**4.1.1 Model class design(SDD-REQ-4.1.1)**

This subparagraph specifies the design of model class.

1. Authentication
2. Car
3. Customer
4. Employee

4.1.1.1 Authentication class (SDD-REQ-4.1.1.1)

1. **Input/output data elements**

List of input and output data elements :-

Input : username, password

Output : verify username and password

1. **Local data elements**

Table 4.1.1.1.1: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | username |
| Description | Contain username for employee and customer |
| Data type | String |
| Precision/ resolution | - |

Table 4.1.1.1.2: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | password |
| Description | Contain password for employee and customer |
| Data type | String |
| Precision/ resolution | - |

1. **Algorithms**

The purpose of this class is to store the username and password.

Class type : Model class

Responsibility : To verify username and password

Attributes : username : String

Password : String

Methods : setUsername(), getUsername(), setPassword(), getPassword()

1. getUsername() , setUsername()

Responsibility : get and set username

Input parameter : String username

Output parameter : username

Algorithm :

BEGIN

getUsername();

setUsername( username );

END

1. getPassword(), setPassword()

Responsibility : set and password

Input parameter : String password

Output parameter : password

Algorithm :

BEGIN

getPassword();

setPassword( password );

END

**4.1.1.2 Car class (SDD-REQ-4.1.1.2)**

1. **Input/output data elements**

List of input and output data elements :

Input :Car\_ID, Car\_Name, Plate\_Num , Car\_History, Available\_Date , Time\_Borrowed , Date\_Borrowed, No\_of\_Car\_Available

Output : get car information

**b) Local data elements**

Table 4.1.1.2.1: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Car\_ID |
| Description | Contain car id |
| Data type | String |
| Precision/ resolution | Alphanumeric |

Table 4.1.1.2.2: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Car\_Name |
| Description | Contain car name |
| Data type | String |
| Precision/ resolution | - |

Table 4.1.1.2.3: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Plate\_Num |
| Description | Contain car plate number |
| Data type | String |
| Precision/ resolution | - |

Table 4.1.1.2.4: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Car\_History |
| Description | Contain car history |
| Data type | String |
| Precision/ resolution | - |

Table 4.1.1.2.5: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Available\_Date |
| Description | Contain available date of car |
| Data type | String |
| Precision/ resolution | day/month/year (dd/mm/yy) |

Table 4.1.1.2.6: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Time\_Borrowed |
| Description | Contain time borrowed |
| Data type | String |
| Precision/ resolution | - |

Table 4.1.1.2.7: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Date\_ Borrowed |
| Description | Contain date borrowed |
| Data type | String |
| Precision/ resolution | day/month/year (dd/mm/yy) |

Table 4.1.1.2.8: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | No\_of\_Car\_Available |
| Description | Contain number of car available |
| Data type | Integer |
| Precision/ resolution | - |

**c) Algorithms**

The purpose of this class is to allow tuition staff to input information of teacher into system.

Class type : Model class

Responsibility : To input information of car into system

Attributes : Car\_ID : Integer

Car\_Name : String

Plate\_Num : String

Car\_History : String

Available\_Date : String

Time\_Borrowed : String

Date\_ Borrowed : String

No\_of\_Car\_Available : Integer

Methods : getCar\_ID(), setCar\_ID(), getCar\_Name (),setCar\_Name (),getPlate\_Num (),setPlate\_Num (), getCar\_History (),setCar\_History (),get Available\_Date (), set Available\_Date, get Time\_Borrowed (), set Time\_Borrowed (), get Date\_ Borrowed (), set Date\_ Borrowed (), getNo\_of\_Car\_Available (), set No\_of\_Car\_Available ().

