Design Document of

Hotel Booking System

Content

1. Requirement analysis

1.1 System architecture diagram

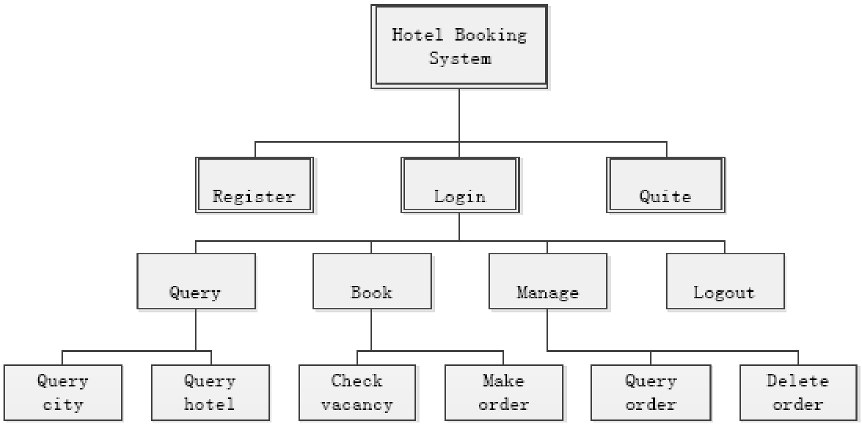


Figure 1: System architecture diagram

As we can see from Figure 1, when the Hotel Booking System is running, users can choose to register, login and quite. After login, there are 4 main modules, including query, book, manage and logout. Query module includes “query city” and “query hotel”; Book module includes “check vacancy” and “make order”; Manage module includes “query order” and “delete order”.

1.2 Use case diagram

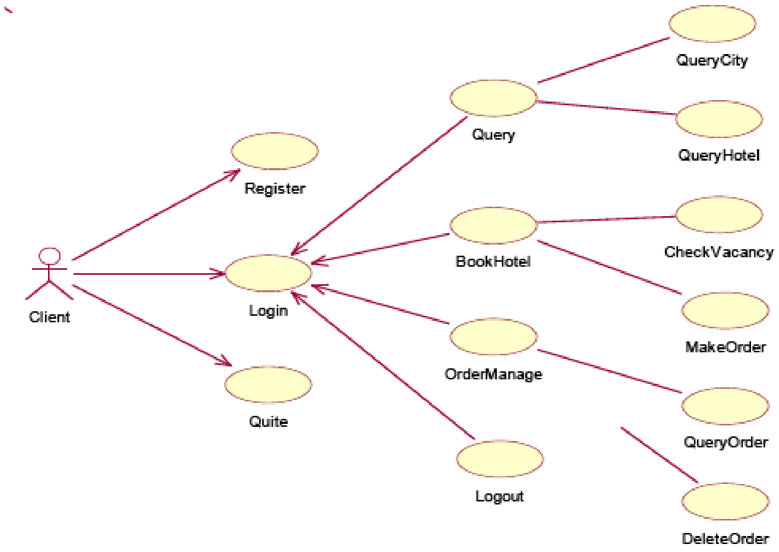


Figure 2: Use case diagram

1.3 Middleware selection

According to the requirement, there are 3 different middlewares to be deployed. The client communicates with broker server through RMI, and the broker server communicates with hotel servers through both RMI and Corba. In addition, WebService will also to be used in this project.

2. System design

2.1 Database design

2.1.1 User table: user

Table 1: User table

Field Name	Type	Data Integrity Constraints	Meaning
userid	VARCHAR(255)	PK	User ID
psw	VARCHAR(255)		User password

2.1.2 City table: city

Table 2: City table

Field Name	Type	Data Integrity Constraints	Meaning
cityid	VARCHAR(255)	PK	City ID
cityname	VARCHAR(255)		City name

2.1.3 Hotel table: hotel

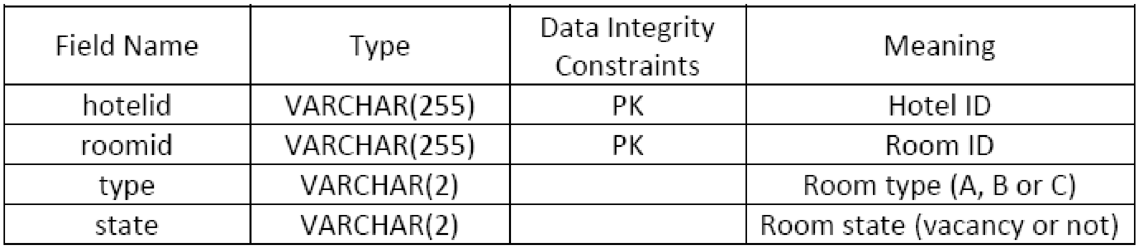
Table 3: Hotel table

Field Name	Type	Data Integrity Constraints	Meaning
hotelid	VARCHAR(255)	PK	Hotel ID
cityid	VARCHAR(255)	FK	City ID
hotelname	VARCHAR(255)		Hotel name

priceA	DECIMAL(10,2)		Price of single room
priceB	DECIMAL(10,2)		Price of double room
priceC	DECIMAL(10,2)		Price of VIP room
port	INT		Port number of hotel server
middleware	VARCHAR(255)		Middleware of hotel server

