 # Rate-touille

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Ratetouille is the project submitted by **Team 2** in the completion of the KPT Project.

How it works/what it does?

The application reads the restaurant's reviews. Using NLP techniques of tokenization, stemming cleans the data and assigns it a positive or negative flag. All the reviews for a particular restaurant are added to form a score. The score is converted to a 5-star rating.

Core Algorithm

1. Read all the reviews for a particular restaurant.
2. Preprocess the reviews.
3. For each review
4. Map the words present in the algorithm to the pre-existing list of positive, negative and neutral words.
5. Assign the scores to the selected words in the review and calculate the total score. Score is dependent on the rarity of the words within the reviews.
6. Add up all the scores over the restaurant to get a net score for the restaurant.
7. Map it on the 5 star rating scale.

The aim of the application is to

- Help users enhance their restaurants reviewing experience.

- Help customers find exquisite delicacies around them.
- Brings information to the user in an extraordinary way as never seen before.

For Ratetouille Main Algorithm Follow "Ratetouille_JAVA" Folder

Steps to follow

Step 1 - Install JAVA, JDK version 8 or above(preferably the latest version), MySQL version 5.7 or version 8 on the computer.

Step 2 - Use your preferable IDE(IntelliJ or jGrasp).

Step 3 - Extract "Ratetouille.zip".

Step 4 – Open the MySQL command line client.

Step 5 – Run the command "CREATE DATABASE ratetouille;"

Step 6 – This would create the database for the JAVA program.

Step 7 – The tables within the database would be created directly in the program.

Step 8 – Now on line 792 of the JAVA program change the "user=root" and "password=password" to "user=yourusername" and "password=yourpassword" within the URL.

PS: "yourusername" is the username in MySQL server and "yourpassword" is the password in MySQL server.

Step 9 - Build/compile and run the project file "Ratetouille.java"

Step 10 - Add “opencsv-3.8.jar” and “mysql-connector-java-8.0.19” file to jGRASP (goto JGRASP -> settings -> PATHS/CLASSPATH -> workspace -> classpath -> New ->Browse -> (\Ratetouille\lib\opencsv-3.8.jar\ ->Select -Ok) and (\Ratetouille\lib\ mysql-connector-java-8.0.19\ -> Select -Ok))

Outputs Explained:

Initially the Stemmed Reviews for all the instances are shown in the array in the below format. Stemmed Reviews are free of stopwords and have been tokenized.

Stemmed Reviews:

5201 : R0128 ===>>> [tabl, book, quick, 5, squash, tabl, 4, waitress, inform, tabl, requir, back, finish, drink, bar, back, bar, book, expens, not, enjoy, felt, not, relax]

This holds true for 1-10000 review entries.

Weights and Counts:

Next, the Positive TermList followed by Negative TermList and then the Neutral TermList is printed with their total frequencies in the reviews following which the logarithmic weights are printed.

Weights is calculated using the formula:

$W = \log(N/\text{Term Frequency})$

Where N = total number of reviews.

Score per review:

Score per review, is the logarithmic Score Sum arranged according to the restaurant IDs.

Total Score and Star Rating:

Total score shows the number of overall positive, negative or neutral reviews a restaurant has and the star rating provided by the software.

For Ratetouille Website Follow Ratetouille_WEB Folder

****Running the web service****

1.) Download and install the “XAMPP” application.

2.) Uncompress the folders “mysql.zip” and “htdocs.zip”.

3.) Replace the “htdocs” folder in directory xampp\htdocs (web application "ratetouille" is already placed in htdocs folder).

4.) Replace the “mysql” folder in the directory “xampp\mysql”.

5.) Launch xampp command line interface and click on "start" for below two services:

5a.) "Apache" (Tomcat server for localhost).

5b.) "MySql" (Server for connecting to database).

6.) Once both the services start, navigate to the URL http://localhost/ratetouille/rate-toullie.php.

WEB OUTPUT EXPLAINED:

The webpage shows the list of restaurants with the ratings provided by our software in an interactive UI.

For Ratetouille Android Application Follow Ratetouille_ANDROID Folder

Steps to follow:

Step 1: Install “Android Studio” from the link provided (https://developer.android.com/).

Step 2: Go to settings -> Android SDK and install the necessary SDK platforms, SDK tools, and SDK updates sites.

Step 3: Unzip the “Ratetouille_Android” folder.

Step 4: Go to File -> Open Project on Android Studio and open the project file as a whole.

