

MyBnB DataBase Project:

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Short Description: This project is to give a home-sharing service, which helps people worldwide to rent out their idle houses and to book the house that they want to live in when they are on vacation.

Conceptual Problem: We were struggling with the booking process and the availability of listings. Our solution is to maintain a booking process as a single entry in the BOOK table which records the start date and the end date while setting the availability of a listing day by day. When a booking request occurred, we would check each date within the booking request to see whether they are available for that listing.

Assumption:

1. Our amenities include wifi, kitchen, washer, dryer, ac, heating, tv, hair dryer, and gym.
2. Listing types are full house, room, and apartment.
3. Since distances are hard to calculate, renters would use angle range to search for the listing they wanted.
4. Usernames(account name but not real name) are distinct.
5. Start from 2022-01-01 to 2024-01-01.
6. To avoid malicious judgments, one renter can only judge one host once and one host can only judge one renter once.

Relational Schema:

Entity Set:

Listing(lid, lat, lon, type, amenities)

Calendar(date)

Address(unit, postal_code, country, city)

User(username, occupation, sin, name, password, birth, payment)

Renter(username)

Host(username)

Book(bid, start_date, end_date, price, payment, price, cancellation)

Relationship:

Available(date, lid, price)

Located_at(lid, unit, postal_code)

Lives(unit, postal_code, username)

Books(bid, username)

Judgement(jid, username1, username2, likes, words, direction)

Owns(lid, username,)

Comment(cid, rate, text, lid, username)

User manual:

Basically we have prompts for every step so we can just follow the prompt in the command line to use the program.

When the user gets into our program, they can either log in, register, or being administrators.

Login / Register / Administer

```
----- Welcome to MyBnB, Please Login or register -----
Press 1: Login, 2: Register, 3: Administer Mode.
1
```

```
----- LOGIN -----
LOGIN - Please input your username.
Jonathan
LOGIN - Please input your password.
123456
User: Jonathan Login succeed!
```

Our users can either be the renter or the host.

```
Continue with Host Account or Renter Account?
Press 1: host, 2: renter, 3: logout
1
```

1. If they log in and enter the host interface, they are allowed to check their personal information, manage the Listings, change the Listing's availability, manage the renter's booking, and manage their rating.

```
----- Welcome to MyBnB, Host 'Jonathan'! -----
Press the Corresponding Number to Continue
1: Manage Personal Information, 2: Manage My Listing, 3: Manage My Listing Availability, 4: Manage My Booking, 5: Manage My Rating, 6: logout
```

1.1

```
----- Personal Information -----
1: Check My Profile, 2: Change My Profile, 3: Delete My Account, 4: Go Back.
```

1.1.1

```
----- Check My Profile -----
My Information:
Username: Jonathan, Password: 123456, Real Name: Jonathan, SIN: 123124125, birth: 2001-01-01
Address (Unit: 1367, Postal Code: M1C 1A2, City: Toronto, Country: Canada)
```

1.1.2

```
----- Change My Profile -----
Select the profile you want to change
1: Real Name, 2: Birth Year, 3: Password, 4: Occupation, 5: Payment(Credit Card), 6: Address, 7: Go Back.
```

1.1.3 Input 1 to delete the account; Input any other natural number to go back, if you don't want to delete it.

```
----- Delete My Account -----
Are you sure you want to delete your user?
Press 1 to continue
1
DELETE FROM User where username = "Jonathan";
----- delete_success -----
----- Welcome to MyBnB, Please Login or register -----
Press 1: Login, 2: Register, 3: Administer Mode.
```

1.2

```
----- Manage My Listings -----
Press the Corresponding number to continue
1: Check My Listings, 2: Add a Listing, 3: Change a Listing, 4: Comment of my Listings, 5: Go Back.
```

1.2.1

```
----- Check My Listings -----
Lid: 1, Latitude: 18.99, Longitude: 30.22, Type: full house, Amenities: wifi
Lid: 2, Latitude: 19.00, Longitude: 3.22, Type: apartment, Amenities: wifi,tv
Lid: 3, Latitude: 1.99, Longitude: 30.62, Type: room, Amenities: wifi,kitchen,washer,dryer,ac,hea
Lid: 4, Latitude: 36.00, Longitude: 36.00, Type: room, Amenities: tv
```