2.1.4 Room table: room

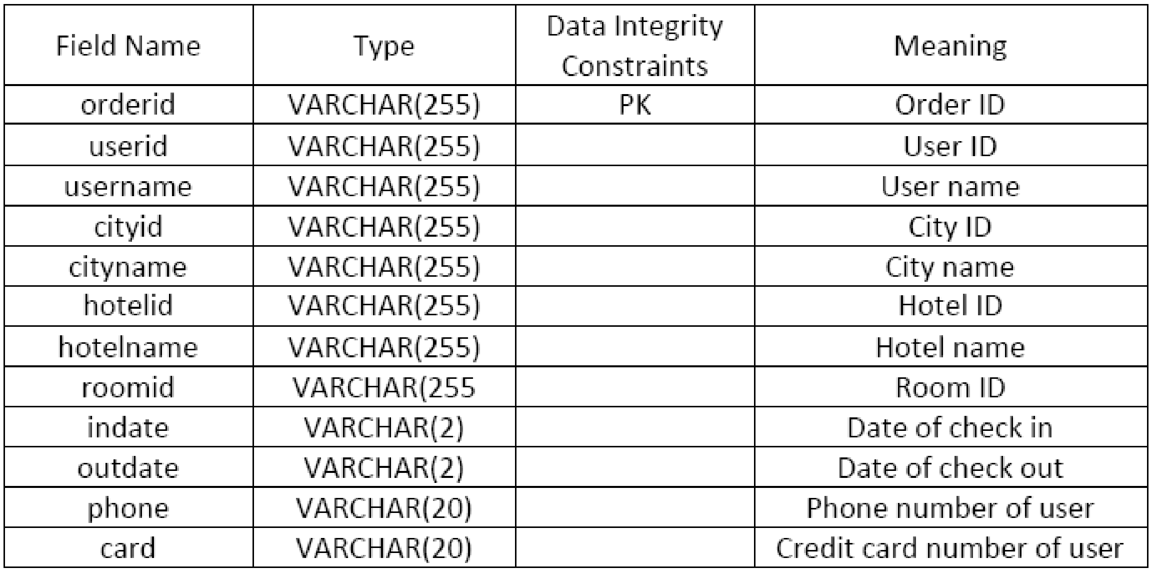
Table 4: Room table



Field Name	Type	Data Integrity Constraints	Meaning
hotelid	VARCHAR(255)	PK	Hotel ID
roomid	VARCHAR(255)	PK	Room ID
type	VARCHAR(2)		Room type (A, B or C)
state	VARCHAR(2)		Room state (vacancy or not)

2.1.5 Order table: order

Table 5: Order table



Field Name	Type	Data Integrity Constraints	Meaning
orderid	VARCHAR(255)	PK	Order ID
userid	VARCHAR(255)		User ID
username	VARCHAR(255)		User name
cityid	VARCHAR(255)		City ID
cityname	VARCHAR(255)		City name
hotelid	VARCHAR(255)		Hotel ID
hotelname	VARCHAR(255)		Hotel name
roomid	VARCHAR(255		Room ID
indate	VARCHAR(2)		Date of check in
outdate	VARCHAR(2)		Date of check out
phone	VARCHAR(20)		Phone number of user
card	VARCHAR(20)		Credit card number of user

2.2 Main method specification

2.2.1 HotelClientHOPP

Table 6: Main Method of HotelClientUI

Method	Parameters	Return	Specification
register(String userID, String psw)	userID: user ID psw: password	true/false	registrter a new user
logIn(String userID, String psw)	userID: user ID psw: password	true/false	login system
quit()	null	void	quit system
query()	null	cityID:cityname	query cities
queryhotel(String line)	line: city ID	cityname:hotelID +hotelname+priceA +priceB+priceC	query hotels with city ID
book(String str)	str: hotel ID, room type	roomID	check vacancy of a hotel
order(String str)	str: userID, hotelID, roomID, username, indate, outdate, phone, card	true/false	make an order
manage(String str)	str: userID	orderID,username, cityname,hotelname, roomID,indate, outdate,phone,card	show order information
delete(String orderid)	orderid: ID number of order	true/false	delete an order

2.2.2 BrokerServerHOPP

Table 7: Main Method of BrokerServerHOPP

Method	Parameters	Return	Specification
setup(String[] args)	args: {"–ORBInitialPort", "1235"}	null	setup a corba connection
getRMIconnection(int port)	port: port number of hotel server	null	get connection with a RMI server

2.2.3 DBManage

Table 8: Main Method of DBManage

Method	parameters	Return	Specification
validate(String userID, String psw)	userID: user ID psw: password	true/false	check userID and password
create (String userID, String psw)	userID: user ID psw: password	true/false	create a new user account
getXXXPort(String str)	str: same parameter as XXX method	port number	get port number when conduct XXX method
getXXXMiddle(String str)	str: same parameter as XXX method	middleware type	get middleware type when conduct XXX method

From this method specification above, we can easily understand the message transmission between client & broker server and broker server & hotel server. This specification includes enough details about message formats, which can help us to implement a client or server to handle the messages.

