How to start the program:

1) Cd into postgresql folder
2) Run **source ./startPostgreSQL.sh**
3) Run **source ./createPostgreDB.sh**
4) Cd into sql folder
5) Run source **./insert.sh** to place the necessary data into the db
6) Cd into java folder
7) Run **source ./compile.sh** to create the indexes we need and to run the java queries

Assumptions we made:

The user should know the data types needed, such as the date and gender. If the values do not match then the program does not let the user run the queries until we receive the correct information.

For some variables we only accept certain inputs. If we do not receive the correct information the system asks the user to try again. We do not query until we have all the info. We have also taken into account leap years since February can sometimes contain 29 days.

We also created indexes in order to retrieve the data in a more timely manner. If we did not create the indexes the time to query would be longer.

Divided Work:

Jeffrey	Joshua
addCustomer	# of booked rooms
addRoom	BookingsforaWeek
addCompany	KHighestPriceRoomwithDateRange
addRepair	topKhighestBookingPriceCustomer
addBooking	CustomerTotalGivenRange
assignStafftoRoom	ListRepairsofCompany
RaiseServiceRequest	GetTopKCompanysBasedonRepair

	#
#ofAvailableRooms	#ofRepairsforRoomPerYear

1) addCustomer


```
MAIN MENU
--------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 1
Customer First Name: Jeffrey
Customer Last Name: Juan
Customer Address: 3500 University Ave
Customer Phone Number (1234567890): 1234567890
Customer Date of Birth Yr-Mnth-Day (e.g. 2008-11-11): 1997-7-4
Customer Gender (Male, Female): Male


---------------------------------------------
            Your New Customer
---------------------------------------------

customerid     fname    lname   address phno    dob     gender
2002    Jeffrey                  Juan                        3500 University Ave    1234567890    1997-07-04    Male


---------------------------------------------
```

2) addRoom

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 2
Enter hotel ID: 20
Enter room number: 42
Enter room type: Suite


-------------------------------------------
            Your New Room
-------------------------------------------

hotelid roomno   roomtype
20        1        Suite
20        2        Economy
20        3        Deluxe
20        4        Economy
20        5        Suite
20        6        Economy
20        7        Deluxe
20        8        Economy
20        9        Suite
20        10       Economy
20        42       Suite


-------------------------------------------
```

3) addCompany

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 3
Input Company ID: 49
Input Company Name: Jeffs Company
Input Company Address: 3534 University Ave
Is this company certified? (y/n): y


-------------------------------------------
          Your New Maintanence Company
-------------------------------------------


cmpid    name     address iscertified
49       Jeffs Company                    3534 University Ave      t


-------------------------------------------
```

4) addRepair

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 4
Input repair ID: 9188
Input hotel ID: 20
Input room number: 2
Input maintenance company ID: 49
Input Repair date year: 2019
Input Repair date month: 12
Input Repair date day: 25
Your inputted date is:
12/25/2019
Input repair description: fix the toilet and repaint
Input repair type: Large


-----------------------------------------------
            Your New Repair
-----------------------------------------------

rid     hotelid roomno  mcompany        repairdate      description     repairtype
9188    20      2       49      2019-12-25      fix the toilet and repaint      Large


-----------------------------------------------
```

5) addBooking

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 5
Please input Customer ID: 20
Please input Hotel ID: 20
Please input Room Number: 2
Your Booking does not yet exist. Would you like to create a new Booking?(y/n):
y
Please input Booking Number: 12
Booking Date is required!
Please input Booking Date Year: 2019
Please input Booking Date Month: 2
Please input Booking Date Day: 2
Your inputted date is (In the format of MM/dd/yyyy ) :
2/2/2019
Please input the number of People for the Booking: 2
Please input the Price:
Your input is invalid!
Please input the Price: 90
Query failed: ERROR:  duplicate key value violates unique constraint "booking_pkey"

Create a new booking?(y/n):
y
Please input Booking Number: 95675
Booking Date is required!
Please input Booking Date Year: 2019
Please input Booking Date Month: 12
Please input Booking Date Day: 25
Your inputted date is (In the format of MM/dd/yyyy ) :
12/25/2019
Please input the number of People for the Booking: 2
Please input the Price: 100


------------------------------------------------
            Your Booking
------------------------------------------------

bid     customer        hotelid roomno  bookingdate     noofpeople      price
95675   20      20      2       2019-12-25      2       100.00


------------------------------------------------
```

6) assignStafftoRoom

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 6
Please input Staff SSN:
20
Please input Hotel ID:
20
Please input Room number:
2


------------------------------------------
            ASSIGNED HOUSE CLEANING STAFF
------------------------------------------

asgid   staffid hotelid roomno
8       20      4       8
2003    20      20      2


------------------------------------------
```

7) RaiseServiceRequest

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 7
Input Request ID: 9067
Input manager ID: 20
Input Repair ID: 20
Input Repair date year: 2019
Input Repair date month: 5
Input Repair date day: 3
Your date is:
5/3/2019
Input repair description: fix door lock and replace smoke detector


-----------------------------------------------
               Your New Repair Request
-----------------------------------------------

reqid   managerid       repairid        requestdate     description
9067    20      20      2019-05-03        fix door lock and replace smoke detector


-----------------------------------------------
```

