

ECE 656 Database System

First Name: Liu

Last Name: Yiyi

Student ID: 20625436

Department: ECE

Program: MENG

E-Mail: y864liu@uwaterloo.ca

3.Relational schema:

a. The relational schema Yelp_LYY_ECE656 is designed with 11 tables for these entities.

The tables are following:

Business, User, Checkin, Review, Tip, Attributes, Categories, Elite, Friends, Hour, Neighborhood

And every table's details are following, including the attributes, the types, the primary key (if exists), the foreign key(if exists) and the indexes:

Business

Field	Type
business_id	VARCHAR
name	VARCHAR
full_address	VARCHAR
city	VARCHAR
state	VARCHAR
latitude	DOUBLE
longitude	DOUBLE
stars	FLOAT
review_count	INT
open	VARCHAR

User

Field	Type
user_id	VARCHAR
name	VARCHAR
review_count	INT
average_stars	FLOAT
fans	INT
yelping_since	VARCHAR
votes_funny	INT
votes_useful	INT
votes_cool	INT
profile	INT
cute	INT
plain	INT
writer	INT
note	INT
photos	INT
hot	INT
more	INT
list	INT

Checkin

Field	Type
business_id	VARCHAR
0-0	INT
1-0	INT
2-0	INT
3-0	INT
4-0	INT
5-0	INT
6-0	INT
7-0	INT
8-0	INT
9-0	INT

Review

Field	Type
review_id	VARCHAR
business_id	VARCHAR
user_id	VARCHAR
stars	INT
text	TEXT
date	DATE
votes.funny	INT
votes.useful	INT
votes.cool	INT

Tip

Field	Type
user_id	VARCHAR
text	VARCHAR
business_id	VARCHAR
likes	VARCHAR
date	VARCHAR

Attributes

Field	Type
business_id	VARCHAR
Ambience.divey	VARCHAR
Dietary Restrict...	VARCHAR
Happy Hour	VARCHAR
Order at Counter	VARCHAR
Hair Types Spe...	VARCHAR
Hair Types Spe...	VARCHAR

Categories

Field	Type
business_id	VARCHAR
categories	VARCHAR

Elite

Field	Type
user_id	VARCHAR
elite	VARCHAR

Friends

Field	Type
user_id	VARCHAR
friends_id	VARCHAR

Hour

Field	Type
business_id	VARCHAR
Monday.open	VARCHAR
Monday.close	VARCHAR
Tuesday.open	VARCHAR
Tuesday.close	VARCHAR

Neighborhood

Field	Type
business_id	VARCHAR
hood_names	VARCHAR

For the *Business* entity, decomposing the entity into table *Business*, *Attributes*, *Categories*, *Neighborhood* and *Hour* five tables. Since in the entity, The *Attributes* consists of too many part and that can be part of another entity, that is *Attributes*, with a column *business_id* which is used to be the primary key. As for the *User* entity, decomposing it into three tables, *Friends*, *Elite* and *User*. Since every record in *User* has a list of *Friends* and *Elite* year so decomposing them from *User* and making two other table with *user_id* and making the primary key is a union one between *user_id* and another column (*friend_id* or *elite*). The three table can satisfy at least 1NF by decomposing *User* entity or every row in table cannot form primary key constraints only with *user_id*. For the *compliments* part of *User*, there is no necessary to decomposing them from *User*, since the columns in *User* are not too many and the *compliments* part has no sub-sub-element, e.g. *compliments* only has a series of data for *profile*, *cute*, *writer* and etc but no sub-element under *profile* or any other element.

The following is primary constraints:

Some of primary keys are union primary keys and some are single ones.

