EE/CPR E/ SE Weekly Report 7
April 5-April 12
Group Number: 08
Project Title: Artificially Intelligent Requirements Analysis Tools
Client & Advisor: Collins Aerospace & Dr. Simanta Mitra
Team Members & Roles:
  - Ryan Cerveny: Scrum Master, Meeting Scribe/Facilitator, Project Lead, Communicator
  - Apurva Patel: Project Lead, Report Manager, Technical Support, Communicator, AI Training Lead
  - Jonathan Murphy: Testing Engineer, Researcher, Requirement Lead
  - Takao Shibamoto: Chief Engineer, Researcher, UI Lead

Weekly Summary:

Over the past week our team focused on gathering evidence of the failure of the algorithm suggested by Collins Aerospace. We started looking for an alternative algorithms that could be beneficial to the project. Apart from that, we personally met Collins Aerospace representative at Cedar Rapids, IA to clear doubts and bring everyone on the same page. We also discussed on how to train the model and the failure of the algorithm.

Past Week Accomplishments:

Meeting with Collins Aerospace at Cedar Rapids (Ryan & Apurva)
Ryan and Apurva went to Cedar Rapids to meet the Collins aerospace representative to discuss training the model and the failure of algorithm suggested by the client.

Editing the Parser(Apurva & Ryan)
Ryan and Apurva worked on editing the parser provided by the Collins aerospace.

Discussed Alternative Plan (Team)
We realized that the data provided by the client is not sufficient enough in a descriptive manner for the model to be trained efficiently. Aa a team we discussed to share our regards with Dr. Daniels and our advisor Dr. Simanta Mitra. After discussion we decided to approach Collins Aerospace with appropriate reasoning and concern about the project.

Brainstormed alternative plans (Takao & Jonathan)
Takao and Jonathan brainstormed alternative plans and researched possibilities. We collected several sources that discussed approaches to Natural Language Processing on the internet and explored the possibilities of taking these alternative approaches through small experiments.

Exploring the possibilities of topic modeling (Takao)

The following is Takao's conclusion about alternative approach. He worked on this approach this week.

- Topic modeling would be the most viable approach.
- Compare the topics of the requirement texts instead of comparing the requirement texts
- How to do it: latent Dirichlet allocation (Gensim has it) creates probability distribution of topics → Then compare this probability distribution of both REQ/UC to find out the similarity.
- More data cleaning and EDA will be necessary

Individual Contributions:

Name	Individual Contributions	Hours	Hours Cumulative
Jonathan Murphy	- Researched alternatives to WMD - Continued developing WebCrawler	`` 8	Approx. 70
Apurva Patel	● Editing Parser ● Meeting with collins aerospace at Cedar Rapids ● Visiting Research faculty for testing of the model	Approx 12	78
Ryan Cerveny	● Meet with Collins supervisor in Cedar Rapids to discuss the future of the project ● Spent time at research park to try for last ditch effort for Collins' proposed approach ● Attempt to salvage collins requirement parser ● Met with Daniels and our faculty advisor	Approx. 10	Approx. 84
Takao Shibamoto	- Discussed alternative approach - Experiment with Topic modeling approach	15	76

Plans for Upcoming Week:

- Start working on final project plan
- Start working on final presentation
- Provide necessary research documentation for referral to Collins Aerospace
- Experiment on the new research
- Talk with professor to figure out how to proceed in the class

Summary of Weekly Advisor Meeting:

We had meeting with Dr Daniels as well as Dr. Simanta Mitra regarding the issue with Collins Aerospace providing limited data as well as vague description of the requirement document. We discussed on how we worked through the requirement processing during our meeting with Collins Aerospace. Dr. Daniels and Dr. Mitra suggested to provide a full feedback to Collins Aerospace regarding the project been technically not approachable unless the requirement is written in a descriptive format. On the other hand, both the advisor proposed to keep a proposal to Collins Aerospace on tweaking the project in a way that it could be achieve, and also guided us to think about an alternative project if Collins Aerospace do not have a specific idea to move on. Thus, this concludes our meeting with both the advisor.