

# Future-Oriented Benchmarking through Social Media Analysis

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**Client meetings:** August 30<sup>th</sup> 2017  
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**Goals and motivation:** The scope of this project is to create a system that will automatically retrieve data from social media platforms and analyze it to filter for customers feedback. The result will be further analyzed to identify the customers emotion and root cause of dissatisfaction, so businesses can improve the areas where they are under-performing. The system will also allow businesses to compare their services to their competitors and predict future trends to identify any possible issues before they become a problem. These functions and tools will be available to businesses under one dynamic website.

**Approach:** The website will have an integrated web scrapping tool which will be used to retrieve data from different social media platforms.

The data gathered from the web scrapping will then be further analyzed to determine the content type that will be assigned to different categories of a predefined hierarchy, namely the 7 World Class Factors. This will be done using a text classification algorithm.

After the text classification, the data from the different classes will then be analyzed and determined whether they are positive or negative. This will be done using sentiment analysis.

The system will also allow a particular organization to compare its performance with its competitors. This will help organizations understand where they are underperforming and hence they can work on their weaknesses to provide a better service. Moreover, organizations will be able to identify trends and issues before they are an actual problem and take proactive actions to prevent them from occurring. Thus, working towards a future-oriented objective. This will be done using benchmarking analysis.

**Novel feature:** The novel feature of our system is the ability to provide businesses with the automated feature of analyzing customers' feedback through social media and understand the root cause of underperformance using latent semantic analysis and sentiment analysis. On top of these, our system will auto-generate future-oriented trends where they could proactively work on identified issues before they become a problem. All these features will be made available to users under one website without having to rely on multiple systems.

**Technical Challenges:** We do not have prior knowledge of data mining. Understand the core of it and learning how to use and implement data mining algorithms will be a big challenge in this project.

Despite having some knowledge of Python, using this language on a larger scale to implement a whole system using machine learning algorithms, content analysis, latent semantic analysis, and sentiment analysis among other tools on a framework that we never used before will be very challenging.

Implementing the system to provide the desired functions while making sure the system provides fast and efficient result will be another big challenge. We will need to pick the proper tools, algorithms, database/repository setup and SQL to ensure a fast performing system.

## **Milestones**

### ***Milestone 1 (Oct 2): Itemized Task***

- Investigate most appropriate programming language
- Select required tools and frameworks
- Research and learn about Algorithms, Sentiment analysis and Text classification
- Select collaboration tools, Task organizer and planner, communication tools
- Create requirement document
- Create Design document
- Create Test plan

### ***Milestone 2 (Oct 30): Itemized Task***

- Implement, test and demo extraction of reviews from websites (Web Scrapping)
- Implement, test and demo classification of reviews into nodes of hierarchy
- Implement, test and demo Graphical Visualizations

### ***Milestone 3 (Nov 27): Itemized Task***

- Implement, test and demo sentiment measurement of reviews (Sentiment analysis)
- Implement, test and demo visualization of sentiment in different categories of hierarchy
- Implement, test and demo benchmarking analysis tool
- Set up Website

### **Task Matrix for Milestone 1**

<b>Task</b>	<b>Claudino</b>	<b>Harshil</b>
<b>Investigate/Select Tools</b>	Select language, Web Scrapping tool, Front end and Back end development	Select language, Select framework, Front end and Back end development
<b>Investigate and select algorithms</b>	Research on Algorithms, Sentiment analysis	Research on Algorithms, Text classification
<b>Select collaboration tools</b>	Presentation, documents, communication	Task Calendar, communication, Task organizer
<b>Requirement Document</b>	60%	40%
<b>Design Document</b>	40%	60%
<b>Test Plan</b>	50%	50%

### **Approval from Faculty Sponsor**

"I have discussed with the team and approve this project plan. I will evaluate the progress and assign a grade for each of the three milestones."

Signature: \_\_\_\_\_ Date: \_\_\_\_\_