Table	Name	Column
attributes	PRIMARY	business_id
business	PRIMARY	business_id
categories	PRIMARY	business_id
categories	PRIMARY	categories
checkin	PRIMARY	business_id
elite	PRIMARY	elite
elite	PRIMARY	user_id
friends	PRIMARY	friends_id
friends	PRIMARY	user_id
hour	PRIMARY	business_id
neighborhood	PRIMARY	business_id
neighborhood	PRIMARY	hood_names
review	PRIMARY	review_id
user	PRIMARY	user_id

b:

```
CREATE TABLE `Business` (
  `business_id` varchar(500) NOT NULL DEFAULT "",
  `name` varchar(100) DEFAULT NULL,
  `full_address` varchar(1000) DEFAULT NULL,
  `city` varchar(45) DEFAULT NULL,
  `state` varchar(45) DEFAULT NULL,
  `latitude` double DEFAULT NULL,
  `longitude` double DEFAULT NULL,
  `stars` float DEFAULT NULL,
  `review_count` int(11) DEFAULT NULL,
  `open` varchar(10) DEFAULT NULL,
  PRIMARY KEY (`business_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

```
CREATE TABLE `User` (
  `user_id` varchar(500) CHARACTER SET big5 NOT NULL,
  `name` varchar(45) CHARACTER SET big5 DEFAULT NULL,
  `review_count` int(11) DEFAULT NULL,
  `average_stars` float DEFAULT NULL,
  `fans` int(11) DEFAULT NULL,
  `yelping_since` varchar(50) DEFAULT NULL,
```

```
`votes_funny` int(11) DEFAULT NULL,  
`votes_useful` int(11) DEFAULT NULL,  
`votes_cool` int(11) DEFAULT NULL,  
`profile` int(11) DEFAULT NULL,  
`cute` int(11) DEFAULT NULL,  
`plain` int(11) DEFAULT NULL,  
`writer` int(11) DEFAULT NULL,  
`note` int(11) DEFAULT NULL,  
`photos` int(11) DEFAULT NULL,  
`hot` int(11) DEFAULT NULL,  
`more` int(11) DEFAULT NULL,  
`list` int(11) DEFAULT NULL,  
PRIMARY KEY (`user_id`)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

```
CREATE TABLE `Checkin` (  
  `business_id` varchar(500) NOT NULL DEFAULT "",  
  `0-0` int(11) DEFAULT NULL,  
  `1-0` int(11) DEFAULT NULL,  
  `2-0` int(11) DEFAULT NULL,  
  `3-0` int(11) DEFAULT NULL,  
  `4-0` int(11) DEFAULT NULL,  
  `5-0` int(11) DEFAULT NULL,  
  `6-0` int(11) DEFAULT NULL,  
  `7-0` int(11) DEFAULT NULL,  
  `8-0` int(11) DEFAULT NULL,  
  `9-0` int(11) DEFAULT NULL,  
  `10-0` int(11) DEFAULT NULL,  
  `11-0` int(11) DEFAULT NULL,  
  `12-0` int(11) DEFAULT NULL,  
  `13-0` int(11) DEFAULT NULL,  
  `14-0` int(11) DEFAULT NULL,  
  `15-0` int(11) DEFAULT NULL,  
  `16-0` int(11) DEFAULT NULL,
```

`17-0` int(11) DEFAULT NULL,
`18-0` int(11) DEFAULT NULL,
`19-0` int(11) DEFAULT NULL,
`20-0` int(11) DEFAULT NULL,
`21-0` int(11) DEFAULT NULL,
`22-0` int(11) DEFAULT NULL,
`23-0` int(11) DEFAULT NULL,
`0-1` int(11) DEFAULT NULL,
`1-1` int(11) DEFAULT NULL,
`2-1` int(11) DEFAULT NULL,
`3-1` int(11) DEFAULT NULL,
`4-1` int(11) DEFAULT NULL,
`5-1` int(11) DEFAULT NULL,
`6-1` int(11) DEFAULT NULL,
`7-1` int(11) DEFAULT NULL,
`8-1` int(11) DEFAULT NULL,
`9-1` int(11) DEFAULT NULL,
`10-1` int(11) DEFAULT NULL,
`11-1` int(11) DEFAULT NULL,
`12-1` int(11) DEFAULT NULL,
`13-1` int(11) DEFAULT NULL,
`14-1` int(11) DEFAULT NULL,
`15-1` int(11) DEFAULT NULL,
`16-1` int(11) DEFAULT NULL,
`17-1` int(11) DEFAULT NULL,
`18-1` int(11) DEFAULT NULL,
`19-1` int(11) DEFAULT NULL,
`20-1` int(11) DEFAULT NULL,
`21-1` int(11) DEFAULT NULL,
`22-1` int(11) DEFAULT NULL,
`23-1` int(11) DEFAULT NULL,
`0-2` int(11) DEFAULT NULL,
`1-2` int(11) DEFAULT NULL,
`2-2` int(11) DEFAULT NULL,

