

Date: 4 October 2018  
To: Romcholo Macatula  
From: Cyber Warriors  
Subject: Technical Memo 5: Project Scheduling and Gantt Chart

## **1 Summary**

In this technical memo, we break down the tasks required to complete the project. Our project components are data collection, data cleaning, mathematical modeling, project presentation, and project report. We break the tasks for each of these components down as follows. Data collection requires the web scrapping of data from the Common Vulnerabilities and Exploits Database. The team plans to dedicate six to seven weeks locating and scrapping data in addition to cleaning that data. Upon the initial collection the team shall learn key methods and implementation required for the mathematical model. The team shall focus at least 6 weeks to the implementation and visualization of our mathematical model. Two weeks prior to the completion of the implementation the team shall initiate the development of the presentation and written report.

## **2 List of Components and Tasks**

### **Data Collection Tasks:**

1. Locate Data
2. Scrape Data

### **Data Cleaning Tasks:**

1. Parsing Errors
2. Data Transformation
3. Remove Unnecessary Factors
4. Duplicate Elimination

### **Math Modeling Tasks:**

1. Learn Markov Chains
2. Learn Implementation
3. Learn R Visualization
4. Research Libraries/Packages
5. Implementation
6. Visualization

### Presentation Tasks:

1. Create Slide Deck
2. Develop
3. Practice
4. Evaluate
5. Visualizations
6. Finalize

### Report Tasks:

1. Draft
2. Write
3. Format
4. Visualizations
5. Revise
6. Bibliography
7. Finalize

## 3 Team Members Tasks

The breakdown of team members tasks are displayed in the Gantt Charts.

## 4 Gantt Chart for Entire Project and Each Major Task

A Gantt chart breaks work down into specific tasks (rows) and time (columns). For each task, we highlight the appropriate cells to indicate when that work will be accomplished.

We first create a high-level chart that shows how all the major components will be tackled. Here the columns are labeled by dates; e.g., **O4** indicates Monday, October 4th [1] .

	O4	O11	O18	O25	O1	N8	N15	N22	N29	D5
Data Collection										
Data Cleaning										
Math Modeling										
Presentation										
Report										

Then for each major component, we create another Gantt chart that breaks that component down into reasonable tasks.

Gantt Chart for Data Collection

	O4	O11	O18	O25	O1	N8	N15	N22	N29	D5
Locate Data										
Scrape Data										

blue = Matthew, yellow = Patrick, red = Elizabeth, green = Matthew & Patrick, orange = Patrick & Elizabeth, violet = Matthew & Elizabeth, gray = all

Gantt Chart for Data Cleaning

	O4	O11	O18	O25	O1	N8	N15	N22	N29	D5
Parsing Errors										
Data Transformation										
Remove Unnecessary Factors										
Duplicate Elimination										

blue = Matthew, yellow = Patrick, red = Elizabeth, green = Matthew & Patrick, orange = Patrick & Elizabeth, violet = Matthew & Elizabeth, gray = all

Gantt Chart for Mathematical Modeling

	O4	O11	O18	O25	O1	N8	N15	N22	N29	D5
Learn Markov Chains										
Learn Implementation										
Learn R Visualization										
Research Libraries/Packages										
Implementation										
Visualization										

blue = Matthew, yellow = Patrick, red = Elizabeth, green = Matthew & Patrick, orange = Patrick & Elizabeth, violet = Matthew & Elizabeth, gray = all

Gantt Chart for Presentation

	O4	O11	O18	O25	O1	N8	N15	N22	N29	D5
Create Slide Deck										
Develop										
Practice										
Evaluate										
Visualizations										
Finalize										

blue = Matthew, yellow = Patrick, red = Elizabeth, green = Matthew & Patrick, orange = Patrick & Elizabeth, violet = Matthew & Elizabeth, gray = all

Gantt Chart for Report

	O4	O11	O18	O25	O1	N8	N15	N22	N29	D5
Draft										
Write										
Format										
Visualizations										
Revise										
Bibliography										
Finalize										

blue = Matthew, yellow = Patrick, red = Elizabeth, green = Matthew & Patrick, orange = Patrick & Elizabeth, violet = Matthew & Elizabeth, gray = all

## References

- [1] M. EMBRE, *Technical memo 5: Project scheduling and gantt chart*, tech. rep., Virginia Tech, 2018.