PARKING MANAGEMENT SYSTEM

Project Name : Parking Management System

Purpose   : To provide a hassle-free parking experience by managing

vehicles, parking slots, bookings, and billing.

Features:

- Vehicle Management : Add, retrieve, delete, and update vehicle records.

- Parking Slot Management : Manage parking slots'availability and pricing.

- Booking Management : Book, cancel, or check booking status.

- Billing System : Generate and view bills for bookings.

Module 1: Vehicle Management

Description: This module enables users to manage vehicle-related operations effectively. It includes functionalities to add new vehicles, update existing vehicle information, view vehicle lists, and delete vehicle records.

1.Click 1 to Navigate to Vehicle management system from main menu

```
userInterface [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe  (13-Dec-2021/ 02:48:21 pm) [pid:22212]
  |================================================|
  |              WELCOME TO EASYPARK!!!            |
  |  YOUR TRUSTED SOLUTION FOR HASSLE-FREE PARKING|
  |================================================|
  | PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:     |
  |------------------------------------------------|
  | 1.VEHICLE MANAGEMENT                          |
  | 2.PARKINGSLOT MANAGEMENT                      |
  | 3.PARKINGSLOTBOOKING MANAGEMENT               |
  | 4.BILLING MANAGEMENT                          |
  | 5.EXIT                                        |
  |------------------------------------------------|
►►Enter your choice
1
| |------------------------------------------------|
  | PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:     |
  |------------------------------------------------|
  | 1.INSERT VEHICLE DETAILS                      |
  | 2.CHECKVEHICLEID EXISTENCE                    |
  | 3.RETRIEVE VEHICLE_DETAILS BY VEHICLE ID      |
  | 4.RETRIEVE VEHICLES BY TYPE                   |
```

2.Insert Vehicle Details such as License number and Vehicle Details to the Database

```
|   PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:     |
|-------------------------------------------------|
|  1.INSERT VEHICLE DETAILS                       |
|  2.CHECKVEHICLEID EXISTENCE                     |
|  3.RETRIEVE VEHICLE_DETAILS BY VEHICLE ID       |
|  4.RETRIEVE VEHICLES BY TYPE                    |
|  5.DELETE VEHICLE RECORDS                       |
|  6.BACK TO MAIN MENU                            |
|-------------------------------------------------|
➤➤Enter your choice
1
➤Enter the number of details to be inserted
2
➤Enter the detail to be inserted
-----------here(↓)-------------
➤Enter License Number
TN100234
➤Enter vehicle Type
car
```

3.If License Number is Valid it will return "**Inserted Successfully**" message otherwise it will give an invalid message.

```
TN100234
➤Enter vehicle Type
car
➤Enter License Number
TN100123
➤Enter vehicle Type
Bike
Inserted successfully
-------------------------------------------------------
```

```
-----------here(↓)-------------
➤Enter License Number
TN100
Sorry,Invalid License Number
```

4.To check the vehicle-Id Existence use option-2

```
|----------------------------------------------|
|  PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:   |
|----------------------------------------------|
|  1.INSERT VEHICLE DETAILS                    |
|  2.CHECKVEHICLEID EXISTENCE                  |
|  3.RETRIEVE VEHICLE_DETAILS BY VEHICLE ID    |
|  4.RETRIEVE VEHICLES BY TYPE                 |
|  5.DELETE VEHICLE RECORDS                    |
|  6.BACK TO MAIN MENU                         |
|----------------------------------------------|
►►Enter your choice
2
►Enter the VehicleId to be Checked
VId1
Vehicle Id present
```

5.If Vehicle-Id is not present it will show the above message

```
►►Enter your choice
2
►Enter the VehicleId to be Checked
VId6
Sorry,Vehicle Id is not Available
```