`3-2` int(11) DEFAULT NULL,
`4-2` int(11) DEFAULT NULL,
`5-2` int(11) DEFAULT NULL,
`6-2` int(11) DEFAULT NULL,
`7-2` int(11) DEFAULT NULL,
`8-2` int(11) DEFAULT NULL,
`9-2` int(11) DEFAULT NULL,
`10-2` int(11) DEFAULT NULL,
`11-2` int(11) DEFAULT NULL,
`12-2` int(11) DEFAULT NULL,
`13-2` int(11) DEFAULT NULL,
`14-2` int(11) DEFAULT NULL,
`15-2` int(11) DEFAULT NULL,
`16-2` int(11) DEFAULT NULL,
`17-2` int(11) DEFAULT NULL,
`18-2` int(11) DEFAULT NULL,
`19-2` int(11) DEFAULT NULL,
`20-2` int(11) DEFAULT NULL,
`21-2` int(11) DEFAULT NULL,
`22-2` int(11) DEFAULT NULL,
`23-2` int(11) DEFAULT NULL,
`0-3` int(11) DEFAULT NULL,
`1-3` int(11) DEFAULT NULL,
`2-3` int(11) DEFAULT NULL,
`3-3` int(11) DEFAULT NULL,
`4-3` int(11) DEFAULT NULL,
`5-3` int(11) DEFAULT NULL,
`6-3` int(11) DEFAULT NULL,
`7-3` int(11) DEFAULT NULL,
`8-3` int(11) DEFAULT NULL,
`9-3` int(11) DEFAULT NULL,
`10-3` int(11) DEFAULT NULL,
`11-3` int(11) DEFAULT NULL,
`12-3` int(11) DEFAULT NULL,

`13-3` int(11) DEFAULT NULL,
`14-3` int(11) DEFAULT NULL,
`15-3` int(11) DEFAULT NULL,
`16-3` int(11) DEFAULT NULL,
`17-3` int(11) DEFAULT NULL,
`18-3` int(11) DEFAULT NULL,
`19-3` int(11) DEFAULT NULL,
`20-3` int(11) DEFAULT NULL,
`21-3` int(11) DEFAULT NULL,
`22-3` int(11) DEFAULT NULL,
`23-3` int(11) DEFAULT NULL,
`0-4` int(11) DEFAULT NULL,
`1-4` int(11) DEFAULT NULL,
`2-4` int(11) DEFAULT NULL,
`3-4` int(11) DEFAULT NULL,
`4-4` int(11) DEFAULT NULL,
`5-4` int(11) DEFAULT NULL,
`6-4` int(11) DEFAULT NULL,
`7-4` int(11) DEFAULT NULL,
`8-4` int(11) DEFAULT NULL,
`9-4` int(11) DEFAULT NULL,
`10-4` int(11) DEFAULT NULL,
`11-4` int(11) DEFAULT NULL,
`12-4` int(11) DEFAULT NULL,
`13-4` int(11) DEFAULT NULL,
`14-4` int(11) DEFAULT NULL,
`15-4` int(11) DEFAULT NULL,
`16-4` int(11) DEFAULT NULL,
`17-4` int(11) DEFAULT NULL,
`18-4` int(11) DEFAULT NULL,
`19-4` int(11) DEFAULT NULL,
`20-4` int(11) DEFAULT NULL,
`21-4` int(11) DEFAULT NULL,
`22-4` int(11) DEFAULT NULL,