1.2.2 Add a listing by following the instruction:

```
----- Add a Listing -----
Do you want to add a listing? Press 1 to continue, 2 to go back.
1
Add a Listing - Please input your listing latitude (-90 to 90).
34
Add a Listing - Please input your listing longitude (-180 to 180).
43
Add a Listing - Please input your listing type
- 1: full house, 2: apartment, 3: room
3
Add a Listing - Please add your amenities
Recommend Listing Amenities: tv, wifi and kitchen
Add a Listing - Input the corresponding number and put space in between
1: wifi, 2: kitchen, 3: washer, 4: dryer, 5: ac, 6: heating, 7: tv, 8: hair dryer, 9: gym
1 2 3
Add Listing Address - Please input your postal code.
M4B 9P0
Add Listing Address - Please input your unit.
1432
Add Listing Address - Please input your city.
Hangzhou
Add Listing Address - Please input your country.
China
```

1.2.3

```
----- Change a Listing Information -----
Press the Corresponding number to continue.
1: Modify a Listing, 2: Delete a Listing, 3: Go Back.
```

1.2.4 Checking the comment for the LID you select.

```
----- Comment of my Listing -----
Lid: 1, Latitude: 18.99, Longitude: 30.22, Type: full house, Amenities: wifi
Lid: 2, Latitude: 19.00, Longitude: 3.22, Type: apartment, Amenities: wifi,tv
Lid: 3, Latitude: 1.99, Longitude: 30.62, Type: room, Amenities: wifi,kitchen,washer,dryer,ac,heating,tv,hair dryer,gym
Lid: 4, Latitude: 36.00, Longitude: 36.00, Type: room, Amenities: tv
Lid: 6, Latitude: 34.00, Longitude: 43.00, Type: room, Amenities: wifi,kitchen,washer
Select the listing's LID which you want to look at: (input any other number to go back).
1
Renter: Jonathan, Rate: 3, Comment: The bed is noisy-- it is shaky. The air conditioner also doesn't work well. But the view is nice and
-----
Select the listing's LID which you want to look at: (input any other number to go back).
2
No one comment yet.
-----
Select the listing's LID which you want to look at: (input any other number to go back).
5
Go Back.
```

1.3

```
----- Manage Listing Availability -----
Press the Corresponding number to continue
1: Show listing Availability, 2: Add Availability, 3: Change Availability, 4: Go Back.
```

1.3.1 Select the LID you want to see the availability.

```
----- Show Availability -----
Lid: 1, Latitude: 18.99, Longitude: 30.22, Type: full house, Amenities: wifi
Lid: 2, Latitude: 19.00, Longitude: 3.22, Type: apartment, Amenities: wifi,tv
Lid: 3, Latitude: 1.99, Longitude: 30.62, Type: room, Amenities: wifi,kitchen,washer,dryer,ac,heating,tv,hair dryer,gym
Lid: 4, Latitude: 36.00, Longitude: 36.00, Type: room, Amenities: tv
Lid: 6, Latitude: 34.00, Longitude: 43.00, Type: room, Amenities: wifi,kitchen,washer
Please type the lid your want to check
1
Date: 2023-01-01, No Book Yet, Price: 12
Date: 2023-01-02, No Book Yet, Price: 12
Date: 2023-01-03, No Book Yet, Price: 12
Date: 2023-01-04, No Book Yet, Price: 12
Date: 2023-01-05, No Book Yet, Price: 12
Date: 2023-01-06, No Book Yet, Price: 12
Date: 2023-01-07, No Book Yet, Price: 12
Date: 2023-01-08, No Book Yet, Price: 12
Date: 2023-01-09, No Book Yet, Price: 12
```

1.3.2 Input the start_to_end_date as well as price as following:

```
----- Add date period for Listing Available. -----
Valid date: 2022-01-01 to 2024-01-01.
Please input the start date in this format: yyyy-mm-dd
2023-05-01
Please input the end date in this format: yyyy-mm-dd
2023-05-05
Please input daily price of the available:
No Recommend Listing price range for your listing type since no enough host sample.
Recommend Listing price range for new listing: 10 to 13.
13
INSERT INTO Available (price, date, lid) VALUES ('13', '2023-05-01', '1');
INSERT INTO Available (price, date, lid) VALUES ('13', '2023-05-02', '1');
INSERT INTO Available (price, date, lid) VALUES ('13', '2023-05-03', '1');
INSERT INTO Available (price, date, lid) VALUES ('13', '2023-05-04', '1');
```