6.If Vehicle-Id ispresent it will show details of the Vehicle

```
|----------------------------------------------|
|  1.INSERT VEHICLE DETAILS                    |
|  2.CHECKVEHICLEID EXISTENCE                  |
|  3.RETRIEVE VEHICLE_DETAILS BY VEHICLE ID    |
|  4.RETRIEVE VEHICLES BY TYPE                 |
|  5.DELETE VEHICLE RECORDS                    |
|  6.BACK TO MAIN MENU                         |
|----------------------------------------------|
►►Enter your choice
3
►Enter the Vehicle Id
VId1
|----------------------------------
          Vehicle Details
----------------------------------
 Vehicle ID           : VId1
 License Number       : TN100101
 Vehicle Type         : car
```

7.We can get Vehicle Details based on Vehicle Type using Option 4

```
|-----------------------------------------------|
| 1.INSERT  VEHICLE  DETAILS                    |
| 2.CHECKVEHICLEID EXISTENCE                    |
| 3.RETRIEVE VEHICLE_DETAILS BY VEHICLE ID      |
| 4.RETRIEVE VEHICLES BY TYPE                   |
| 5.DELETE VEHICLE RECORDS                      |
| 6.BACK TO MAIN MENU                           |
|-----------------------------------------------|
►►Enter your choice
4
►Enter the vehicle Type
car
-------------------------------------------------
| Vehicle ID:           : VId1                  |
| License Number:       : TN100101              |
| Vehicle Type:         : car                   |
-------------------------------------------------
-------------------------------------------------
| Vehicle ID:           : VId3                  |
| License Number:       : TN101203              |
| Vehicle Type:         : Car                   |
```

8.To delete Vehicle Details from the database use Option 5

```
|-----------------------------------------------|
| 1.INSERT VEHICLE  DETAILS                     |
| 2.CHECKVEHICLEID EXISTENCE                    |
| 3.RETRIEVE VEHICLE_DETAILS BY VEHICLE ID      |
| 4.RETRIEVE VEHICLES BY TYPE                   |
| 5.DELETE VEHICLE RECORDS                      |
| 6.BACK TO MAIN MENU                           |
|-----------------------------------------------|
►►Enter your choice
5
►Enter VehicleId to be deleted
VId3
VehicleId deleted Successfully
```

9.To Return to Main menu use Option 6

```
-------------------------------------------------
 |---------------------------------------------|
 | PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:   |
 |---------------------------------------------|
 | 1.INSERT VEHICLE  DETAILS                   |
 | 2.CHECKVEHICLEID EXISTENCE                  |
 | 3.RETRIEVE VEHICLE_DETAILS BY VEHICLE ID    |
 | 4.RETRIEVE VEHICLES BY TYPE                 |
 | 5.DELETE VEHICLE RECORDS                    |
 | 6.BACK TO MAIN MENU                         |
 |---------------------------------------------|
►►Enter your choice
6
| Thank You,Welcome Again
-------------------------------------------------
```

Module 2: Parking Slot Management

Description: This module handles the administration of parking slots, including availability tracking, pricing updates, and slot assignments.

1.Click 2 to Navigate to Parking Slot Management system from main menu

```
|=============================================|
|            WELCOME TO EASYPARK!!!           |
|  YOUR TRUSTED SOLUTION FOR HASSLE-FREE PARKING|
|=============================================|
| PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:   |
|---------------------------------------------|
| 1.VEHICLE MANAGEMENT                        |
| 2.PARKINGSLOT MANAGEMENT                    |
| 3.PARKINGSLOTBOOKING MANAGEMENT             |
| 4.BILLING MANAGEMENT                        |
| 5.EXIT                                      |
|---------------------------------------------|
►►Enter your choice
2
  |---------------------------------------------|
  | PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:   |
  |---------------------------------------------|
  | 1.ADD PARKING SLOT                          |
  | 2.UPDATE SLOT AVAILABILITY                  |
  | 3.RETRIEVE RESERVATION LIST                 |
  | 4.DELETE SLOT                          |
  | E CHECK CLOT AVAILABILITY
```