`23-4` int(11) DEFAULT NULL,
`0-5` int(11) DEFAULT NULL,
`1-5` int(11) DEFAULT NULL,
`2-5` int(11) DEFAULT NULL,
`3-5` int(11) DEFAULT NULL,
`4-5` int(11) DEFAULT NULL,
`5-5` int(11) DEFAULT NULL,
`6-5` int(11) DEFAULT NULL,
`7-5` int(11) DEFAULT NULL,
`8-5` int(11) DEFAULT NULL,
`9-5` int(11) DEFAULT NULL,
`10-5` int(11) DEFAULT NULL,
`11-5` int(11) DEFAULT NULL,
`12-5` int(11) DEFAULT NULL,
`13-5` int(11) DEFAULT NULL,
`14-5` int(11) DEFAULT NULL,
`15-5` int(11) DEFAULT NULL,
`16-5` int(11) DEFAULT NULL,
`17-5` int(11) DEFAULT NULL,
`18-5` int(11) DEFAULT NULL,
`19-5` int(11) DEFAULT NULL,
`20-5` int(11) DEFAULT NULL,
`21-5` int(11) DEFAULT NULL,
`22-5` int(11) DEFAULT NULL,
`23-5` int(11) DEFAULT NULL,
`0-6` int(11) DEFAULT NULL,
`1-6` int(11) DEFAULT NULL,
`2-6` int(11) DEFAULT NULL,
`3-6` int(11) DEFAULT NULL,
`4-6` int(11) DEFAULT NULL,
`5-6` int(11) DEFAULT NULL,
`6-6` int(11) DEFAULT NULL,
`7-6` int(11) DEFAULT NULL,
`8-6` int(11) DEFAULT NULL,

```
`9-6` int(11) DEFAULT NULL,  
`10-6` int(11) DEFAULT NULL,  
`11-6` int(11) DEFAULT NULL,  
`12-6` int(11) DEFAULT NULL,  
`13-6` int(11) DEFAULT NULL,  
`14-6` int(11) DEFAULT NULL,  
`15-6` int(11) DEFAULT NULL,  
`16-6` int(11) DEFAULT NULL,  
`17-6` int(11) DEFAULT NULL,  
`18-6` int(11) DEFAULT NULL,  
`19-6` int(11) DEFAULT NULL,  
`20-6` int(11) DEFAULT NULL,  
`21-6` int(11) DEFAULT NULL,  
`22-6` int(11) DEFAULT NULL,  
`23-6` int(11) DEFAULT NULL,  
PRIMARY KEY (`business_id`)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