1. getCar\_ID () and setCar\_ID ()

Responsibility : get and set car id

Input parameter : Car\_ID

Output parameter : getCar\_ID

Algorithm :

BEGIN

getCar\_ID ();

setCar\_ID (Car\_ID);

END

1. getCar\_Name () and setCar\_Name ()

Responsibility : get and set car name

Input parameter : Car\_Name

Output parameter :getCar\_Name

Algorithm :

BEGIN

getCar\_Name ();

setCar\_Name (Car\_Name);

END

1. getPlate\_Num () and setPlate\_Num ()

Responsibility : get and set car plate number

Input parameter : Plate\_Num

Output parameter :getPlate\_Num

Algorithm :

BEGIN

getPlate\_Num ();

setPlate\_Num (Plate\_Num)

END

1. getCar\_History () and setCar\_History ()

Responsibility : get and set Car\_History

Input parameter : Car\_History

Output parameter :get Car\_History

Algorithm :

get Car\_History ();

set Car\_History (Car\_History);

BEGIN

END

1. get Available\_Date () and set Available\_Date ()

Responsibility : get and set Available\_Date

Input parameter : Available\_Date

Output parameter :get Available\_Date

Algorithm :

BEGIN

get Available\_Date ();

set Available\_Date (Available\_Date);

END

1. get Time\_Borrowed () and set Time\_Borrowed ()

Responsibility : get and set Time\_Borrowed

Input parameter : Time\_Borrowed

Output parameter :get Time\_Borrowed

Algorithm :

BEGIN

get Time\_Borrowed ();

set Time\_Borrowed (Time\_Borrowed);

END

1. get Date\_ Borrowed () and set Date\_ Borrowed ()

Responsibility : get and set Date\_ Borrowed

Input parameter : Date\_ Borrowed

Output parameter :get Date\_ Borrowed

Algorithm :

BEGIN

get Date\_ Borrowed ();

set Date\_ Borrowed (Date\_ Borrowed);

END

1. get No\_of\_Car\_Available () and set No\_of\_Car\_Available ()

Responsibility : get and set No\_of\_Car\_Available

Input parameter : No\_of\_Car\_Available

Output parameter :get No\_of\_Car\_Available

Algorithm :

BEGIN

get No\_of\_Car\_Available ();

set No\_of\_Car\_Available (No\_of\_Car\_Available);

END

4.1.1.3 Customer class (SDD-REQ-4.1.1.3)

1. **Input/output data elements**

List of input and output data elements :

Input : id , Name, Address , License\_Num , Phone , Collect\_Date , Returned\_Date

Output : get customer information

**b) Local data elements**

Table 4.1.1.3.1: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | id |
| Description | Contain customer id |
| Data type | Integer |
| Precision/ resolution | Alphanumeric |

Table 4.1.1.3.2: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Name |
| Description | Contain customer name |
| Data type | String |
| Precision/ resolution | - |

Table 4.1.1.3.3: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Address |
| Description | Contain customer Address |
| Data type | String |
| Precision/ resolution | - |

Table 4.1.1.3.4: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | License\_Num |
| Description | Contain customer License\_Num |
| Data type | String |
| Precision/ resolution | - |

Table 4.1.1.3.5: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Phone |
| Description | Contain Phone of customer |
| Data type | double |
| Precision/ resolution | - |

Table 4.1.1.3.6: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Collect\_Date |
| Description | Contain Collect\_Date |
| Data type | String |
| Precision/ resolution | day/month/year (dd/mm/yy) |

Table 4.1.1.3.7: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Returned\_Date |
| Description | Contain Returned\_Date |
| Data type | String |
| Precision/ resolution | day/month/year (dd/mm/yy) |

**c) Algorithms**

The purpose of this class is to allow staff to retrieve and store input information of customer into system.

Class type : Model class

Responsibility : To input information of customer into system

Attributes : id : Integer

Name : String

Address : String

Phone : Double

License\_Num : String

Collect\_Date : String

Returned\_Date : String

Methods : get\_ID(), setID(), getName (),setName (),getAddress (),set Address (), getLicense\_Num (),set License\_Num (),getPhone (), set Phone, getCollect\_Date (), set Collect\_Date (), get Returned\_Date (), set Returned\_Date ().

