nom-inator

Project 1
COMS W4111
Introduction to Databases

Chih-Sheng Wang (cw2952)
Hang Su (hs2761)

Proposal

The *nom-inator* is a restaurant reccommendation app that will draw on the Foursquare API, weather reports, as well as the user's location and preferences to recommend restaurants for the user to try out.

Databases needed

1. Restaurant information, along with visit information and their timestamps (Foursquare)
2. Weather data, past and present

Use Cases

1. Filter and sort restaurants that fit a user's requirements at a specific moment in time based on
   (a) a restaurant's waiting time / popularity;
   (b) the current time, the day of the week, the weather, and the user's current location; and
   (c) the user's list of favourite restaurants.
2. Recommend the best days and times to visit a user-specified restaurant.
3. Users can maintain a list of favourite restaurants, that feed into the results for use case 1.

Potential Problems

1. Need information about restaurants' opening hours to avoid erroneous recommendations.
2. How do we efficiently find restaurants near to the user?

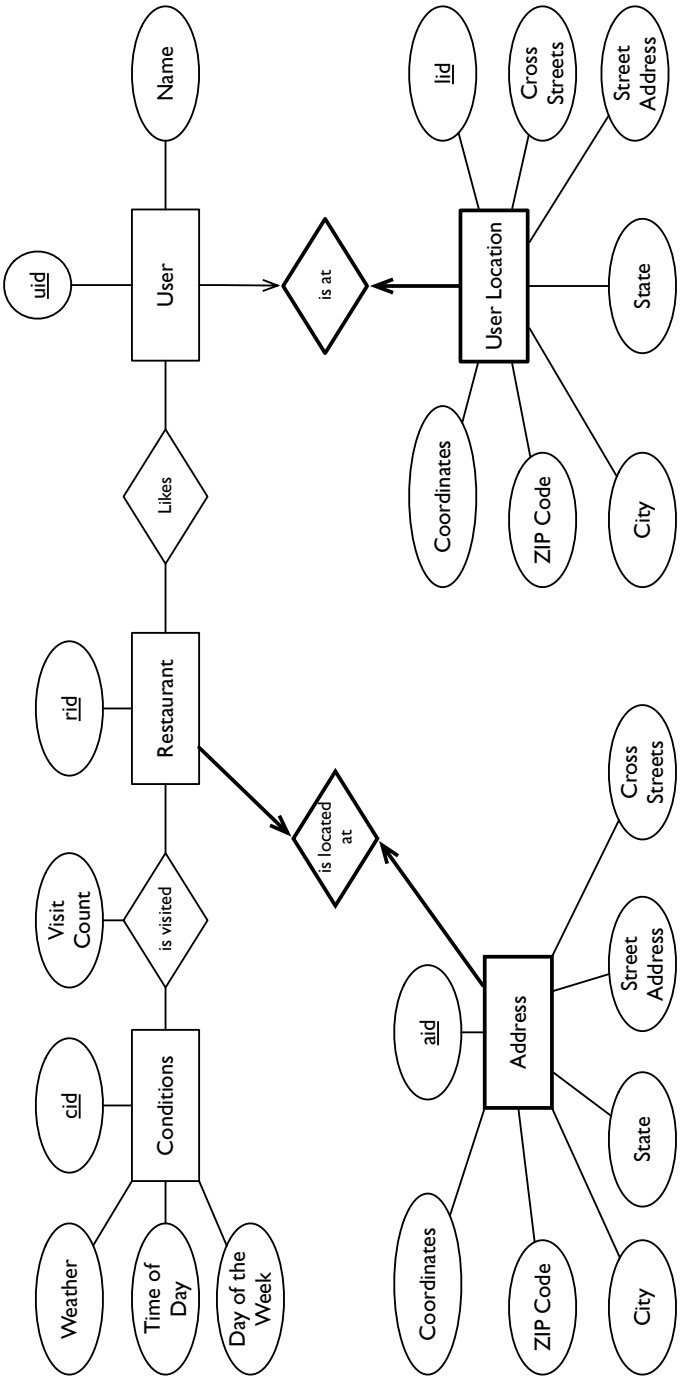
Other Applications

The same recommmendation system can potentially be applied to other popular places like museums and tourist attractions.

Contingency Plan

Eliminate use cases 3 and 1c (i.e. the favourites list will not be implemented), as well as use case 1b (i.e. the geolocation search will not be implemented).

ER Diagram


uid
User
Name
is at
lid
User Location
Cross Streets
Street Address
State
Coordinates
ZIP Code
City
Likes
rid
Restaurant
is located at
Visit Count
is visited
cid
Conditions
Weather
Time of Day
Day of the Week
aid
Address
Cross Streets
Street Address
State
Coordinates
ZIP Code
City

SQL Schema

```
CREATE TABLE User(
  uid int,
  name text,
  lid int,
  PRIMARY KEY (uid)
  FOREIGN KEY (lid) REFERENCES User_Location
)

CREATE TABLE Rstrnt_of_UserLike(
  rid int,
  uid int,
  PRIMARY KEY(rid, uid)
  FOREIGN KEY (rid) REFERENCES Restaurant
    ON DELETE CASCADE
  FOREIGN KEY (uid) REFERENCES User
    ON DELETE CASCADE
)

CREATE TABLE Restaurant(
  rid int,
  aid int NOT NULL,
  rate int,
  PRIMARY KEY (rid)
  FOREIGN KEY (aid, rid) REFERENCES Address
    ON DELETE NO ACTION
)

CREATE TABLE Address(
  aid int,
  rid int,
  coordinate text,
  zip int,
  city text,
  state text,
  st_addr text,
  cross_st text,
  PRIMARY KEY (aid, rid)
  FOREIGN KEY (rid) REFERENCES Restaurant
    ON DELETE CASCADE
)

CREATE TABLE User_Location(
  lid int,
  uid int,
  coordinate text,
  zip int,
  city text,
  state text,
  st_addr text,
```

```
  cross_st text,
  PRIMARY KEY(lid, uid)
  FOREIGN KEY (uid) REFERENCES User
    ON DELETE CASCADE
)

CREATE TABLE Condition( -- our prebuilt table, no modifications allowed
  cid int,
  day_of_week int, -- 1~7
  weather text, -- sunny, rainy, snowy, cloudy
  time int, -- 0~24
  PRIMARY KEY (cid)
)

CREATE TABLE Visit(
  rid int,
  cid int,
  count int,
  PRIMARY KEY(rid, cid)
  FOREIGN KEY (rid) REFERENCES Restaurant
    ON DELETE CASCADE
  FOREIGN KEY (cid) REFERENCES Condition
    ON DELETE CASCADE
)
```