2.Insert Parking Slot Details such as Location, Price to the Database using option 1

```
| 1.ADD PARKING SLOT                          |
| 2.UPDATE SLOT AVAILABILITY                  |
| 3.RETRIEVE RESERVATION LIST                 |
| 4.DELETE SLOT                          |
| 5.CHECK SLOT AVAILABILITY                   |
| 6.BACK TO MAIN MENU                         |
|---------------------------------------------|
►►Enter your choice
1
►Enter Number of Slot details to be added
1
►Enter the Parking Slot Details to be added
-----------here(↓)-------------
►Enter location to be Added
Zone-a
►Availability Status
true
►Enter price
100
Slot Id Inserted successfully
```

3.To update the slot details, use option 2

```
|-----------------------------------------------|
|  PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:    |
|-----------------------------------------------|
|  1.ADD PARKING SLOT                           |
|  2.UPDATE SLOT AVAILABILITY                   |
|  3.RETRIEVE RESERVATION LIST                  |
|  4.DELETE SLOT                          |     |
|  5.CHECK SLOT AVAILABILITY                    |
|  6.BACK TO MAIN MENU                          |
|-----------------------------------------------|
►►Enter your choice
2
►Enter slotId to be updated
Slot1
►Enter Availabalilty status
false
slotId updated successfully
```

4.To see the Reserved Slots, Use Option 3

```
|-----------------------------------------------|
|  1.ADD PARKING SLOT                           |
|  2.UPDATE SLOT AVAILABILITY                   |
|  3.RETRIEVE RESERVATION LIST                  |
|  4.DELETE SLOT                        |       |
|  5.CHECK SLOT AVAILABILITY                    |
|  6.BACK TO MAIN MENU                          |
|-----------------------------------------------|
►►Enter your choice
3
►Reserved slots are
-----------------------------------------------
 Slot Id:            : Slot1
 Location:           : Zone-a
 Price:              : 50.0
-----------------------------------------------
-----------------------------------------------
 Slot Id:            : Slot2
 Location:           : Zone-b
 Price:              : 40.0
-----------------------------------------------
```

5.To Delete the Slot, Use Option 4

```
|  4.DELETE SLOT                        |       |
|  5.CHECK SLOT AVAILABILITY                    |
|  6.BACK TO MAIN MENU                          |
|-----------------------------------------------|
►►Enter your choice
4
►Enter the slotId to be deleted
Slot4
Deleted successfully
```

6.To Check the slot Availability, Use Option 5

```
  |------------------------------------------------|
  | 1.ADD PARKING SLOT                             |
  | 2.UPDATE SLOT AVAILABILITY                      |
  | 3.RETRIEVE RESERVATION LIST                     |
  | 4.DELETE SLOT                             |
  | 5.CHECK SLOT AVAILABILITY                       |
  | 6.BACK TO MAIN MENU                             |
  |------------------------------------------------|
➤➤Enter your choice
5
➤Enter the slotId to check Availability status
Slot1
Sorry,Slot not Available
```

7.To return to the main Menu, Use Option 6

```
 | 1.ADD PARKING SLOT                              |
 | 2.UPDATE SLOT AVAILABILITY                       |
 | 3.RETRIEVE RESERVATION LIST                      |
 | 4.DELETE SLOT                             |
 | 5.CHECK SLOT AVAILABILITY                        |
 | 6.BACK TO MAIN MENU                              |
 |------------------------------------------------|
➤➤Enter your choice
6
 Thank you,Welcome Again
```

Module 3: Booking Management

Description: This module provides a streamlined process for booking and cancelling parking slots. Users can also view their booking history and current status.