1.3.3

```
----- Change Availability -----
1: Change Availability Price, 2: Remove Existing Availability, 3: Go Back.
```

1.4

```
----- Show My Bookings - Host -----
select distinct cancellation, book.username as renter_name, book.bid as bid, start_date, end_date, payment, book.price, book.lid as lid, located_at as postal_code
from book inner join located_at inner join owns where book.lid = located_at.lid and located_at.lid = owns.lid and owns.username = 'Jonathan' ORDER BY book.bid
BID: 1, Renter Name: Jonathan, ListingID: 3, unit: 1367, postal_code: M1C 1A3, start date: 2022-07-19, end date: 2022-07-25, Cancelled by Host.
BID: 2, Renter Name: test, ListingID: 3, unit: 1367, postal_code: M1C 1A3, start date: 2022-03-01, end date: 2022-03-08, Not cancelled.
BID: 3, Renter Name: Jonathan, ListingID: 1, unit: 1367, postal_code: M1C 1A2, start date: 2022-07-10, end date: 2022-07-20, Cancelled by Renter.
BID: 5, Renter Name: test, ListingID: 4, unit: 1366, postal_code: M1P 2M6, start date: 2022-04-01, end date: 2022-04-08, Cancelled by Host.
BID: 6, Renter Name: Felix, ListingID: 4, unit: 1366, postal_code: M1P 2M6, start date: 2022-03-01, end date: 2022-03-08, Cancelled by Renter.
BID: 7, Renter Name: Felix, ListingID: 2, unit: 1369, postal_code: M1C 1A9, start date: 2022-03-01, end date: 2022-03-08, Cancelled by Renter.
Do you want to cancel existing booking?
Press 1 to cancel a booking, 2 to go back
```

1.4.1

```
----- Show My Bookings - Host -----
select distinct cancellation, book.username as renter_name, book.bid as bid, start_date, end_date, payment, book.price, book.lid as lid, located_at as postal_code
from book inner join located_at inner join owns where book.lid = located_at.lid and located_at.lid = owns.lid and owns.username = 'Jonathan' ORDER BY book.bid
BID: 1, Renter Name: Jonathan, ListingID: 3, unit: 1367, postal_code: M1C 1A3, start date: 2022-07-19, end date: 2022-07-25, Cancelled by Host.
BID: 2, Renter Name: test, ListingID: 3, unit: 1367, postal_code: M1C 1A3, start date: 2022-03-01, end date: 2022-03-08, Not cancelled.
BID: 3, Renter Name: Jonathan, ListingID: 1, unit: 1367, postal_code: M1C 1A2, start date: 2022-07-10, end date: 2022-07-20, Cancelled by Renter.
BID: 5, Renter Name: test, ListingID: 4, unit: 1366, postal_code: M1P 2M6, start date: 2022-04-01, end date: 2022-04-08, Cancelled by Host.
BID: 6, Renter Name: Felix, ListingID: 4, unit: 1366, postal_code: M1P 2M6, start date: 2022-03-01, end date: 2022-03-08, Cancelled by Renter.
BID: 7, Renter Name: Felix, ListingID: 2, unit: 1369, postal_code: M1C 1A9, start date: 2022-03-01, end date: 2022-03-08, Cancelled by Renter.
Do you want to cancel existing booking?
Press 1 to cancel a booking, 2 to go back
1
Input the booking id you want to cancel.
2
Update book set cancellation = '2' where bid = '2';
Update available set bid = NULL where bid = '2';
```

1.5

```
----- Manage My Rating - Host -----
Press the Corresponding number to continue
1: Show how I was being rated as a host, 2: Show what I've rated
3: Rate a renter, 4: Delete a rating, 5: Go Back.
```