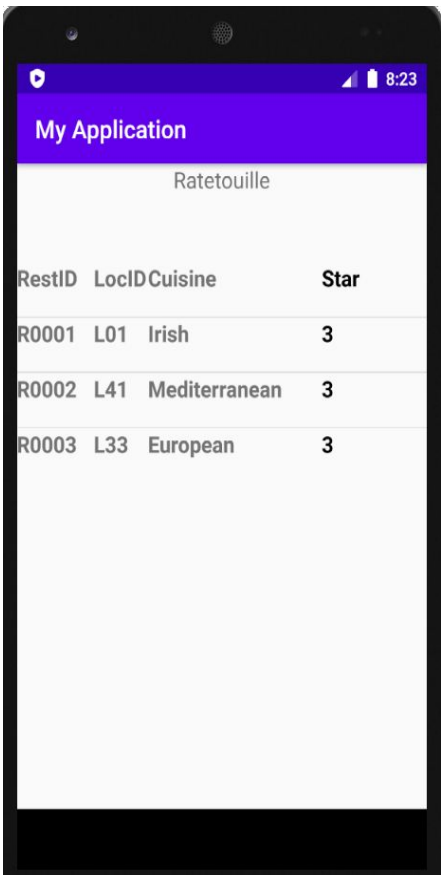
Step 5: Select a virtual device from Android Virtual Device(AVD) manager given in the toolbar (preferably mentioned in playstore).

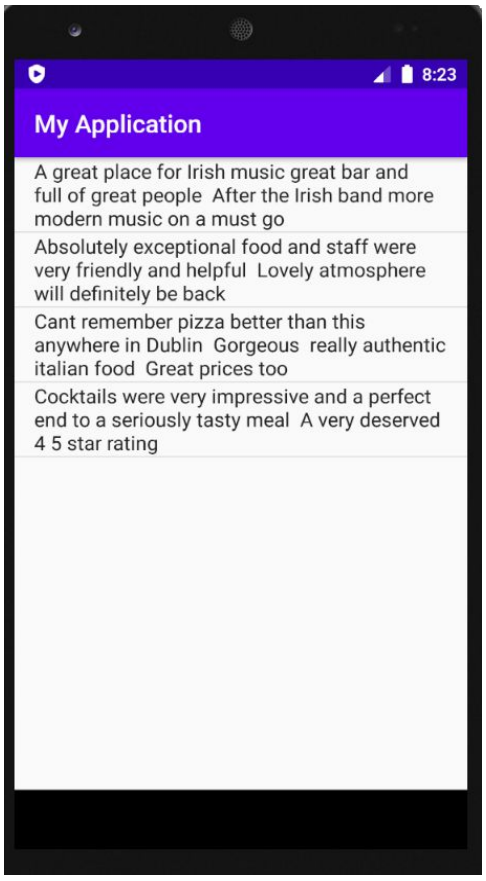
Step 6: In the project folder (My Application) -> app -> libs. Make sure “mysql-connector-java-5.1.45-bin.jar” is present. Right click and “add as a library”.

Step 7: Run “Build.gradle” first and then run the code provided.

ANDROID OUTPUT EXPLAINED

The Android Application shows the list of restaurants with the ratings provided by our software in an interactive UI. Following is a screenshot of the application in accordance with the feedback received during Checkpoint 4. The application will support display of reveiws also so as to prove the validity of the system.





TEST CASES:

In order to demonstrate the test cases five reviews have been selected from one restaurant. Reviews contain a diverse mixture of negative, positive and neutral reviews. The whole set of reviews are

stored in the **new.csv** file. Our system is developed to broadly classify the overall reviews scores on a scale of *five stars*. The extracted words are initially matched against the positive, negative and neutral word lists and given a word score of 1, -1 and 0 respectively. Then, a review score is calculated by adding the word scores. The review scores are calculated for all the reviews linked with a restaurant and are then added together. This quantified value is then converted into star ratings on the following scale and will be displayed in a Web Portal as well as an Android Application.

Above 30 score	->	5 stars
10 to 30 score	->	4 stars
(-10) to 9 score	->	3 stars
(-30) to (-11) score	->	2 stars
Below (-30) score	->	1 star

Test Review Cases: for restaurant "R0001"

R0001	A great place for Irish music great bar and full of great people After the Irish band more modern music on a must go
R0001	Absolutely exceptional food and staff were very friendly and helpful Lovely atmosphere will definitely be back
R0001	Cant remember pizza better than this anywhere in Dublin Gorgeous really authentic italian food Great prices too

R0001	Poor poor poor I ordered the breakfast It arrived 30 mins later Wrong order I asked for friends eggs The staff were rude and made it seem like I was a hindrance to them
R0001	Very bad service rude staff members Wasnt happy with the way I was treated

Taking the example of Review 3 ->

Review 3 - Cant remember pizza better than this anywhere in Dublin Gorgeous really authentic italian food Decent prices too

The words of interest are marked according to their sentiments. Here the representation is as listed below.

Red Highlight - Negative, Green Highlight - Positive, Yellow Highlight - Neutral

Scores are calculated as follows -

Cant = (-1 * log(N/ tf)) where N = 5 and tf of cant = 1

Similarly for better would be (1 * log(N/tf)) where N = 5 and tf of better = 1

And for a neutral word like decent would be 0.