2.3 Class diagram

2.3.1 Class diagram of the Hotel Booking System with RMI hotel server

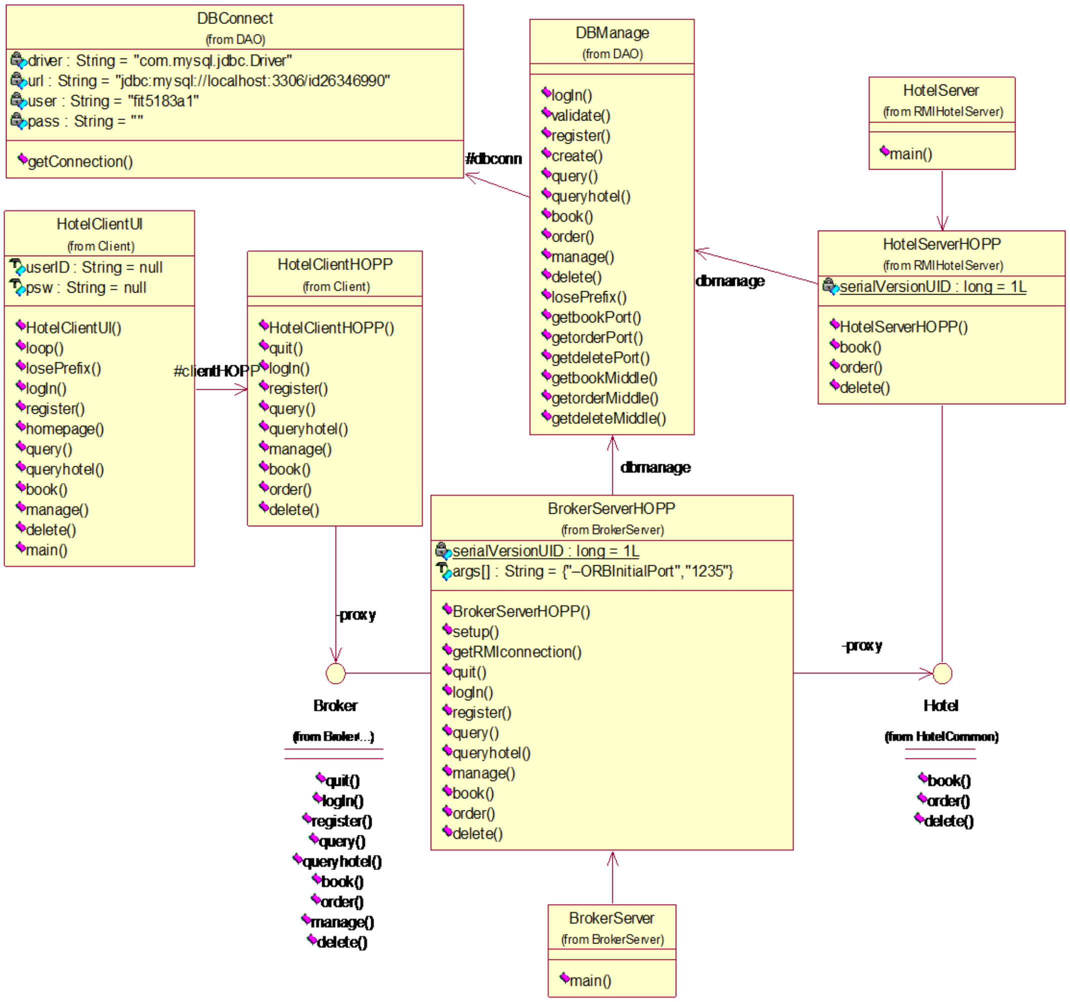


Figure 3: Class diagram of Hotel Booking System with RMI hotel server

2.3.2 Class diagram of the Hotel Booking System with Corba hotel server

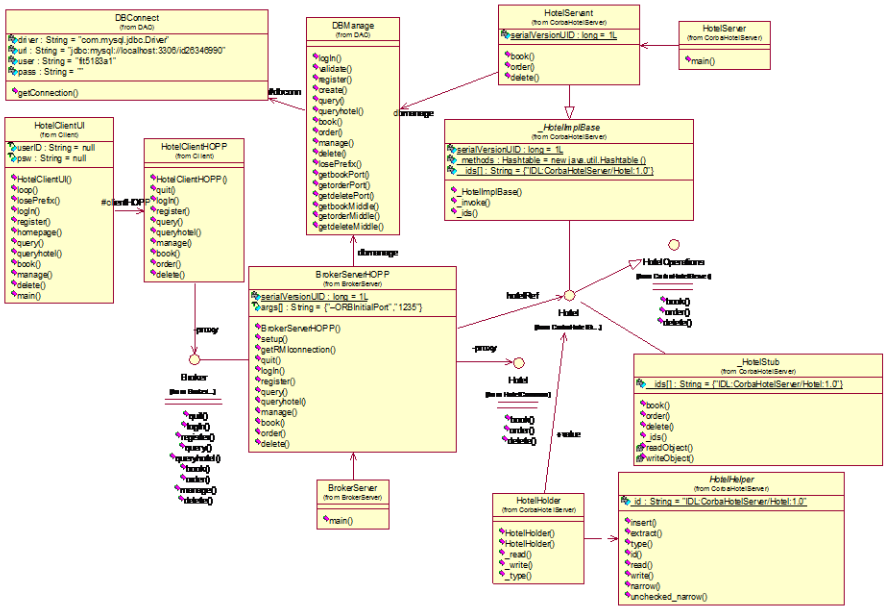


Figure 4: Class diagram of Hotel Booking System with Corba hotel server

2.3.3 Class diagram of the Hotel Booking System with Web Service

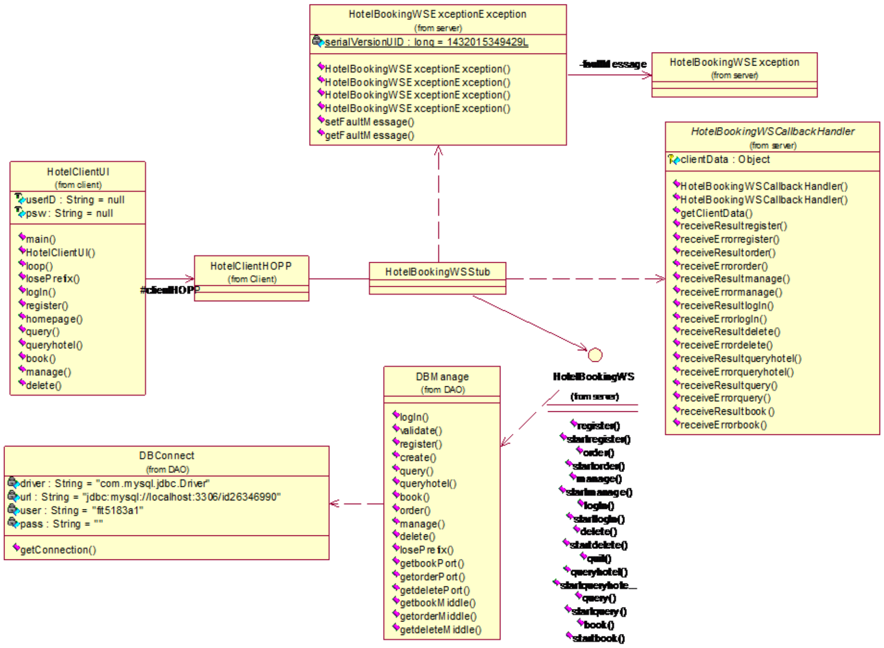
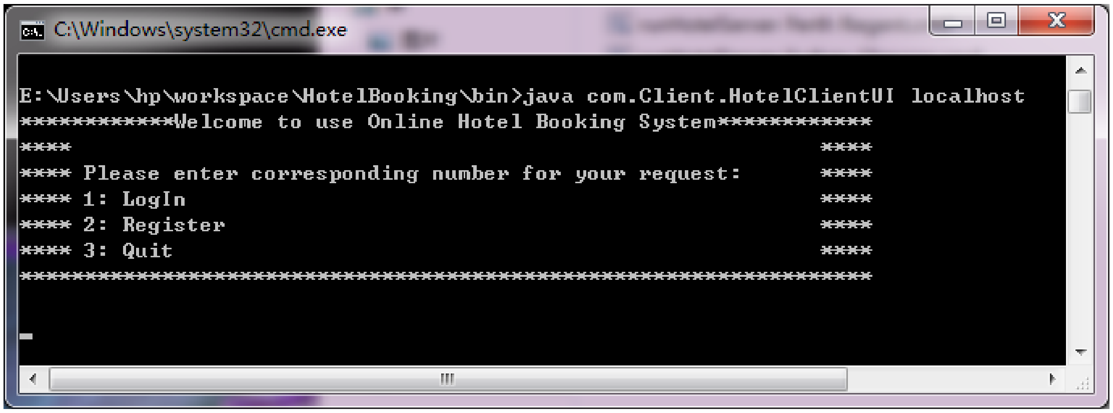


Figure 5: Class diagram of Hotel Booking System with Web Service

3. System realization

3.1 User interface

3.1.1 Main user interface

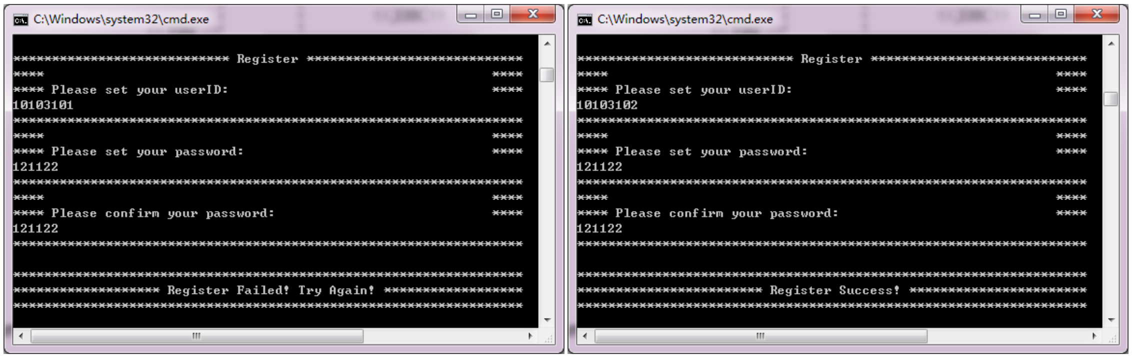


```
E:\Users\hp\workspace\HotelBooking\bin>java com.Client.HotelClientUI localhost
*************Welcome to use Online Hotel Booking System*************
****                                                            ****
**** Please enter corresponding number for your request:        ****
**** 1: LogIn                                                   ****
**** 2: Register                                                ****
**** 3: Quit                                                    ****
********************************************************************
```

Figure 6: Main user interface

Figure 6 is showing the main user interface of the Hotel Booking System. User can choose to register, login and quit.

