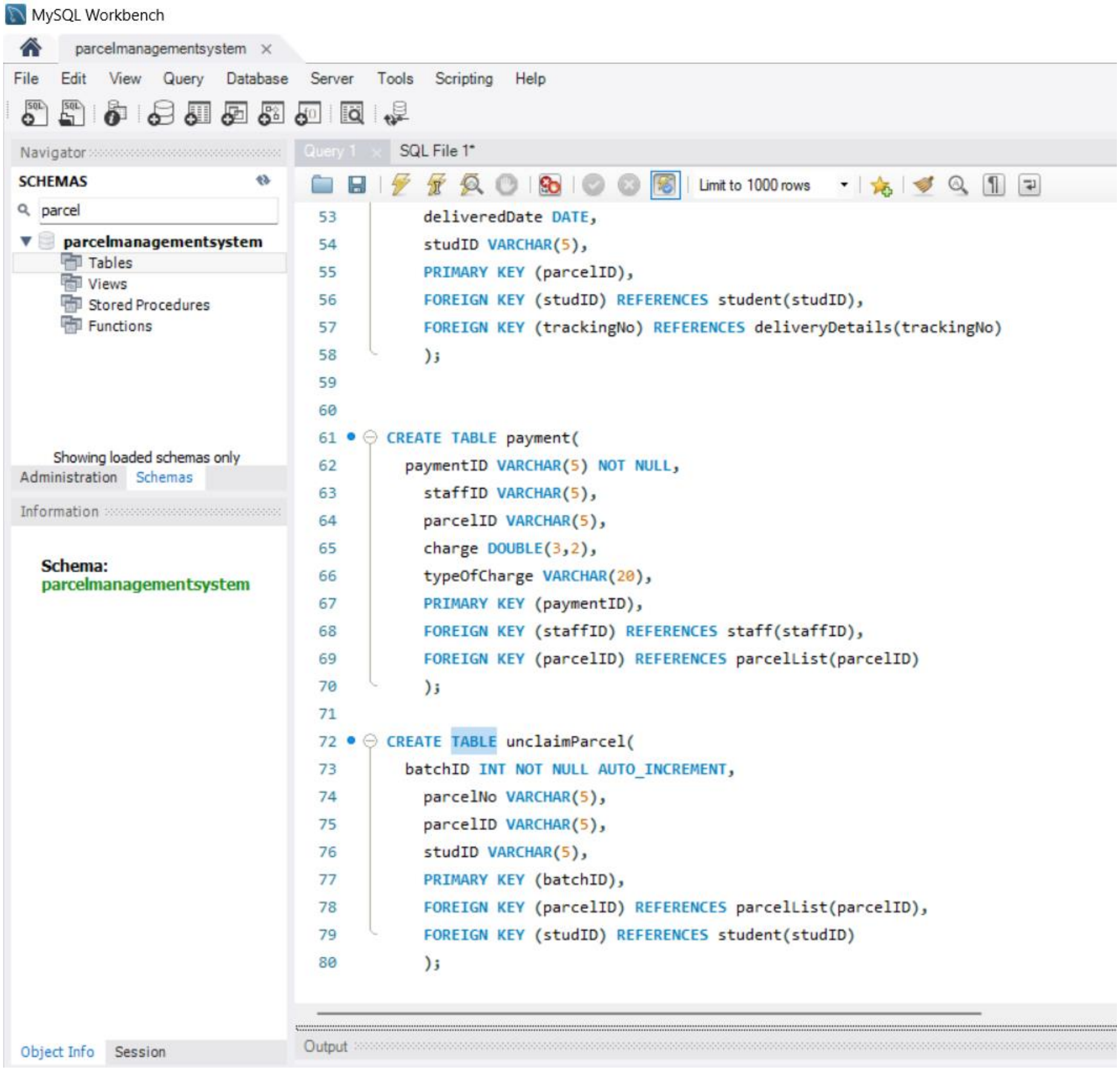
Database Connection



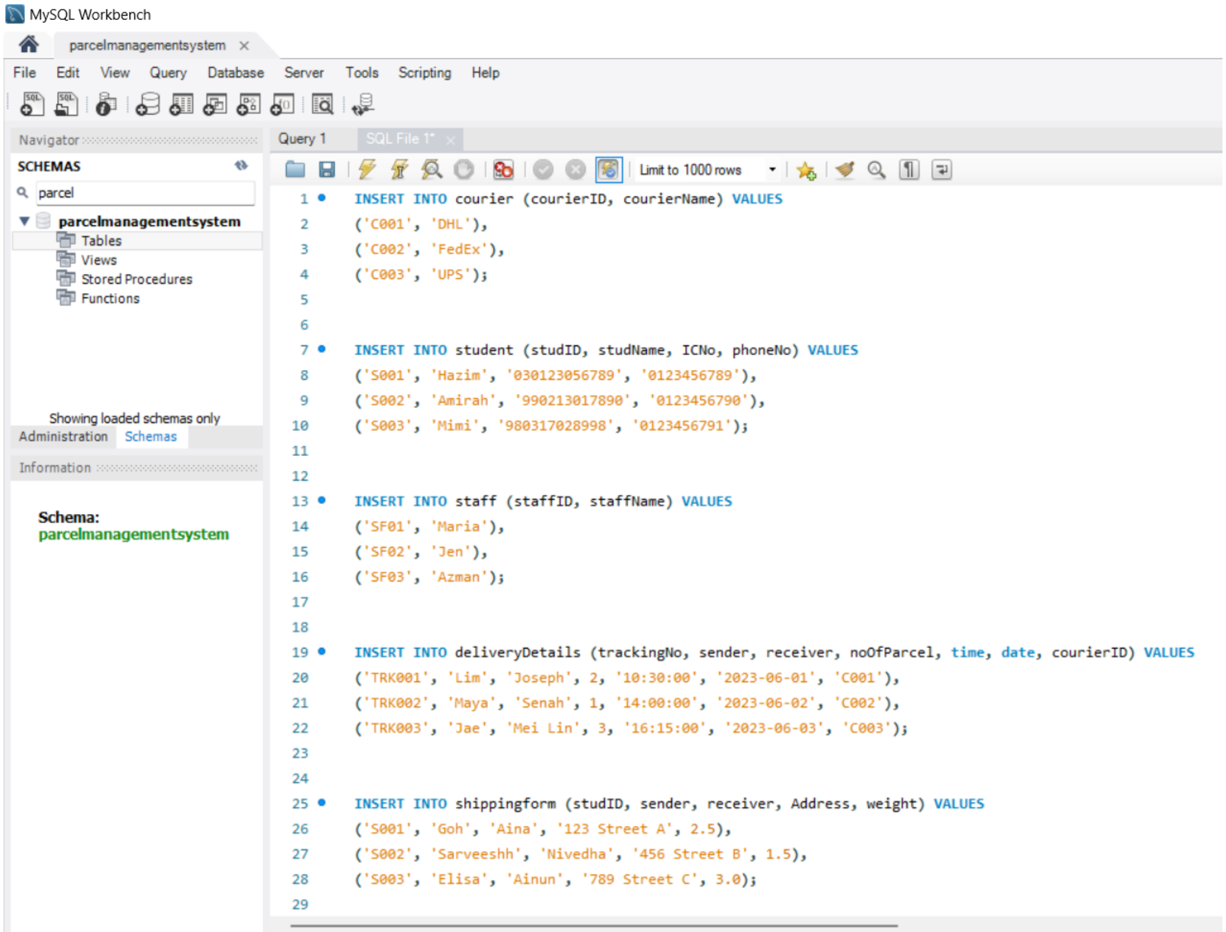
```sql
CREATE SCHEMA parcelmanagementsystem;

CREATE TABLE courier(
  courierID VARCHAR(5) NOT NULL,
    courierName VARCHAR(100),
    PRIMARY KEY (courierID)
    );

CREATE TABLE student(
  studID VARCHAR(5) NOT NULL,
    studName VARCHAR(100),
    ICNo VARCHAR(12),
    phoneNo VARCHAR(12),
    PRIMARY KEY (studID)
    );

CREATE TABLE staff(
  staffID VARCHAR(5) NOT NULL,
    staffName VARCHAR(100),
    PRIMARY KEY (staffID)
    );

CREATE TABLE deliveryDetails(
  trackingNo VARCHAR(10) NOT NULL,
    sender VARCHAR(100),
    receiver VARCHAR(100),
    noOfParcel INT(5),
    time TIME,
    date DATE,
```



```
  time TIME,
  date DATE,
  courierID VARCHAR(5),
  PRIMARY KEY (trackingNo),
  FOREIGN KEY (courierID) REFERENCES courier(courierID)
 );

CREATE TABLE shippingform(
 shippingID INT NOT NULL AUTO_INCREMENT,
  studID VARCHAR(5),
  sender VARCHAR(100),
  receiver VARCHAR(100),
  Address VARCHAR(200),
  weight DOUBLE(3,2),
  PRIMARY KEY (shippingID),
  FOREIGN KEY (studID) REFERENCES student(studID)
 );


CREATE TABLE parcelList(
 parcelID VARCHAR(5) NOT NULL,
  trackingNo VARCHAR(10),
  description VARCHAR(200),
  charge DOUBLE(3,2),
  weight DOUBLE(3,2),
  deliveredDate DATE,
  studID VARCHAR(5),
  PRIMARY KEY (parcelID),
  FOREIGN KEY (studID) REFERENCES student(studID),
```