```
CREATE TABLE `Review` (  
  `review_id` varchar(500) CHARACTER SET big5 NOT NULL,  
  `business_id` varchar(500) CHARACTER SET big5 NOT NULL,  
  `user_id` varchar(500) CHARACTER SET big5 NOT NULL,  
  `stars` int(11) DEFAULT NULL,  
  `text` text CHARACTER SET big5,  
  `date` date DEFAULT NULL,  
  `votes.funny` int(11) DEFAULT NULL,  
  `votes.useful` int(11) DEFAULT NULL,  
  `votes.cool` int(11) DEFAULT NULL,  
  PRIMARY KEY (`review_id`)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

```
CREATE TABLE `Tip` (  
  `user_id` varchar(500) NOT NULL DEFAULT "",  
  `text` varchar(1000) DEFAULT NULL,
```

```
`business_id` varchar(500) NOT NULL DEFAULT "",  
`likes` varchar(10) DEFAULT NULL,  
`date` varchar(20) DEFAULT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
```

```
CREATE TABLE `Attributes` (  
  `business_id` varchar(500) NOT NULL DEFAULT "",  
  `Ambience.divey` varchar(10) DEFAULT NULL,  
  `Dietary Restrictions.vegan` varchar(10) DEFAULT NULL,  
  `Happy Hour` varchar(10) DEFAULT NULL,  
  `Order at Counter` varchar(10) DEFAULT NULL,  
  `Hair Types Specialized In.africanamerican` varchar(10) DEFAULT NULL,  
  `Hair Types Specialized In.kids` varchar(10) DEFAULT NULL,  
  `BYOB` varchar(10) DEFAULT NULL,  
  `Good For.latenight` varchar(10) DEFAULT NULL,  
  `Outdoor Seating` varchar(10) DEFAULT NULL,  
  `Alcohol` varchar(20) DEFAULT NULL,  
  `Ambience.classy` varchar(10) DEFAULT NULL,  
  `By Appointment Only` varchar(10) DEFAULT NULL,  
  `Parking.lot` varchar(10) DEFAULT NULL,  
  `Ambience.touristy` varchar(10) DEFAULT NULL,  
  `Corkage` varchar(10) DEFAULT NULL,  
  `Good For.brunch` varchar(10) DEFAULT NULL,  
  `Waiter Service` varchar(10) DEFAULT NULL,  
  `Parking.street` varchar(10) DEFAULT NULL,  
  `Ambience.hipster` varchar(10) DEFAULT NULL,  
  `BYOB/Corkage` varchar(20) DEFAULT NULL,  
  `Hair Types Specialized In.straightperms` varchar(10) DEFAULT NULL,  
  `Music.live` varchar(10) DEFAULT NULL,  
  `Dietary Restrictions.dairy-free` varchar(10) DEFAULT NULL,  
  `Music.background_music` varchar(10) DEFAULT NULL,  
  `Price Range` varchar(5) DEFAULT NULL,  
  `Good For.breakfast` varchar(10) DEFAULT NULL,  
  `Parking.garage` varchar(10) DEFAULT NULL,
```

`Music.karaoke` varchar(10) DEFAULT NULL,
`Good For Dancing` varchar(10) DEFAULT NULL,
`Hair Types Specialized In.asian` varchar(10) DEFAULT NULL,
`Accepts Credit Cards` varchar(10) DEFAULT NULL,
`Good For.lunch` varchar(10) DEFAULT NULL,
`Parking.valet` varchar(10) DEFAULT NULL,
`Take-out` varchar(10) DEFAULT NULL,
`Hair Types Specialized In.coloring` varchar(10) DEFAULT NULL,
`Good For.dessert` varchar(10) DEFAULT NULL,
`Music.video` varchar(10) DEFAULT NULL,
`Dietary Restrictions.halal` varchar(10) DEFAULT NULL,
`Takes Reservations` varchar(10) DEFAULT NULL,
`Ages Allowed` varchar(10) DEFAULT NULL,
`Ambience.trendy` varchar(10) DEFAULT NULL,
`Delivery` varchar(10) DEFAULT NULL,
`Wi-Fi` varchar(10) DEFAULT NULL,
`Wheelchair Accessible` varchar(10) DEFAULT NULL,
`Dietary Restrictions.gluten-free` varchar(10) DEFAULT NULL,
`Dietary Restrictions.kosher` varchar(10) DEFAULT NULL,
`Caters` varchar(10) DEFAULT NULL,
`Ambience.intimate` varchar(10) DEFAULT NULL,
`Good For.dinner` varchar(10) DEFAULT NULL,
`Coat Check` varchar(10) DEFAULT NULL,
`Hair Types Specialized In.extensions` varchar(10) DEFAULT NULL,
`Good for Kids` varchar(10) DEFAULT NULL,
`Parking.validated` varchar(10) DEFAULT NULL,
`Accepts Insurance` varchar(10) DEFAULT NULL,
`Music.dj` varchar(10) DEFAULT NULL,
`Dietary Restrictions.soy-freeDietary Restrictions.soy-free` varchar(10)
DEFAULT NULL,
`Has TV` varchar(10) DEFAULT NULL,
`Ambience.casual` varchar(10) DEFAULT NULL,
`Hair Types Specialized In.perms` varchar(10) DEFAULT NULL,
`Dogs Allowed` varchar(10) DEFAULT NULL,

```

`Drive-Thru` varchar(10) DEFAULT NULL,
`Dietary Restrictions.vegetarian` varchar(10) DEFAULT NULL,
`Noise Level` varchar(20) DEFAULT NULL,
`Smoking` varchar(20) DEFAULT NULL,
`Attire` varchar(20) DEFAULT NULL,
`Hair Types Specialized In.curly` varchar(10) DEFAULT NULL,
`Good For Groups` varchar(10) DEFAULT NULL,
`Open 24 Hours` varchar(10) DEFAULT NULL,
`Ambience.romantic` varchar(10) DEFAULT NULL,
`Music.jukebox` varchar(10) DEFAULT NULL,
`Ambience.upscale` varchar(10) DEFAULT NULL,
PRIMARY KEY (`business_id`),
CONSTRAINT `business_id_attributes` FOREIGN KEY (`business_id`)
REFERENCES `Business` (`business_id`) ON DELETE NO ACTION ON
UPDATE NO ACTION
) ENGINE=InnoDB DEFAULT CHARSET=utf8;