3.1.2 Register interface

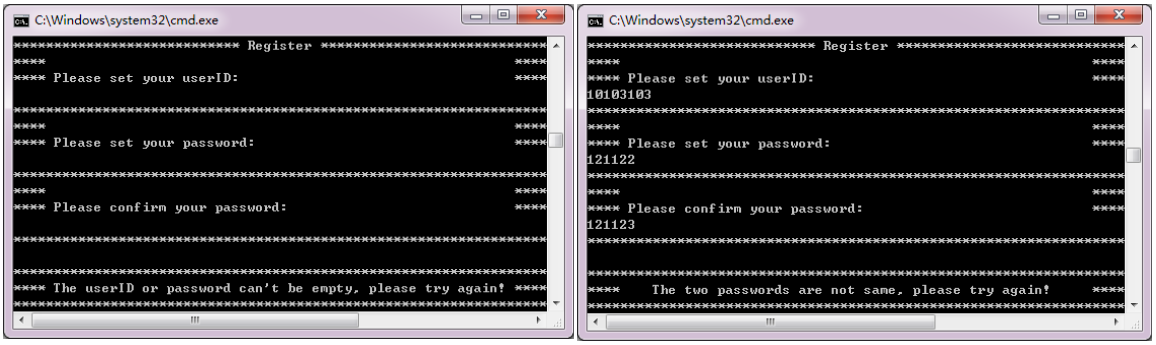


```
**************************** Register *****************************
****                                                           ****
**** Please set your userID:                                   ****
10103101
*******************************************************************
****                                                           ****
**** Please set your password:                                 ****
121122
*******************************************************************
****                                                           ****
**** Please confirm your password:                             ****
121122
*******************************************************************

*******************************************************************
******************* Register Failed! Try Again! *******************
*******************************************************************
```

```
**************************** Register *****************************
****                                                           ****
**** Please set your userID:                                   ****
10103102
*******************************************************************
****                                                           ****
**** Please set your password:                                 ****
121122
*******************************************************************
****                                                           ****
**** Please confirm your password:                             ****
121122
*******************************************************************

*******************************************************************
************************ Register Success! ************************
*******************************************************************
```

Figure 7: Register interface

Figure 7 is showing the register interface. After submitting the register information, no matter success or not, it will always show the information of the result and return to the main user interface.



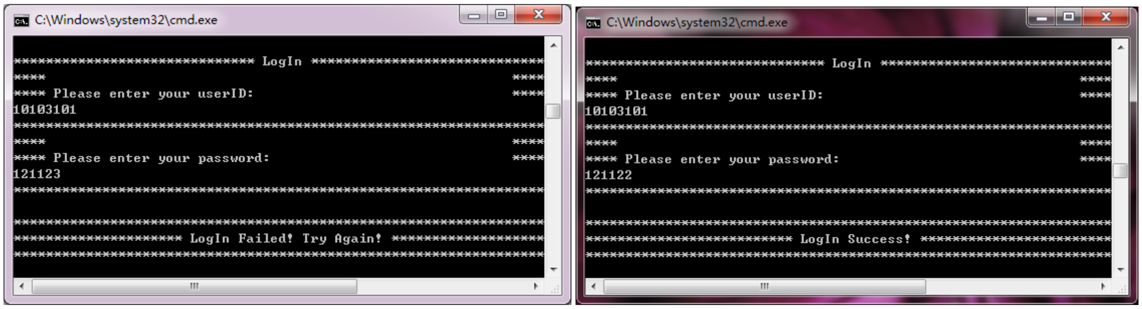
```
C:\Windows\system32\cmd.exe
***************************** Register ****************************
****                                                           ****
**** Please set your userID:                                   ****

*******************************************************************
****                                                           ****
**** Please set your password:                                 ****

*******************************************************************
****                                                           ****
**** Please confirm your password:                             ****

*******************************************************************

*******************************************************************
**** The userID or password can't be empty, please try again! ****
*******************************************************************
```

```
C:\Windows\system32\cmd.exe
***************************** Register ****************************
****                                                           ****
**** Please set your userID:                                   ****
10103103
*******************************************************************
****                                                           ****
**** Please set your password:                                 ****
121122
*******************************************************************
****                                                           ****
**** Please confirm your password:                             ****
121123
*******************************************************************

*******************************************************************
****    The two passwords are not same, please try again!     ****
*******************************************************************
```

Figure 8: Error message

Figure 8 is showing the error message of the register. When user submitted illegal register information, the system will show the tips of error message to help user to correct it.

