# Spark Practical Work – Report

Institution: UPM   
Lecture: Big Data  
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Authors: ECHAVARRIA CABALLERO, LADY CAROLINA  
 HUSSNAETTER, MICHAEL

Group: 22

# Workflow implemented

1. Dataset Analysis
2. Problem Characterization
3. Data Task and abstraction
4. Interaction and visual encoding
5. Algorithmic implementation

Dataset Analysis

The selected dataset corresponds to the Yelp Dataset, which is a service that allows users to review different business. The Dataset itself is divided into different datasets:

* Business
* Review
* User
* Checkin
* Tip
* photos

Problem Characterization

**Issues of the application domain and end users involved.**

USE: CONSUME INFORMATION

**Which one is the best restaurant to go in a certain location? When should users go to that restaurant regarding to the amount of checkins it has? Has the place improve according to the number and sentiment of the reviews?**

End users want to know which restaurant to select according to the location and the rates. Then, see the amount of checkins per hour in order to select the best time to visit the place, and see the amount of reviews in a period of time for that specific place to ensure or reject the selection according to the behaviour of the reviews, which are directly related with the improvement or not of the restaurant.

## Data and Task abstraction

Basically is why the visual analytic tools are used for? In that case is used to consume information about restaurants in order to select the best place to go according to the users preferences.

**Task – Identify the tasks required by end users in their workflow**

* Explore/search the places according to the location in the map and number of stars.
* Filter restaurants in: Free WIFI availability, if takes reservations, take out and caters.
* Select a place according which restaurant he/she finds more interesting.
* Explore the time to visit the restaurant according to the amount of checkins in a day of the week and the hour.
* Explore the amount of reviews in a period of time according to the number of stars (rates), in order to see the behaviour of the user’s comments and conclude about the improvements of service on the place in time.

**Data – Determine the representation that best fits user’s needs.**

* Location of restaurants in a map, using coordinates and a map server
* Filter restaurants using check boxes according to WIFI, etc.
* Show plots with amount of checkins per day of the week and hour
* Show plots with amount of reviews per year and filter per number of stars

Interaction and visual encoding

Determine the specific design choice for creating and manipulating the visual representation of the abstract data.

* As a first view, users will see a cartographic arrangement of the restaurants grouped by location and using the leaflet as a Mapping Library.
* On the first view, the users will be able to change the restaurants they are seeing on the map by filtering of the data according to the rates, free WIFI availability, if takes reservations, take out and caters.
* Once the users have selected a restaurant that fits their interests, they will obtain detailed information about the place in a second tab. By clicking on the selected place, two plots are displayed:
  + A histogram representing the frequency of checkins per hour, selecting the day of the week.
  + A histogram showing the amount of reviews per year. The user can interact with the plot by filtering the data for year and number of stars.

Algorithmic implementation

**Efficient implementation to achieve what was designed in the previous steps.**

# Final comments and remarks