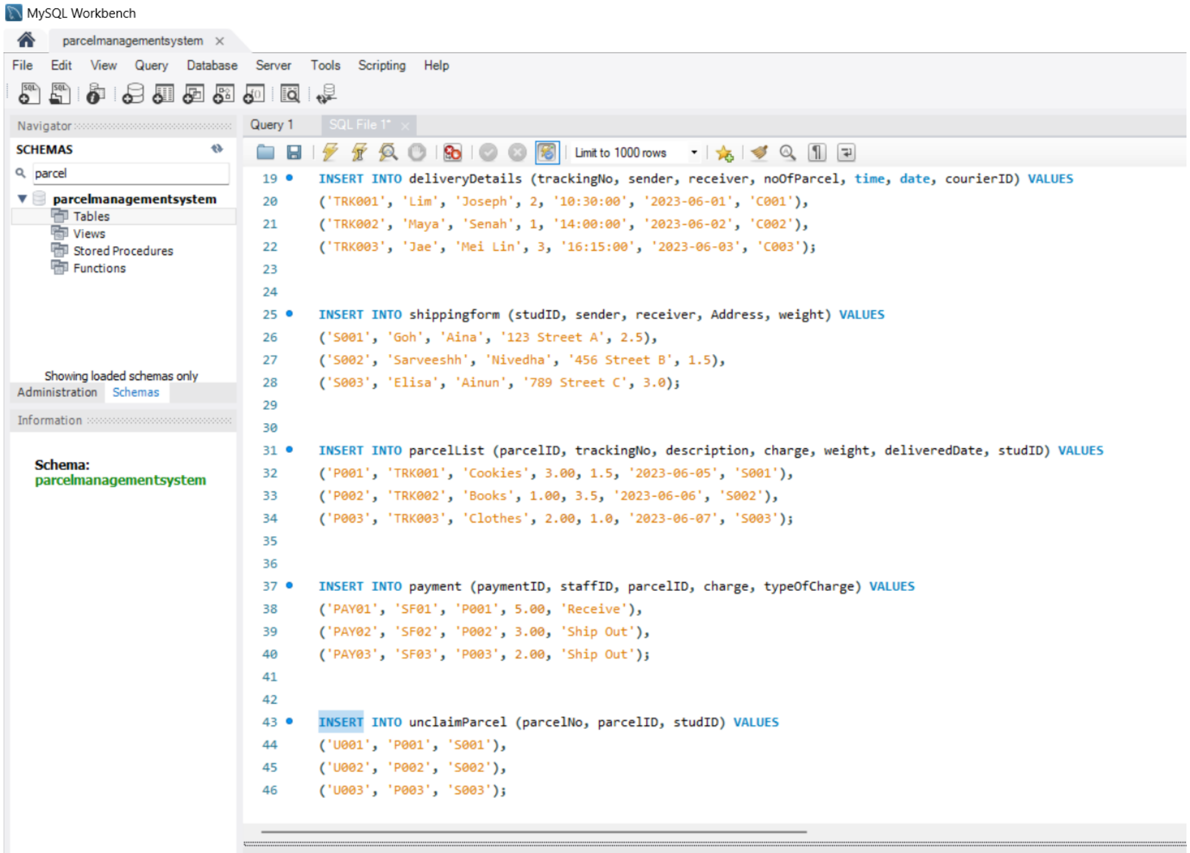


```sql
        deliveredDate DATE,
        studID VARCHAR(5),
        PRIMARY KEY (parcelID),
        FOREIGN KEY (studID) REFERENCES student(studID),
        FOREIGN KEY (trackingNo) REFERENCES deliveryDetails(trackingNo)
        );


CREATE TABLE payment(
    paymentID VARCHAR(5) NOT NULL,
        staffID VARCHAR(5),
        parcelID VARCHAR(5),
        charge DOUBLE(3,2),
        typeOfCharge VARCHAR(20),
        PRIMARY KEY (paymentID),
        FOREIGN KEY (staffID) REFERENCES staff(staffID),
        FOREIGN KEY (parcelID) REFERENCES parcelList(parcelID)
        );

CREATE TABLE unclaimParcel(
    batchID INT NOT NULL AUTO_INCREMENT,
        parcelNo VARCHAR(5),
        parcelID VARCHAR(5),
        studID VARCHAR(5),
        PRIMARY KEY (batchID),
        FOREIGN KEY (parcelID) REFERENCES parcelList(parcelID),
        FOREIGN KEY (studID) REFERENCES student(studID)
        );
```