1. getID () and setID ()

Responsibility : get and set customer id

Input parameter : id

Output parameter : getID

Algorithm :

BEGIN

getID ();

setID (id);

END

1. getName () and setName ()

Responsibility : get and set customer name

Input parameter : Name

Output parameter :getName

Algorithm :

BEGIN

getName ();

setName (Name);

END

1. getAddress () and setAddress ()

Responsibility : get and set customer address

Input parameter : Address

Output parameter : getAddress

Algorithm :

BEGIN

getAddress ();

setAddress (Address)

END

1. getLicense\_Num() and setLicense\_Num()

Responsibility : get and set License\_Num

Input parameter : License\_Num

Output parameter : getLicense\_Num

Algorithm :

getLicense\_Num ();

setLicense\_Num (License\_Num );

BEGIN

END

1. getPhone () and setPhone ()

Responsibility : get and set Phone

Input parameter : Phone

Output parameter : getPhone

Algorithm :

BEGIN

getPhone ();

setPhone (Phone );

END

1. getCollect\_Date () and setCollect\_Date ()

Responsibility : get and set Collect\_Date

Input parameter : Collect\_Date

Output parameter : getCollect\_Date

Algorithm :

BEGIN

getCollect\_Date ();

setCollect\_Date (Collect\_Date );

END

1. get Returned\_Date () and set Returned\_Date ()

Responsibility : get and set Returned\_Date

Input parameter : Returned\_Date

Output parameter : get Returned\_Date

Algorithm :

BEGIN

get Returned\_Date();

set Returned\_Date ( Returned\_Date );

END

4.1.1.4 Employee class (SDD-REQ-4.1.1.4)

1. **Input/output data elements**

List of input and output data elements :

Input : id , Name, car\_avaibility , booking\_request , customer\_info

Output : get employee information

**b) Local data elements**

Table 4.1.1.4.1: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | id |
| Description | Contain employee id |
| Data type | Integer |
| Precision/ resolution | Alphanumeric |

Table 4.1.1.4.2: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | Name |
| Description | Contain employee name |
| Data type | String |
| Precision/ resolution | - |

Table 4.1.1.4.3: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | car\_avaibility |
| Description | Contain car\_avaibility status |
| Data type | String |
| Precision/ resolution | - |

Table 4.1.1.4.4: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | booking\_request |
| Description | Contain customer booking\_request |
| Data type | String |
| Precision/ resolution | - |

Table 4.1.1.4.5: Local Data Definition for Data Element

|  |  |
| --- | --- |
| Name | customer\_info |
| Description | Contain customer\_info data |
| Data type | Object |
| Precision/ resolution | - |

**c) Algorithms**

The purpose of this class is to allow employee to manage booking request from customer

Class type : Model class

Responsibility : To input information of customer into system

Attributes : id : Integer

Name : String

car\_avaibility : String

booking\_request : String

customer\_info : customer

Methods : get\_ID(), setID(), getName (),setName (),get car\_avaibility (),set car\_avaibility (), get customer\_info (),set customer\_info () , get booking\_request ( ) , set booking\_request ( ) .

1. getID () and setID ()

Responsibility : get and set employee id

Input parameter : id

Output parameter : getID

Algorithm :

BEGIN

getID ();

setID (id);

END

1. getName () and setName ()

Responsibility : get and set employee name

Input parameter : Name

Output parameter :getName

Algorithm :

BEGIN

getName ();

setName (Name);

END

1. get car\_avaibility () and set car\_avaibility ()

Responsibility : get and set car\_avaibility status

Input parameter : car\_avaibility

Output parameter : get car\_avaibility

Algorithm :

BEGIN

get car\_avaibility ();

set car\_avaibility (car\_avaibility)

END

1. get booking\_request () and set booking\_request ()

Responsibility : get and set booking\_request

Input parameter : booking\_request

Output parameter : get booking\_request

Algorithm :

get booking\_request ();

set booking\_request (booking\_request);

BEGIN

END

1. get customer\_info () and set customer\_info ()

Responsibility : get and set customer\_info

Input parameter : customer\_info

Output parameter : get customer\_info

Algorithm :

BEGIN

get customer\_info ();

set customer\_info(customer\_info);

END

4.1.2 Presenter class design (SDD-REQ-4.1.2)

1. Car Presenter
2. Log Presenter
3. Employee Presenter
4. Customer Presenter

4.1.2.1 Car Presenter class

1. **Input/output data elements**

List of input and output data elements :-

Input : none

Output : none

1. **Local data elements**

Not applicable

1. **Algorithms**

The purpose of this class is to display car list , search car list and get booing form request.