3.1.3 Login interface



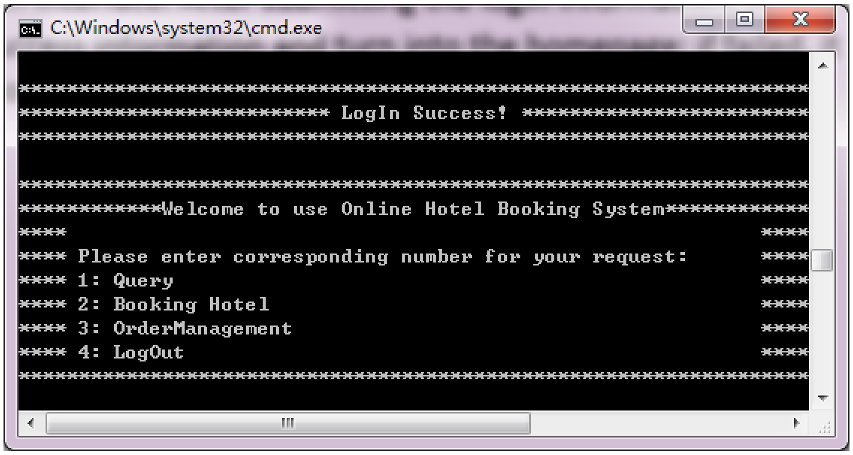
```
C:\Windows\system32\cmd.exe
****************************** LogIn *****************************
****                                                           ****
**** Please enter your userID:                                 ****
10103101
*******************************************************************
****                                                           ****
**** Please enter your password:                               ****
121123
*******************************************************************

*******************************************************************
********************* LogIn Failed! Try Again! ********************
*******************************************************************
```

```
C:\Windows\system32\cmd.exe
****************************** LogIn *****************************
****                                                           ****
**** Please enter your userID:                                 ****
10103101
*******************************************************************
****                                                           ****
**** Please enter your password:                               ****
121122
*******************************************************************

*******************************************************************
************************ LogIn Success! ***************************
*******************************************************************
```

Figure 9: Login interface

Figure 9 is showing the login interface. After submitting the login information, if succeed, it will show the success information and turn into the homepage; if failed, it will show the fail information and return to the main user interface.

3.1.4 Homepage interface

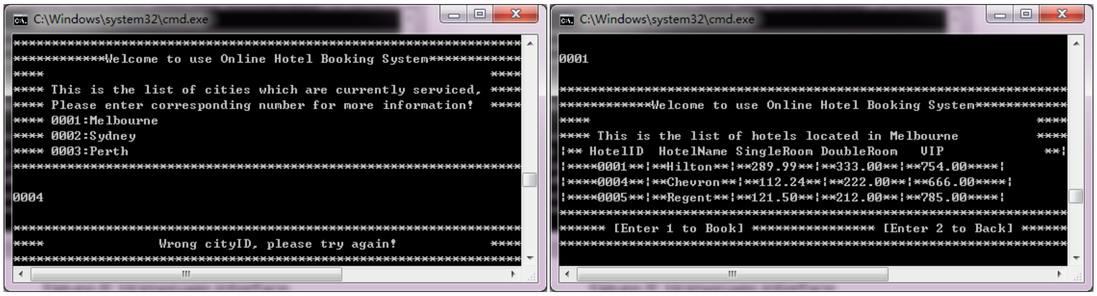


```
C:\Windows\system32\cmd.exe
*******************************************************************
************************** LogIn Success! *************************
*******************************************************************

*******************************************************************
*************Welcome to use Online Hotel Booking System************
****                                                           ****
**** Please enter corresponding number for your request:       ****
**** 1: Query                                                  ****
**** 2: Booking Hotel                                          ****
**** 3: OrderManagement                                        ****
**** 4: LogOut                                                 ****
*******************************************************************
```

Figure 10: Homepage interface

Figure 10 is showing the homepage interface of the Hotel Booking System. User can choose to query information, booking hotel, order management or logout.