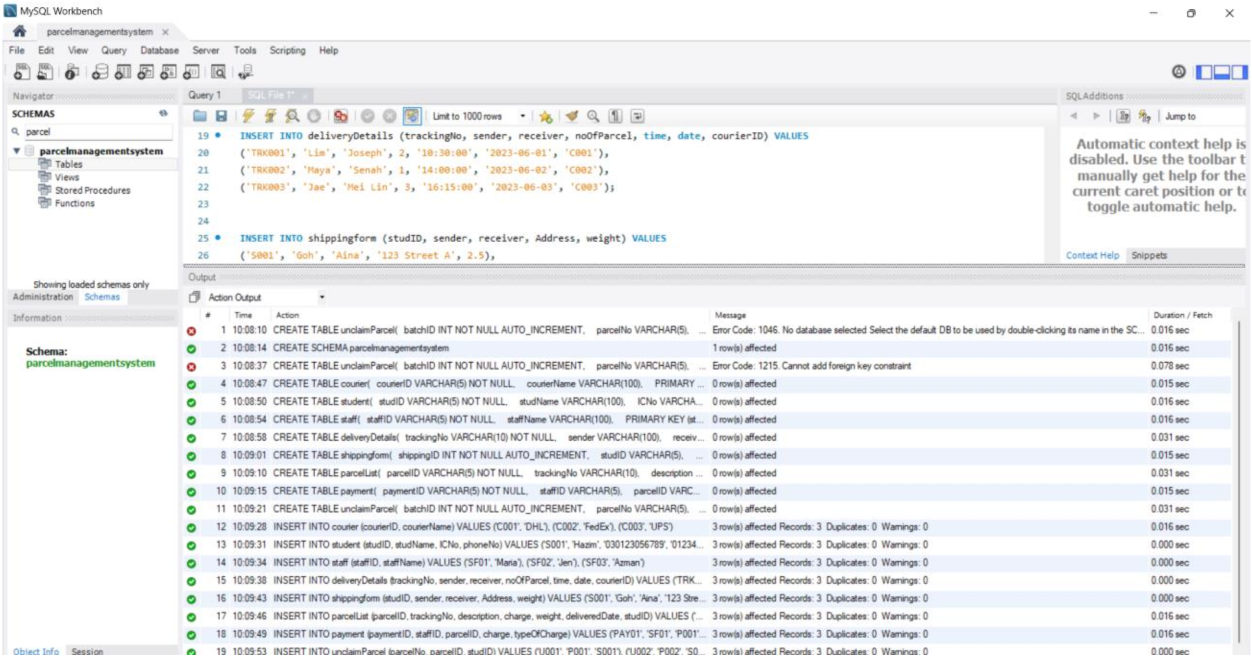
Schema: parcelmanagementsystem

```sql
INSERT INTO courier (courierID, courierName) VALUES
('C001', 'DHL'),
('C002', 'FedEx'),
('C003', 'UPS');


INSERT INTO student (studID, studName, ICNo, phoneNo) VALUES
('S001', 'Hazim', '030123056789', '0123456789'),
('S002', 'Amirah', '990213017890', '0123456790'),
('S003', 'Mimi', '980317028998', '0123456791');


INSERT INTO staff (staffID, staffName) VALUES
('SF01', 'Maria'),
('SF02', 'Jen'),
('SF03', 'Azman');


INSERT INTO deliveryDetails (trackingNo, sender, receiver, noOfParcel, time, date, courierID) VALUES
('TRK001', 'Lim', 'Joseph', 2, '10:30:00', '2023-06-01', 'C001'),
('TRK002', 'Maya', 'Senah', 1, '14:00:00', '2023-06-02', 'C002'),
('TRK003', 'Jae', 'Mei Lin', 3, '16:15:00', '2023-06-03', 'C003');


INSERT INTO shippingform (studID, sender, receiver, Address, weight) VALUES
('S001', 'Goh', 'Aina', '123 Street A', 2.5),
('S002', 'Sarveeshh', 'Nivedha', '456 Street B', 1.5),
('S003', 'Elisa', 'Ainun', '789 Street C', 3.0);

```



Schema:
parcelmanagementsystem

```sql
INSERT INTO deliveryDetails (trackingNo, sender, receiver, noOfParcel, time, date, courierID) VALUES
('TRK001', 'Lim', 'Joseph', 2, '10:30:00', '2023-06-01', 'C001'),
('TRK002', 'Maya', 'Senah', 1, '14:00:00', '2023-06-02', 'C002'),
('TRK003', 'Jae', 'Mei Lin', 3, '16:15:00', '2023-06-03', 'C003');


INSERT INTO shippingform (studID, sender, receiver, Address, weight) VALUES
('S001', 'Goh', 'Aina', '123 Street A', 2.5),
('S002', 'Sarveeshh', 'Nivedha', '456 Street B', 1.5),
('S003', 'Elisa', 'Ainun', '789 Street C', 3.0);


INSERT INTO parcelList (parcelID, trackingNo, description, charge, weight, deliveredDate, studID) VALUES
('P001', 'TRK001', 'Cookies', 3.00, 1.5, '2023-06-05', 'S001'),
('P002', 'TRK002', 'Books', 1.00, 3.5, '2023-06-06', 'S002'),
('P003', 'TRK003', 'Clothes', 2.00, 1.0, '2023-06-07', 'S003');


INSERT INTO payment (paymentID, staffID, parcelID, charge, typeOfCharge) VALUES
('PAY01', 'SF01', 'P001', 5.00, 'Receive'),
('PAY02', 'SF02', 'P002', 3.00, 'Ship Out'),
('PAY03', 'SF03', 'P003', 2.00, 'Ship Out');


INSERT INTO unclaimParcel (parcelNo, parcelID, studID) VALUES
('U001', 'P001', 'S001'),
('U002', 'P002', 'S002'),
('U003', 'P003', 'S003');
```