1.Click 3 to Navigate to Parking Slot Booking Management system from main menu

```
 | PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:       |
 |------------------------------------------------|
 | 1.VEHICLE MANAGEMENT                            |
 | 2.PARKINGSLOT MANAGEMENT                         |
 | 3.PARKINGSLOTBOOKING MANAGEMENT                  |
 | 4.BILLING MANAGEMENT                             |
 | 5.EXIT                                          |
 |------------------------------------------------|
➤➤Enter your choice
3
 |------------------------------------------------|
 | PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:       |
 |------------------------------------------------|
 | 1.BOOK A SLOT                                   |
 | 2.CANCEL BOOKING                                |
 | 3.VIEW BOOKING STATUS                           |
 | 4.UPDATE BOOKING STATUS                         |
 | 5.BACK TO MAIN MENU                             |
 |------------------------------------------------|
```

2.To Book a Slot use Option 1

```
| PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:    |
|---------------------------------------------|
| 1.BOOK A SLOT                               |
| 2.CANCEL BOOKING                            |
| 3.VIEW BOOKING STATUS                       |
| 4.UPDATE BOOKING STATUS                     |
| 5.BACK TO MAIN MENU                         |
|---------------------------------------------|
►►Enter your choice
1
►Enter number of Bookings
1
►Enter the StartTime(please ensure the format be in [YYYY-MM-DD HH:mm:SS])
2024-12-10 12:00:00
►Enter the endTime(please ensure the format be in [YYYY-MM-DD HH:mm:SS])
2024-12-11 10:00:00
►Enter vehicleId
VId1
►Enter slotId
Slot3
Slot Booked successfully
```

3.To Cancel a Booking Details, use Option 2

```
| PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:        |
|-------------------------------------------------|
| 1.BOOK A SLOT                                   |
| 2.CANCEL BOOKING                                |
| 3.VIEW BOOKING STATUS                           |
| 4.UPDATE BOOKING STATUS                         |
| 5.BACK TO MAIN MENU                             |
|-------------------------------------------------|
►►Enter your choice
2
►Enter the slot Id to be deleted
Slot3
Booking deleted successfully
```

4.To View Booking Status, use Option 3

```
| PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:        |
|-------------------------------------------------|
| 1.BOOK A SLOT                                   |
| 2.CANCEL BOOKING                                |
| 3.VIEW BOOKING STATUS                           |
| 4.UPDATE BOOKING STATUS                         |
| 5.BACK TO MAIN MENU                             |
|-------------------------------------------------|
►►Enter your choice
3
►Enter the slotId for which status to be checked
Slot1
Booking Status of Slot1: Available
```

5.To Update Booking Status, use Option 4

```
|------------------------------------------------|
| PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:      |
|------------------------------------------------|
| 1.BOOK A SLOT                                  |
| 2.CANCEL BOOKING                               |
| 3.VIEW BOOKING STATUS                          |
| 4.UPDATE BOOKING STATUS                        |
| 5.BACK TO MAIN MENU                            |
|------------------------------------------------|
►►Enter your choice
4
►Enter the slotId to Which Date be updated
Slot2
►Enter the startingDate to be updated
2024-12-15 18:53:00
►Enter the endDate to be updated
2024-12-15 20:53:23
Date Details updated successfully for the given slot
```

6.To return main menu, use Option 5

```
|------------------------------------------------|
| PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:      |
|------------------------------------------------|
| 1.BOOK A SLOT                                  |
| 2.CANCEL BOOKING                               |
| 3.VIEW BOOKING STATUS                          |
| 4.UPDATE BOOKING STATUS                        |
| 5.BACK TO MAIN MENU                            |
|------------------------------------------------|
►►Enter your choice
5
 Thank you,Welcome Again
```

Module 4: Billing System

Description: The billing module automates the calculation and display of parking fees based on slot pricing and duration of stay.