```

```

CREATE TABLE `Categories` (
  `business_id` varchar(500) NOT NULL DEFAULT "",
  `categories` varchar(45) NOT NULL DEFAULT "",
  PRIMARY KEY (`business_id`, `categories`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;

```

```

CREATE TABLE `Elite` (
  `user_id` varchar(500) CHARACTER SET big5 NOT NULL,
  `elite` varchar(45) NOT NULL,
  PRIMARY KEY (`user_id`, `elite`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;

```

```

CREATE TABLE `Friends` (
  `user_id` varchar(500) NOT NULL DEFAULT "",
  `friends_id` varchar(500) NOT NULL,
  PRIMARY KEY (`user_id`, `friends_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;

```

```

CREATE TABLE `Hour` (
  `business_id` varchar(500) NOT NULL DEFAULT "",
  `Monday.open` varchar(20) DEFAULT NULL,
  `Monday.close` varchar(20) DEFAULT NULL,
  `Tuesday.open` varchar(20) DEFAULT NULL,
  `Tuesday.close` varchar(20) DEFAULT NULL,
  `Wednesday.open` varchar(20) DEFAULT NULL,
  `Wednesday.close` varchar(20) DEFAULT NULL,
  `Thursday.open` varchar(20) DEFAULT NULL,
  `Thursday.close` varchar(20) DEFAULT NULL,
  `Friday.open` varchar(20) DEFAULT NULL,
  `Friday.close` varchar(20) DEFAULT NULL,
  `Saturday.open` varchar(20) DEFAULT NULL,
  `Saturday.close` varchar(20) DEFAULT NULL,
  `Sunday.open` varchar(20) DEFAULT NULL,
  `Sunday.close` varchar(20) DEFAULT NULL,
  PRIMARY KEY (`business_id`),
  CONSTRAINT `business_id_hour` FOREIGN KEY (`business_id`)
REFERENCES `Business` (`business_id`) ON DELETE NO ACTION ON
UPDATE NO ACTION
) ENGINE=InnoDB DEFAULT CHARSET=utf8;

```

```

CREATE TABLE `Neighborhood` (
  `business_id` varchar(500) NOT NULL DEFAULT "",
  `hood_names` varchar(45) NOT NULL,
  PRIMARY KEY (`business_id`, `hood_names`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;