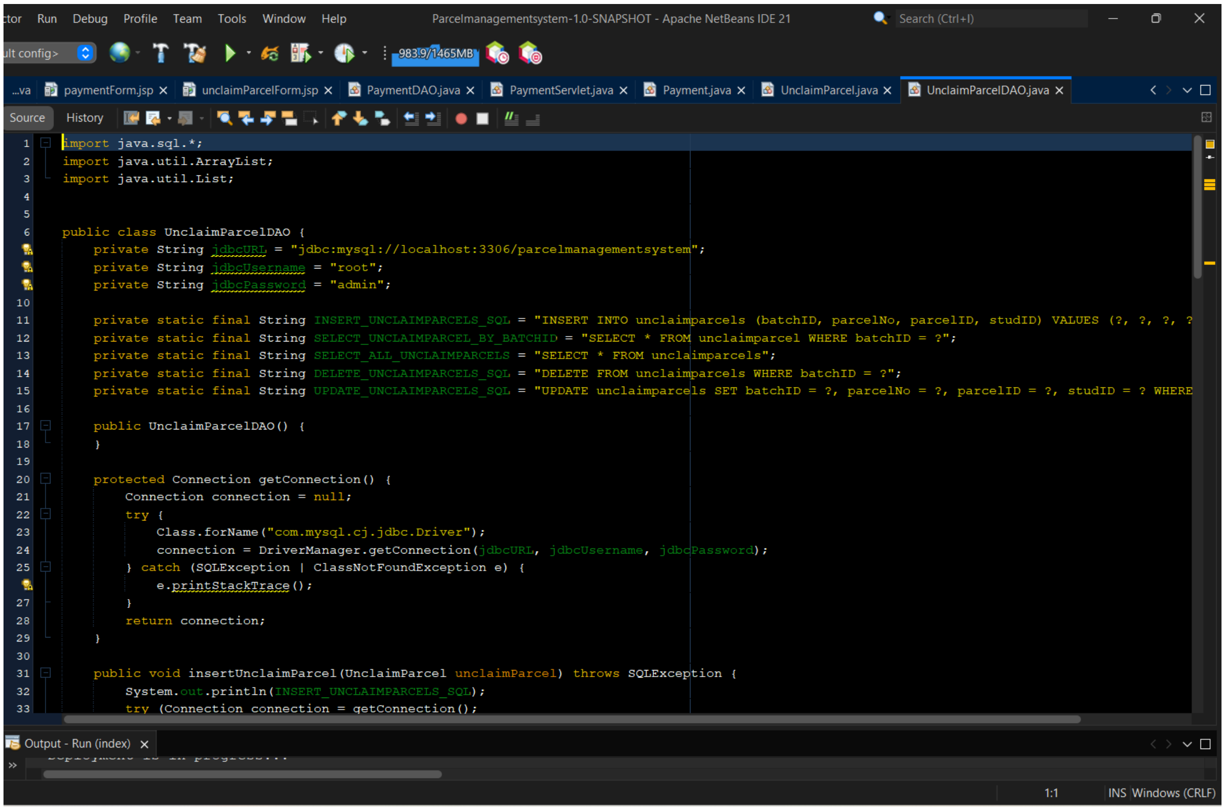
Schema:
parcelmanagementsystem

```sql
INSERT INTO deliveryDetails (trackingNo, sender, receiver, noOfParcel, time, date, courierID) VALUES
('TRK001', 'Lim', 'Joseph', 2, '10:30:00', '2023-06-01', 'C001'),
('TRK002', 'Maya', 'Senah', 1, '14:00:00', '2023-06-02', 'C002'),
('TRK003', 'Jae', 'Mei Lin', 3, '16:15:00', '2023-06-03', 'C003');


INSERT INTO shippingform (studID, sender, receiver, Address, weight) VALUES
('S001', 'Goh', 'Aina', '123 Street A', 2.5),
```

Automatic context help is disabled. Use the toolbar t manually get help for the current caret position or t toggle automatic help.

