Software Engineering Project Proposal

Project Name: Social Network Analysis with Deep Learning

Course: CS 4513

Semester: Spring 2018

Advisor: Professor Strauss

Team members:

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Project Motivation

The idea for the application emerges as we see the potential of big data analysis and deep learning. With the current availability of large datasets online, myriad of information can be processed to make strategic decisions for businesses and industries. We look to utilize those untapped information to optimize and enhance the effectiveness of businesses, as well as providing meaningful insights to strategies employed by businesses.

The purpose of this project is to gauge sentiments and trends on the social media, thereby helping the marketing teams of businesses in identifying possible strategies, as well as analyzing the effectiveness of marketing campaigns. And with the technology of deep learning, the application can help to adjust and find the best fit of solution for a specific client.

We believe that the project, if successful, can be extended to all kinds of different data types, which will help to empower different aspects of a business organization and industries.

Proposed Project

*Functional Requirements*

The application provides an easy-to-use interface for businesses and enterprises to analyze data on social media in order to determine sentiments from the social platforms towards a specific topic or event. The application should also provide results of analysis in formats such as GIS maps, Excel sheets and charts, etc. Finally, the application should predict a trend using deep learning algorithms.

*User/Client Requirements*

The application should have the following requirements to suit the needs for the clients:

* Accuracy
  + The application should, first and foremost, deliver accurate analysis. Prediction should not be out of reach.
* Accessible interface
  + It should be expected that the clients are going to be in a variety of industries and the users are not all going to be technical experts. Therefore, the application should have an easily understandable and readable interface to carry out the majority of the tasks of the application.
  + The users should also be able to import their own datas without much effort (i.e. the application should take into account of different document types uploaded by the users).
  + The users should be able to access the application on demand.
  + The users should be able to comprehend the results of analysis with ease and the results should be provided to the users in different forms.
* Security of data
  + Since the targeted clients are businesses and industries, the data that the clients use to upload to the application should be secure since those data may contain sensitive information of the company.
* Time sensitivity
  + “Time is money.” Large amounts of data should be analyzed as quickly as possible and results of the analysis should also be delivered in a timely fashion.

*Technical Requirements*

The application should always have agility and flexibility in mind for the potential of expansion of data types to be analyzed and processed. The architecture of the application should also be secure.

The codebase will mainly be in Python.

Project Deliverables

* Project Proposal: 2/08/18
* Software Requirement and Analysis Specification (RAS):
* Business & Project Definition: 2/20/18
* Software Requirements: 3/06/18
* Complete: 3/20/18
* Software Analysis Specification: 4/17/18

- Software Project Management Plan (SPMP): 4/05/18

- Software Design Document: 5/01/18

* Development of algorithm/AI:
  + Initial Design: 9/30/18 (1 month)
  + Optimization for Time Sensitivity: 10/30/18 (1 month)
* Data generation and Visualization: 10/30/18 (1 month)
* Application Interface: 11/22/18 (3 weeks)
* Security Penetration of application: 12/05/18 (1 month)
* Debugging/Testing: Throughout development iterations/cycles