1.5.1

```
----- Show how I was being rated -----
JID = '2', Renter: 'Jonathan', Likes = '3', Comment: 'The host doesn't repair the air-conditioner!'.
```

1.5.2

```
----- Show what I've rated -----
JID = '1', Renter: 'Jonathan', Likes = '3', Comment: 'The room was cleaned by the renter!'.
```

1.5.3

```

----- Rate a renter -----
BID: '1', Renter: 'Jonathan', Lid: '3', Postal Code: 'M1C 1A3', Unit: '1367', Start
BID: '2', Renter: 'test', Lid: '3', Postal Code: 'M1C 1A3', Unit: '1367', Start Da
Please input the renter's username that you want to rate
1
Please input how much you like this renter from 1-5
4
Please make any comment (100 words max):
nice renter.

```

1.5.4

```

----- Delete a rating -----
Input the JID that you want to cancel (If you don't want to delete, just input any other integer)
JID = '1', Renter: 'Jonathan', Likes = '3', Comment: 'The room was cleaned by the renter!'.
1

```

2. If they log in and enter the user interface, they are allowed to check their personal information, manage their booking, comment on a Listing he has booked, and manage their rating.

```

----- Welcome to MyBnB!, Renter "Jonathan"! -----
Press the Corresponding number to continue
1: Manage Personal Information, 2: Manage My Booking, 3: Comment a Listing, 4: Manage My Rating, 5: logout

```

2.1

```

----- Personal Information -----
1: Check My Profile, 2: Change My Profile, 3: Delete My Account, 4: Go Back.

```

2.1.1

```

----- Check My Profile -----
----- My Information: -----
Username: Jonathan, Password: 123456, Real Name: Jonathan, SIN: 123124125, birth: 2001-01-01
Address (Unit: 1367, Postal Code: M1C 1A2, City: Toronto, Country: Canada)

```

2.1.2

```

----- Change My Profile -----
Select the profile you want to change
1: Real Name, 2: Birth Year, 3: Password, 4: Occupation, 5: Payment(Credit Card), 6: Address, 7: Go Back.

```

2.1.3 Input any other natural number to go back;

```

----- Delete My Account -----
Are you sure you want to delete your user?
Press 1 to continue
1
DELETE FROM User where username = "Jonathan";
----- delete_success -----
----- Welcome to MyBnB, Please Login or re -----
Press 1: Login, 2: Register, 3: Administer Mode.

```

2.2

```

----- Booking a list -----
Press the Corresponding number to continue
1: Show my bookings, 2: Book a listing, 3: Cancel a booking, 4: Go Back.

```

2.2.1 Show all the BID you booked.

```

-----
BID: 1, Owner Name: Jonathan, ListingID: 3
Longitude: 30.62, Latitude: 1.99, Type: room, Amenities: wifi,kitchen,washer,dryer,ac,heating,tv,hair dryer,gym
Unit: 1367, postal_code: M1C 1A3, City: Toronto, Country: Canada
Start date: 2022-07-19, end date: 2022-07-25, Cancelled by Host.

```

2.2.2 Book with the help of the following instructions.

```

----- Book a listing -----
Please input the start booking date in this format: yyyy-mm-dd
2023-03-03
Please input the end booking date in this format: yyyy-mm-dd
2023-03-05
Do you have a specific address (unit & postal_code) want to book?
1: yes, 2: No
2
Do you want to search by a postal_code and it's nearby listings?
1: yes, 2: No
2
How about a lat & lon with distance between which you want to book?
1: yes, 2: No
2
How about by amenities you want?
1: yes, 2: No
2
Get all available with the time period.
lid: 1
Please select the lid you want to book
1
Price of the Listing:
Price of 2023-03-03 is 12,
Price of 2023-03-04 is 12,
Price of 2023-03-05 is 12,
Total cost is: 36.

```

2.2.3 Showing the BID that you can cancel, input any other number to go back if you don't want to cancel a book.

```

-----
BID: 1, Owner Name: Jonathan, ListingID: 3
Longitude: 30.62, Latitude: 1.99, Type: room, Amenities: wifi,kitchen,washer,d
Unit: 1367, postal_code: M1C 1A3, City: Toronto, Country: Canada
Start date: 2022-07-19, end date: 2022-07-25, Cancelled by Host.
-----
BID: 3, Owner Name: Jonathan, ListingID: 1
Longitude: 30.22, Latitude: 18.99, Type: full house, Amenities: wifi
Unit: 1367, postal_code: M1C 1A2, City: Toronto, Country: Canada
Start date: 2022-07-10, end date: 2022-07-20, Cancelled by Renter.