	#	Time	Action	Message	Duration / Fetch
✗	1	10:08:10	CREATE TABLE unclaimParcel(batchID INT NOT NULL AUTO_INCREMENT, parcelNo VARCHAR(5), ...	Error Code: 1046. No database selected Select the default DB to be used by double-clicking its name in the SC...	0.016 sec
✓	2	10:08:14	CREATE SCHEMA parcelmanagementsystem	1 row(s) affected	0.016 sec
✗	3	10:08:37	CREATE TABLE unclaimParcel(batchID INT NOT NULL AUTO_INCREMENT, parcelNo VARCHAR(5), ...	Error Code: 1215. Cannot add foreign key constraint	0.078 sec
✓	4	10:08:47	CREATE TABLE courier(courierID VARCHAR(5) NOT NULL, courierName VARCHAR(100), PRIMARY ...	0 row(s) affected	0.015 sec
✓	5	10:08:50	CREATE TABLE student(studID VARCHAR(5) NOT NULL, studName VARCHAR(100), ICNo VARCHA...	0 row(s) affected	0.016 sec
✓	6	10:08:54	CREATE TABLE staff(staffID VARCHAR(5) NOT NULL, staffName VARCHAR(100), PRIMARY KEY (st...	0 row(s) affected	0.016 sec
✓	7	10:08:58	CREATE TABLE deliveryDetails(trackingNo VARCHAR(10) NOT NULL, sender VARCHAR(100), receiv...	0 row(s) affected	0.031 sec
✓	8	10:09:01	CREATE TABLE shippingform(shippingID INT NOT NULL AUTO_INCREMENT, studID VARCHAR(5), ...	0 row(s) affected	0.015 sec
✓	9	10:09:10	CREATE TABLE parcelList(parcelID VARCHAR(5) NOT NULL, trackingNo VARCHAR(10), description ...	0 row(s) affected	0.031 sec
✓	10	10:09:15	CREATE TABLE payment(paymentID VARCHAR(5) NOT NULL, staffID VARCHAR(5), parcelID VARC...	0 row(s) affected	0.015 sec
✓	11	10:09:21	CREATE TABLE unclaimParcel(batchID INT NOT NULL AUTO_INCREMENT, parcelNo VARCHAR(5), ...	0 row(s) affected	0.031 sec
✓	12	10:09:28	INSERT INTO courier (courierID, courierName) VALUES ('C001', 'DHL'), ('C002', 'FedEx'), ('C003', 'UPS')	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.016 sec
✓	13	10:09:31	INSERT INTO student (studID, studName, ICNo, phoneNo) VALUES ('S001', 'Hazim', '030123056789', '01234...	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.000 sec
✓	14	10:09:34	INSERT INTO staff (staffID, staffName) VALUES ('SF01', 'Maria'), ('SF02', 'Jen'), ('SF03', 'Azman')	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.000 sec
✓	15	10:09:38	INSERT INTO deliveryDetails (trackingNo, sender, receiver, noOfParcel, time, date, courierID) VALUES ('TRK...	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.000 sec
✓	16	10:09:43	INSERT INTO shippingform (studID, sender, receiver, Address, weight) VALUES ('S001', 'Goh', 'Aina', '123 Stre...	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.000 sec
✓	17	10:09:46	INSERT INTO parcelList (parcelID, trackingNo, description, charge, weight, deliveredDate, studID) VALUES ('...	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.016 sec
✓	18	10:09:49	INSERT INTO payment (paymentID, staffID, parcelID, charge, typeOfCharge) VALUES ('PAY01', 'SF01', 'P001'...	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.016 sec
✓	19	10:09:53	INSERT INTO unclaimParcel (parcelNo, parcelID, studID) VALUES ('U001', 'P001', 'S001'), ('U002', 'P002', 'S0...	3 row(s) affected Records: 3 Duplicates: 0 Warnings: 0	0.000 sec