8) #ofAvailableRooms

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 8
Please input hotel ID:
20


-------------------------------------------
                AVAILABLE ROOMS
-------------------------------------------

availablerooms
11


-------------------------------------------
```

9) # of booked rooms

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 9
Please input hotel ID:
20


-----------------------------------------
                BOOKED ROOMS
-----------------------------------------------

reservedrooms
6


-----------------------------------------
```

10) BookingsforaWeek

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 10
Please input hotel ID: 2
Input booking date year: 2000
Input booking date month: 10
Input booking date day: 10
Your inputted date is:
10/10/2000


-------------------------------------------
              Bookings
-------------------------------------------



-------------------------------------------

MAIN MENU
```

11) KHighestPriceRoomwithDateRange

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 11
Please input number of prices to show:
3
Input start date year: 2012
Input start date month: 5
Input start date day: 10
Your inputted date is:
5/10/2012
Input end date year: 2014
Input end date month: 6
Input end date day: 21
Your inputted end date is:
6/21/2014


-----------------------------------------------
            Highest Prices
-----------------------------------------------

hotelid roomno  roomtype      bid    customer      hotelid roomno  bookingdate    noofpeople    price
0       0       default       31     16      19    1       2013-08-09     2       1999.00
1       1       Suite         31     16      19    1       2013-08-09     2       1999.00
1       2       Economy       31     16      19    1       2013-08-09     2       1999.00


-----------------------------------------------
```

12) topKhighestBookingPriceCustomer

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 12
Please input customer ID:
16
Please input number of prices to show:
5


-----------------------------------------------
        Customer's Highest Booking Prices
-----------------------------------------------

price
1999.00
1999.00
1999.00
1999.00
1998.00


-----------------------------------------------
```

13)   CustomerTotalGivenRange

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 13
Please input hotel ID:
2
Please input customer ID:
2
Please input Starting Date Year: 1900
Please input starting Date Month: 1
Please input starting Date Day: 1
Your inputted date is (In the format of MM/dd/yyyy ) :
1/1/1900
Please input End Date Year: 2020
Please input End Date Month: 1
Please input End Date Day: 1
Your inputted date is (In the format of MM/dd/yyyy ) :
1/1/2020


------------------------------------
            Customer Total
------------------------------------------

customerid      sum
2       4109.00


------------------------------------
```

14) ListRepairsofCompany

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 14
Please enter a company:
1


-----------------------------------
          REPAIRS Made
-------------------------------------

name     rid     repairtype      hotelid roomno
iqcq             5       Large           292     6
iqcq             12      Small           346     6
iqcq             21      Large           578     7
iqcq             23      Large           445     3
iqcq             25      Small           476     8
iqcq             56      Large           455     6
iqcq             64      Large           491     9
iqcq             65      Small           564     6
iqcq             95      Small           317     5
iqcq             108     Medium          861     3
iqcq             183     Small           882     1
iqcq             200     Small           902     6
iqcq             218     Medium          998     4
iqcq             235     Medium          822     8
iqcq             274     Medium          119     9
iqcq             280     Large           696     1
iqcq             317     Small           192     5
iqcq             322     Large           750     8
iqcq             352     Large           887     9
iqcq             364     Large           369     3
iqcq             374     Small           553     9
iqcq             386     Small           23      1
iqcq             395     Small           450     5
iqcq             424     Medium          986     8
iqcq             441     Large           795     1
iqcq             453     Large           939     6
iqcq             521     Small           417     9
iqcq             525     Large           835     2
iqcq             545     Large           556     8
iqcq             576     Medium          310     8
iqcq             584     Medium          210     9
iqcq             590     Large           186     3
iqcq             598     Medium          385     1
```

15)   GetTopKCompanysBasedonRepair#

```
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 15
Please enter a range:
10


------------------------------------
            FIND REPAIRS PER YEAR
------------------------------------

name     count
ckqv                        126
iqcq                        123
wwme                        120
sqdg                        117
glcw                        116
gbxw                        115
zrsi                        113
nngp                        111
azda                        110
quta                        109


------------------------------------
```

16)   #ofRepairsforRoomPerYear

```
Done
MAIN MENU
---------
1. Add new customer
2. Add new room
3. Add new maintenance company
4. Add new repair
5. Add new Booking
6. Assign house cleaning staff to a room
7. Raise a repair request
8. Get number of available rooms
9. Get number of booked rooms
10. Get hotel bookings for a week
11. Get top k rooms with highest price for a date range
12. Get top k highest booking price for a customer
13. Get customer total cost occurred for a give date range
14. List the repairs made by maintenance company
15. Get top k maintenance companies based on repair count
16. Get number of repairs occurred per year for a given hotel room
17. < EXIT
Please make your choice: 16
Please enter a hotel ID:
20
Please enter a room number:
3


-----------------------------------
              FIND REPAIRS PER YEAR
-----------------------------------------

date_part       count
2009    1


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```