Class type : Presenter class

Responsibility : To display car list , search car list and get booing form request

Attributes :

Methods : display\_Carlist() :void

Search\_Car() :Car

Booking\_form() : void

1. display\_Carlist ()

Responsibility : allow customer to display car information

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

display\_Carlist ();

END

1. Search\_Car ()

Responsibility : to search car

Input parameter : car id

Output parameter : data car

Algorithm :

BEGIN

Search\_Car (car id);

END

1. Booking\_form ()

Responsibility : allow customer to make a booking request

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

Booking\_form ();

END

4.1.2.2 Login Presenter class (SDD-REQ-4.1.2.2)

1. **Input/output data elements**

List of input and output data elements :-

Input : none

Output : none

1. **Local data elements**

Not applicable

1. **Algorithms**

The purpose of this class is to verify the username and password.

Class type : Presenter class

Responsibility : To control the login process

Attributes : none

Methods : verify( username: String, password : String)

1. Verify()

Responsibility : to verify username and password

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

Verify(username, password);

END

4.1.2.3 Employee Presenter class

1. **Input/output data elements**

List of input and output data elements :-

Input : none

Output : none

1. **Local data elements**

Not applicable

1. **Algorithms**

The purpose of this class is to display booking list, add , edit and delete record.

Class type : Presenter class

Responsibility : to display booking list, add , edit and delete record.

Attributes :

Methods : display\_bookinglist () : void

Delete\_record () :void

Add\_record () : void

Edit\_record () : void

1. display\_ bookinglist ()

Responsibility : allow employee to display booking information

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

display\_ bookinglist ();

END

1. Add\_record ()

Responsibility : allow employee to add a booking request

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

Add\_record ();

END

1. Delete\_record ()

Responsibility : allow employee to delete a booking request

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

Delete\_record ();

END

1. Edit \_record ()

Responsibility : allow employee to edit a booking request

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

Edit \_record ();

END

4.1.3 View class design

1. Login page
2. Admin manage booking page

4.1.3.1 Login page class (SDD-REQ-4.1.3.1)

1. **Input/output data elements**

List of input and output data elements :-

Input : none

Output : none

1. **Local data elements**

Not applicable

1. **Algorithms**

The purpose of this class is to login into system.

Class type : view class

Responsibility : to create interface for login

Attributes : not applicable

Methods : doLogin()

1. doLogin()

Responsibility : to create interface for login

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

doLogin( username, password);

END

* + - 1. Admin manage booking class (SDD-REQ-4.1.3.2)

1. **Input/output data elements**

List of input and output data elements :-

Input : none

Output : none

1. **Local data elements**

Not applicable

1. **Algorithms**

The purpose of this class is to manage booking .

Class type : view class

Responsibility : to create interface for add edit delete display page

Attributes : not applicable

The purpose of this class is to display booking list, add , edit and delete record.

Class type : view class

Responsibility : to display booking list, add , edit and delete record.

Attributes :

Methods : display\_bookinglist () : void

Delete\_record () :void

Add\_record () : void

Edit\_record () : void

1. display\_ bookinglist ()

Responsibility : none

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

display\_ bookinglist ();

END

1. Add\_record ()

Responsibility : none

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

Add\_record ();

END

1. Delete\_record ()

Responsibility : none

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

Delete\_record ();

END

1. Edit \_record ()

Responsibility : none

Input parameter : none

Output parameter : none

Algorithm :

BEGIN

Edit \_record ();

END