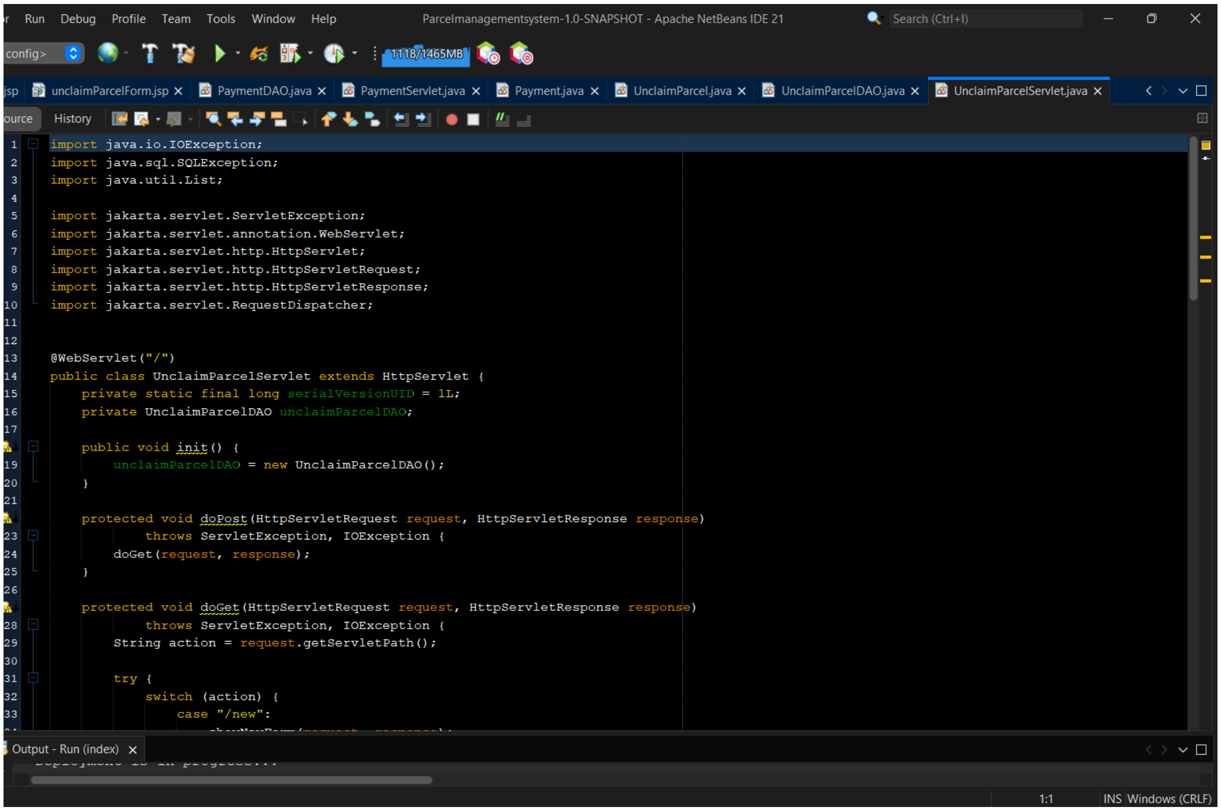
CRUD Process



ctor Run Debug Profile Team Tools Window Help
Parcelmanagementsystem-1.0-SNAPSHOT - Apache NetBeans IDE 21
Search (Ctrl+I)
ult config>
983.9/1465MB
...va paymentForm.jsp unclaimParcelForm.jsp PaymentDAO.java PaymentServlet.java Payment.java UnclaimParcel.java UnclaimParcelDAO.java
Source History
Output - Run (index)
1:1
INS Windows (CRLF)

```java
import java.sql.*;
import java.util.ArrayList;
import java.util.List;


public class UnclaimParcelDAO {
    private String jdbcURL = "jdbc:mysql://localhost:3306/parcelmanagementsystem";
    private String jdbcUsername = "root";
    private String jdbcPassword = "admin";

    private static final String INSERT_UNCLAIMPARCELS_SQL = "INSERT INTO unclaimparcels (batchID, parcelNo, parcelID, studID) VALUES (?, ?, ?, ?
    private static final String SELECT_UNCLAIMPARCEL_BY_BATCHID = "SELECT * FROM unclaimparcel WHERE batchID = ?";
    private static final String SELECT_ALL_UNCLAIMPARCELS = "SELECT * FROM unclaimparcels";
    private static final String DELETE_UNCLAIMPARCELS_SQL = "DELETE FROM unclaimparcels WHERE batchID = ?";
    private static final String UPDATE_UNCLAIMPARCELS_SQL = "UPDATE unclaimparcels SET batchID = ?, parcelNo = ?, parcelID = ?, studID = ? WHERE

    public UnclaimParcelDAO() {
    }

    protected Connection getConnection() {
        Connection connection = null;
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
            connection = DriverManager.getConnection(jdbcURL, jdbcUsername, jdbcPassword);
        } catch (SQLException | ClassNotFoundException e) {
            e.printStackTrace();
        }
        return connection;
    }

    public void insertUnclaimParcel(UnclaimParcel unclaimParcel) throws SQLException {
        System.out.println(INSERT_UNCLAIMPARCELS_SQL);
        try (Connection connection = getConnection();
```

```
Deployment is in progress...
```