```

2.3

```

----- Comment a Listing -----
Press the Corresponding number to continue
1: Show My Comments, 2: Comment a Listing, 3: Delete a Comment, 4: Go Back.

```

2.3.1 Show what you have commented.

```

----- Show what I have commented -----
LID = '1', cid: '1' Rate: '3', Comment = 'The bed is noisy-- it is shaky. The air conditioner also doesn't work well. Bu
LID = '3', cid: '4' Rate: '5', Comment = 'very good loves it want to have it all the time .';

```

2.3.2

```

-----
ListingID: 1, Owner Name: Jonathan, BID: 3
Longitude: 30.22, Latitude: 18.99, Type: full house, Amenities: wifi
Unit: 1367, postal_code: M1C 1A2, City: Toronto, Country: Canada
Start date: 2022-07-10, end date: 2022-07-20, Cancelled by Renter.
-----
ListingID: 3, Owner Name: Jonathan, BID: 1
Longitude: 30.62, Latitude: 1.99, Type: room, Amenities: wifi,kitchen,w
Unit: 1367, postal_code: M1C 1A3, City: Toronto, Country: Canada
Start date: 2022-07-19, end date: 2022-07-25, Cancelled by Host.
-----
Please input the ListingID that you want to rate
1
Please input how much you like this listing from 1-5
4
Please make any comment (250 words limit):
bed and chair are good.

```

2.3.3


```

----- Delete a Comment -----
LID = '1', cid: '1' Rate: '3', Comment = 'The bed is noisy-- it is shaky. The air con
LID = '3', cid: '4' Rate: '5', Comment = 'very good loves it want to have it all the
Input the LID of that comment that you want to delete (If you don't want to delete, j
1
----- Comment deleted success. -----

```

2.4

```

----- Manage My Rating -----
Press the Corresponding number to continue
1: Show how I was being rated as a renter,      2: Show what I've rated
3: Rate a Host,                                4: Delete a Rating,      5: Go Back.

```

2.4.1

```

----- Show how I was being rated -----
JID = '1', Host: 'Jonathan', Likes = '3', Comment: 'The room was cleaned by the renter!';

```

2.4.2

```

----- Show what I've rated -----
JID = '2', Host: 'Jonathan', Likes = '3', Comment: 'The host doesn't repair the air-conditioner!';

```

2.4.3

```

----- Rate a Host -----
Host: 'Jonathan', Lid: '3', Postal Code: 'M1C 1A3', Unit: '1367', Book BID: '2', Start Date: '2022-03-01', End Date:
Please input the host's username that you want to rate
Jonathan
Please input how much you like this host from 1-5
4
Please make any comment (100 words limit):
Nice man.
----- Rating add successfully. -----

```

2.4.4

```

----- Delete a rating -----
Input the JID that you want to cancel (If you don't want to delete, just input any other integer)
JID = '2', Host: 'Jonathan', Likes = '3', Comment: 'The host doesn't repair the air-conditioner!';
2

```

3. Administrator

```

----- You are now in administer mode -----
Select a report:
1: Number of Booking by Date Range,      2: Number of Booking by Postal Code
3: Num of Booking per Country, City, and Postal Code,  4: Rank Host by Num of Listing within a Country / City
5: Host that should be flag to prohibit,  6: Renter Ranked by Booking
7: Largest Number of Cancellation,      8: Popular Noun Phrases of Listing
9: Log Out

```

System Limitation:

Since the system is purely in the command line, we are not able to limit users to valid input so wrong or wrong type of input will lead to a procedure not storing any information. If we have a front end, we can validate the input in the front end so the user will not lose any information in the middle way.

Improvement:

We limit the available date from 2022-01-01 to 2024-01-01 to make the database not store too much data, but clearly it can be extended. Also, the host toolkit is not that smart since we use some simple function to calculate it. Those are improvements we can have on.