```

C:

The file *json_to_csv_converter.py* converts all the json file into csv file. The other four file: *neighbor.py*, *friends.py*, *categories.py*, *elite.py* are used to decomposing list from the original csv file into several rows.

d:

Business: 75521

User:572020

Checkin: 55282

Review: 2229530

Tip: 590025

Attributes: 76523

Categories: 162432

Elite: 70676

Friends: 3238039

Hour: 75806

Neighborhood: 27930

e:

SELECT count() FROM Yelp_LYY_ECE656.Business;76464*

SELECT count() FROM Yelp_LYY_ECE656.User;551761*

SELECT count() FROM Yelp_LYY_ECE656.Checkin;55569*

SELECT count() FROM Yelp_LYY_ECE656.Review;2172797*

SELECT count() FROM Yelp_LYY_ECE656.Tip;591847*

SELECT count() FROM Yelp_LYY_ECE656.Attributes; 76464*

SELECT count() FROM Yelp_LYY_ECE656.Categories;174877*

SELECT count() FROM Yelp_LYY_ECE656.Elite;90663*

SELECT count() FROM Yelp_LYY_ECE656.Friends;2577248*

SELECT count() FROM Yelp_LYY_ECE656.Hour;76464*

SELECT count() FROM Yelp_LYY_ECE656.Neighborhood;27930*

4:

a:

SELECT user_id FROM Yelp_LYY_ECE656.User

where review_count=(

select max(review_count)

from Yelp_LYY_ECE656.User);

Result: JLM36sYWmouJAZ2knzst7A

b:

```
SELECT business_id FROM Yelp_LYY_ECE656.Business  
where review_count=(  
select max(review_count)  
from Yelp_LYY_ECE656.Business);
```

Result: 4bEjOyTaDG24SY5TxsaUNQ

C:

```
SELECT avg(review_count) FROM Yelp_LYY_ECE656.User;
```

Result:27.6294

*(Determine whether the average_stars in User is consistent with avg(stars)
in Review table:*

```
SELECT U.user_id, U.average_stars, avg(R.stars)  
from Yelp_LYY_ECE656.User as U, Yelp_LYY_ECE656.Review as R  
where U.user_id=R.user_id  
group by(R.user_id);
```

In the result table, there are 544893 records, which means the 544893 user_ids are in both User table and Review table

```
SELECT id from  
(  
SELECT U.user_id as id, U.average_stars as recorded, avg(R.stars) as  
computed  
from Yelp_LYY_ECE656.User as U, Yelp_LYY_ECE656.Review as R  
where U.user_id=R.user_id  
group by(R.user_id)  
) as Comparison  
where recorded=computed;
```

In the result, there are 186377 records, which means 186377 user_id's recorded average_stars are consistent with computed ones

d:

```
SELECT avg(review_count) FROM Yelp_LYY_ECE656.Business;
```

Result:31.6755

e:

```
SELECT round(MoreThan10.morethan10_count/Total.total_count,4)  
from
```

```
(SELECT count(business_id) as morethan10_count  
FROM Yelp_LYY_ECE656.Business
```

```
where review_count > 10)as MoreThan10,
```

```
(SELECT count(business_id) as total_count  
from Yelp_LYY_ECE656.Business) as Total;
```

Result: 0.4563

f:

```
SELECT round(MoreThan10.morethan10_count/Total.total_count,4)  
from
```

```
(SELECT count(user_id) as morethan10_count  
FROM Yelp_LYY_ECE656.User
```

```
where review_count > 10)as MoreThan10,
```

```
(SELECT count(user_id) as total_count  
from Yelp_LYY_ECE656.User) as Total;
```

Result:0.3552

g:

```
SELECT avg(leng_text) from
```

```
(SELECT review_id, CHAR_LENGTH(text) as leng_text  
FROM Yelp_LYY_ECE656.Review)as Review_Leng;
```

Result:630.5768