1.Click 4 to Navigate to Billing Management system from main menu

```
|------------------------------------------------|
|              WELCOME TO EASYPARK!!!            |
|   YOUR TRUSTED SOLUTION FOR HASSLE-FREE PARKING|
|================================================|
| PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:      |
|------------------------------------------------|
| 1.VEHICLE MANAGEMENT                           |
| 2.PARKINGSLOT MANAGEMENT                       |
| 3.PARKINGSLOTBOOKING MANAGEMENT                |
| 4.BILLING MANAGEMENT                           |
| 5.EXIT                                         |
|------------------------------------------------|
►►Enter your choice
4

 |------------------------------------------------|
 | PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:      |
 |------------------------------------------------|
 | 1.GENERATE BILL FOR BOOKINGID                  |
 | 2.TO SEE THE BILL DETAILS BASED ON BOOKINGID   |
 | 3.RETURN TO MAIN MENU                          |
 |------------------------------------------------|
```

2.To generate Bill details to Booking Id use Option 1

```
| PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:        |
|--------------------------------------------------|
| 1.GENERATE BILL FOR BOOKINGID                    |
| 2.TO SEE THE BILL DETAILS BASED ON BOOKINGID     |
| 3.RETURN TO MAIN MENU                            |
|--------------------------------------------------|
►►Enter your choice
1
►Enter bookingId to which bill to be generated
BId1
Bill Generated successfully
If you need to display the bill details press 1
1
================================
              BILL
================================
Bill ID      : 3
Booking ID   : BId1
Start Time   : 2024-12-14T15:12:10
End Time     : 2024-12-15T10:12:10
Total Bill   : 950.0
```

3.To view the already generated Bill details use option 2

```
|--------------------------------------------------|
| PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:        |
|--------------------------------------------------|
| 1.GENERATE BILL FOR BOOKINGID                    |
| 2.TO SEE THE BILL DETAILS BASED ON BOOKINGID     |
| 3.RETURN TO MAIN MENU                            |
|--------------------------------------------------|
►►Enter your choice
2
►Enter the bookingId to which you need to see Bill Details
BId2
================================
              BILL
================================
Bill ID      : 1
Booking ID   : BId2
Start Time   : 2024-12-14T15:12:10
End Time     : 2024-12-13T10:10:10
Total Bill   : -1160.0
Bill Date    : 2024-12-13T10:10:10
================================
```

4.To return main menu, use Option 3

```
 |--------------------------------------------------|
 | PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:        |
 |--------------------------------------------------|
 | 1.GENERATE BILL FOR BOOKINGID                    |
 | 2.TO SEE THE BILL DETAILS BASED ON BOOKINGID     |
 | 3.RETURN TO MAIN MENU                            |
 |--------------------------------------------------|
➤➤Enter your choice
3
↑↑Returning to main menu......↑↑
 |==================================================|
 |                WELCOME TO EASYPARK!!!            |
 |  YOUR TRUSTED SOLUTION FOR HASSLE-FREE PARKING|
 |==================================================|
 | PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:        |
 |--------------------------------------------------|
 | 1.VEHICLE MANAGEMENT                             |
 | 2.PARKINGSLOT MANAGEMENT                         |
 | 3.PARKINGSLOTBOOKING MANAGEMENT                  |
 | 4.BILLING MANAGEMENT                             |
 | 5.EXIT                                           |
```

5.To Exit from main menu use option 5

```
 |==================================================|
 |                WELCOME TO EASYPARK!!!            |
 |  YOUR TRUSTED SOLUTION FOR HASSLE-FREE PARKING|
 |==================================================|
 | PLEASE CHOOSE FROM THE FOLLOWING OPTIONS:        |
 |--------------------------------------------------|
 | 1.VEHICLE MANAGEMENT                             |
 | 2.PARKINGSLOT MANAGEMENT                         |
 | 3.PARKINGSLOTBOOKING MANAGEMENT                  |
 | 4.BILLING MANAGEMENT                             |
 | 5.EXIT                                           |
 |--------------------------------------------------|
➤➤Enter your choice
5
********************************************
**🙏Thank you for using the Application!!!**
********************************************
```