3.1.5 Query interface



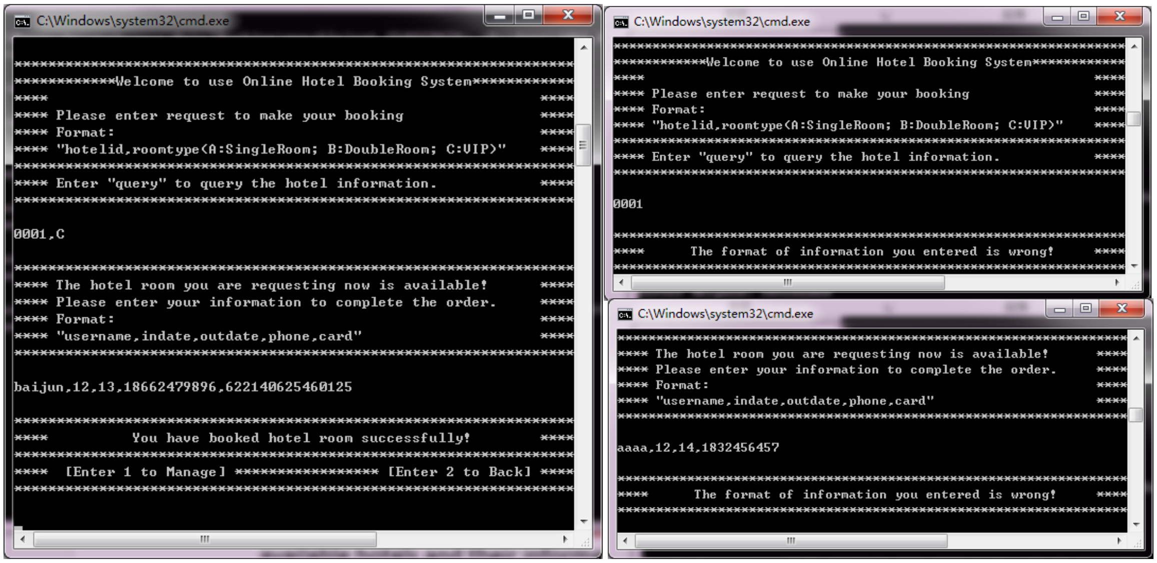
```
C:\Windows\system32\cmd.exe
********************************************************************************
*************Welcome to use Online Hotel Booking System*************************
****                                                                        ****
**** This is the list of cities which are currently serviced,               ****
**** Please enter corresponding number for more information!                ****
**** 0001:Melbourne
**** 0002:Sydney
**** 0003:Perth
********************************************************************************

0004

********************************************************************************
****                   Wrong cityID, please try again!                      ****
********************************************************************************
```

```
C:\Windows\system32\cmd.exe

0001

********************************************************************************
*************Welcome to use Online Hotel Booking System*************************
****                                                                        ****
**** This is the list of hotels located in Melbourne                        ****
¦** HotelID  HotelName SingleRoom DoubleRoom   VIP                            **¦
¦****0001**¦**Hilton**¦**289.99**¦**333.00**¦**754.00****¦
¦****0004**¦**Chevron**¦**112.24**¦**222.00**¦**666.00****¦
¦****0005**¦**Regent**¦**121.50**¦**212.00**¦**785.00****¦
********************************************************************************
****** [Enter 1 to Book] **************** [Enter 2 to Back] ******
********************************************************************************
```

Figure 11: Query interface

Figure 11 is showing the query interface, when user enter this interface, system will show the all available cities and their cityID. When user enter the right cityID, it will list all available hotels and their information in the certain city and user can choose to book hotel or just return to the homepage. If user enter a wrong cityID, it will show the error message and return to the query interface.

3.1.6 Booking hotel interface



```
C:\Windows\system32\cmd.exe

********************************************************************************
*************Welcome to use Online Hotel Booking System*************************
****                                                                        ****
**** Please enter request to make your booking                              ****
**** Format:                                                                ****
**** "hotelid,roomtype(A:SingleRoom; B:DoubleRoom; C:VIP)"                  ****
********************************************************************************
**** Enter "query" to query the hotel information.                          ****
********************************************************************************

0001,C

********************************************************************************
**** The hotel room you are requesting now is available!                    ****
**** Please enter your information to complete the order.                   ****
**** Format:                                                                ****
**** "username,indate,outdate,phone,card"                                   ****
********************************************************************************

baijun,12,13,18662479896,622140625460125

********************************************************************************
****              You have booked hotel room successfully!                  ****
********************************************************************************
****  [Enter 1 to Manage] ***************** [Enter 2 to Back] ****
********************************************************************************
```

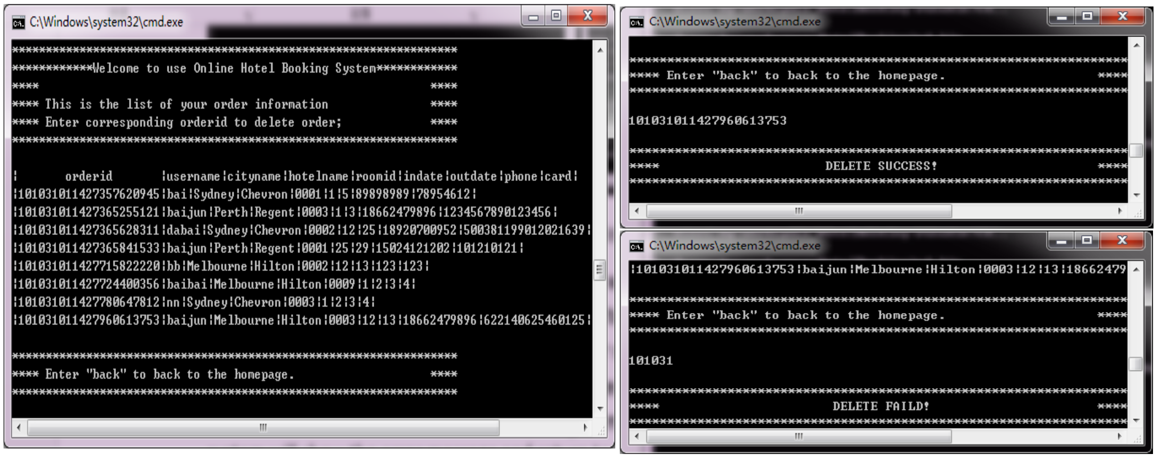
```
C:\Windows\system32\cmd.exe
********************************************************************************
*************Welcome to use Online Hotel Booking System*************************
****                                                                        ****
**** Please enter request to make your booking                              ****
**** Format:                                                                ****
**** "hotelid,roomtype(A:SingleRoom; B:DoubleRoom; C:VIP)"                  ****
********************************************************************************
**** Enter "query" to query the hotel information.                          ****
********************************************************************************

0001

********************************************************************************
****       The format of information you entered is wrong!                  ****
********************************************************************************
```

```
C:\Windows\system32\cmd.exe
********************************************************************************
**** The hotel room you are requesting now is available!                    ****
**** Please enter your information to complete the order.                   ****
**** Format:                                                                ****
**** "username,indate,outdate,phone,card"                                   ****
********************************************************************************

aaaa,12,14,1832456457

********************************************************************************
****       The format of information you entered is wrong!                  ****
********************************************************************************
```