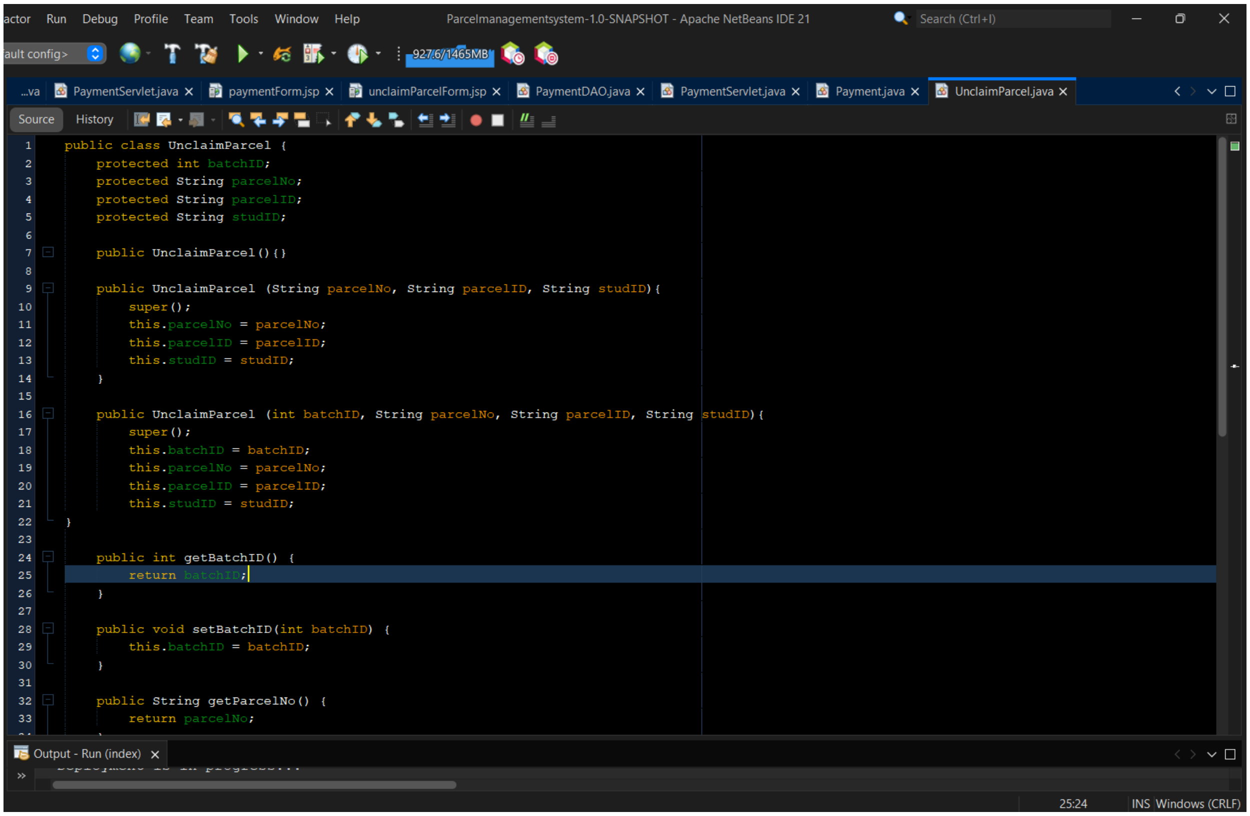


r Run Debug Profile Team Tools Window Help
Parcelmanagementsystem-1.0-SNAPSHOT - Apache NetBeans IDE 21
Search (Ctrl+I)
config>
1118/1465MB
jsp unclaimParcelForm.jsp PaymentDAO.java PaymentServlet.java Payment.java UnclaimParcel.java UnclaimParcelDAO.java UnclaimParcelServlet.java
ource History
Output - Run (index)
1:1
INS Windows (CRLF)

```java
import java.io.IOException;
import java.sql.SQLException;
import java.util.List;

import jakarta.servlet.ServletException;
import jakarta.servlet.annotation.WebServlet;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import jakarta.servlet.RequestDispatcher;


@WebServlet("/")
public class UnclaimParcelServlet extends HttpServlet {
    private static final long serialVersionUID = 1L;
    private UnclaimParcelDAO unclaimParcelDAO;

    public void init() {
        unclaimParcelDAO = new UnclaimParcelDAO();
    }

    protected void doPost(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        doGet(request, response);
    }

    protected void doGet(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        String action = request.getServletPath();

        try {
            switch (action) {
                case "/new":
```

```
Deployment is in progress...
```

Javabeans


actor Run Debug Profile Team Tools Window Help
Parcelmanagementsystem-1.0-SNAPSHOT - Apache NetBeans IDE 21
Search (Ctrl+I)
ault config>
927.6/1465MB
...va PaymentServlet.java paymentForm.jsp unclaimParcelForm.jsp PaymentDAO.java PaymentServlet.java Payment.java UnclaimParcel.java
Source History
Output - Run (index)
25:24
INS Windows (CRLF)

```java
public class UnclaimParcel {
    protected int batchID;
    protected String parcelNo;
    protected String parcelID;
    protected String studID;

    public UnclaimParcel(){}

    public UnclaimParcel (String parcelNo, String parcelID, String studID){
        super();
        this.parcelNo = parcelNo;
        this.parcelID = parcelID;
        this.studID = studID;
    }

    public UnclaimParcel (int batchID, String parcelNo, String parcelID, String studID){
        super();
        this.batchID = batchID;
        this.parcelNo = parcelNo;
        this.parcelID = parcelID;
        this.studID = studID;
}

    public int getBatchID() {
        return batchID;
    }

    public void setBatchID(int batchID) {
        this.batchID = batchID;
    }

    public String getParcelNo() {
        return parcelNo;
    }
```

```
Deployment is in progress...
```

Contribution

No.	Matric Num.	Name	Job Description
1	S65361	NUR ARINA BINTI ABDUL MALEK	• Leader • Database • All Parcel List • Shipping Form
2	S67383	NURHASLINDA BINTI BAHARUDDIN	• Unclaim Parcel List • Payment • Compiler
3	S67335	MUHAMMAD HARITH BIN ZULKIFLI	• Use Case • Class Diagram • Courier Delivery Details

Conclusion

The development of the Parcel Management System for UMT represents a pivotal initiative aimed at enhancing efficiency and organization in parcel logistics within the university campus. By addressing current challenges faced by staff in managing parcels, the web application provides a user-friendly interface designed to streamline operations and ensure seamless navigation.

Moreover, the system's capability to manage unclaimed parcels contributes to maintaining an organized storage environment, thereby optimizing administrative processes and resource allocation. Moving forward, the implementation of this system promises to significantly improve parcel handling efficiency while enhancing overall service delivery at UMT.

References

1. *MVC Framework - Introduction*. (n.d.). https://www.tutorialspoint.com/mvc_framework/mvc_framework_introduction.htm
2. *What is an Entity Relationship Diagram (ERD)?* (n.d.). Lucidchart. https://www.lucidchart.com/pages/er-diagrams
3. *Requirements Traceability Matrix — everything you need to know | Perforce Software*. (n.d.). Perforce Software. https://www.perforce.com/resources/alm/requirements-traceability-matrix