Figure 12: Booking hotel interface

Figure 12 is showing the booking hotel interface, when user enter this interface, system will require user to enter hotel ID and room type to check the vacancy. If there are rooms available, system will require user to enter more information to complete the order. Or, it will show information that the quested room is full and return to booking hotel interface. Whenever user submit wrong format of booking information, the system will show the error message and return to the booking hotel interface.

3.1.7 Order management interface



```
******************************************************************
************Welcome to use Online Hotel Booking System************
****                                                         ****
**** This is the list of your order information              ****
**** Enter corresponding orderid to delete order;            ****
******************************************************************

¦       orderid       ¦username¦cityname¦hotelname¦roomid¦indate¦outdate¦phone¦card¦
¦101031011427357620945¦bai¦Sydney¦Chevron¦0001¦1¦5¦89898989¦78954612¦
¦101031011427365255121¦baijun¦Perth¦Regent¦0003¦1¦3¦18662479896¦1234567890123456¦
¦101031011427365628311¦dabai¦Sydney¦Chevron¦0002¦12¦25¦18920700952¦500381199012021639¦
¦101031011427365841533¦baijun¦Perth¦Regent¦0001¦25¦29¦15024121202¦101210121¦
¦101031011427715822220¦bb¦Melbourne¦Hilton¦0002¦12¦13¦123¦123¦
¦101031011427724400356¦baibai¦Melbourne¦Hilton¦0009¦1¦2¦3¦4¦
¦101031011427780647812¦nn¦Sydney¦Chevron¦0003¦1¦2¦3¦4¦
¦101031011427960613753¦baijun¦Melbourne¦Hilton¦0003¦12¦13¦18662479896¦6221406254601251¦

******************************************************************
**** Enter "back" to back to the homepage.                   ****
******************************************************************
```

```
*********************************************************************
**** Enter "back" to back to the homepage.                      ****
*********************************************************************

101031011427960613753

*********************************************************************
****                     DELETE SUCCESS!                        ****
*********************************************************************
```

```
¦101031011427960613753¦baijun¦Melbourne¦Hilton¦0003¦12¦13¦18662479

*********************************************************************
**** Enter "back" to back to the homepage.                      ****
*********************************************************************

101031

*********************************************************************
****                      DELETE FAILD!                         ****
*********************************************************************
```

Figure 13: Order management interface

Figure 13 is showing the order management interface, when user enter this interface, system will list all order information of current user. User can choose to type in “back” to return the homepage, or to type in order ID to delete that order. When deleting order, if user submitted wrong order ID, the system will show error message and return to order management interface, or it will show success message and return.

3.2 Deployment diagram

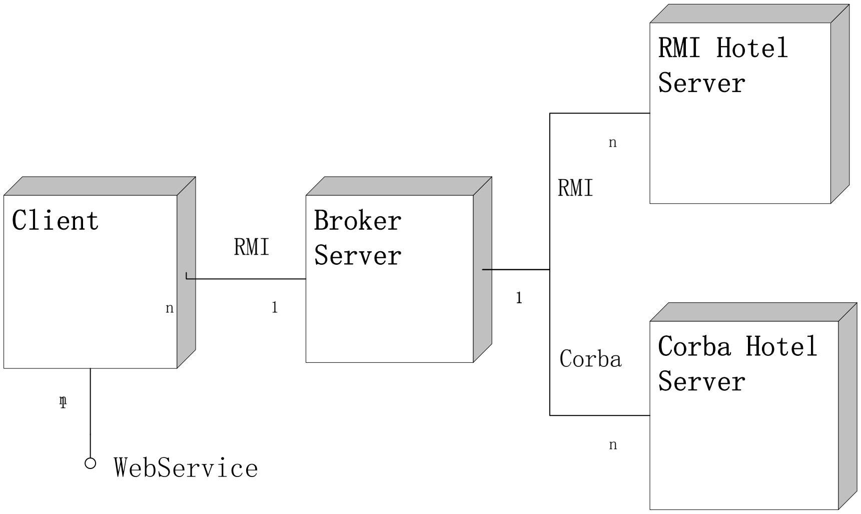


Figure 14: Deployment diagram