Butterfly Effect: Human-Computer Interaction Project

Project Proposal

Team 26

Project Manager:

Ryan Clark

Team Members:

Donald Hacker

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1 Executive Summary

The Butterfly Effect is a web-based application. The internet is full of web-apps that act as platforms for speech and information, our application is one that builds on those platforms. We want a fact checker that allows the user to make the determination of falsehood. We display information from other aggregators that give the user context regarding the latest trends on Social Media giants such as Twitter and Facehbook. The goal of this project is to provide the complete picture to our users.

Our design is currently a web based application using social media APIs and other information aggregators such as Wikipedia. The expectation of the project is to implement a solution that gives real time updates to the latest trends and successfully provides information about those trends. The information will be aggregated from well respected information brokers. This information will also be displayed to the user in an easy to read, portable fashion, with easy options for copying, pasting, sharing, emailing, etc. Information displayed by the application will also be sorted into categories, with the categories having their own separate pages: Finance, News, and Sports.

The project will be managed by Ryan Clark, and the code will be managed through GitHub. We are using an AGILE methodology with sprints every week. We will be meeting bi weekly during class time and lectures with one scheduled video meeting. This video meeting is recorded and submitted to supervisors for the record. Reports on User Stories, User Studies, and Post-Project retrospectives will also be submitted. The team is also using Eclipse as our main IDE and our goal is to be able to dynamically deploy our application using an Apache server. Apache is an open source server emulator for local deployment.

2 Introduction

2.1 Problem background

The average user on the internet is bombarded with facts, figures, and other statements that the writer of said information intends to be believed by the user. Our application aims to make it easier for the user themselves to fact-check the articles, tweets, posts, etc. they read on social media. Our application does this by providing context, additional information, or definitions to user specified words or statements of interest.

2.2 Needs statement

Currently, users can view a timeline of posts or tweets to either Facebook or Twitter, respectively. Users need supporting information to make the determination of whether a post or tweet is:

1. Accurate
2. Truthful

What is supporting information? This can include, but is not limited to, definitions of words, financial status of a company, sports statistics, or maybe even a Wikipedia summary. Our users want this information in one easy to use, easy to access location.

We seek to address these needs through our application.

2.3 Goal and Objectives

Our application's goal is to provide comprehensive context to trends that are currently at the top of Twitter or Facebook. These trends are displayed in the Dashboard page, and are fully interactable. Each trend as a whole will be able to be selected for viewing context, based off keywords that we parse from the trend. The content of each trend can also be selected by the user; content such as specific words, people, or events.

The context will be displayed on the Dashboard as well. This context contains information pulled from trends and their content. The information itself depends on the type of Trend selected. This context will be organized into similar categories as the trends, such as Finance, News, Sports. Based on the categorization of the context, a certain display scheme will be used.

Expanding on the dashboard are seperate pages for each trend type. Finance shows financial trends and information. Sports shows sports scores, statistics, and upcoming events. News

shows breaking news trends. Each of these pages operates under the same principles as the dashboard: trends are interactable and each atom in the trend is potentially interactable.

This application is expected to perform as described with at least 10 trends from both Facebook and Twitter, displaying contextual information available.

2.4 Design constraints and feasibility

Current design constraints fall under two general areas: experience and time. Our application has high expectations, but to meet these, our team will need to overcome a large learning curve regarding Java Maven Development. Additionally, as time is constrained, our functionality must be feasible for our development timeline.

3 Project Plan

3.1 Planned Scope

Our application will use a variety of APIs to parse information from social media (for trends) and reference sites (for context). These APIs currently include Facebook, Wikipedia, and Yahoo Finance, with Twitter and a dictionary API on the way. These are all well-funded, updated APIs that will offer robust performance.

Our project is currently planned to be a Maven project, with mostly front-end implementation at first. This includes a splash page, a page for the dashboard, and further pages for different categories. The layout of these images will be shown later in this document. The front end will be run by HTML and JavaScript, with the backend using a Java Servlet plug-in. The back end will really only be used for heavy computation that cannot be completed on the client side, such as sentiment analysis. The client side computing will handle tweet and post calls by the trending boxes and Wikipedia API calls for the Additional Information section.

3.2 Planned Report Authors

Project Proposal: Nicholas Cashiola

User Stories and User Study: Donald Hacker

User Study Report: Ryan Clark

Team Retrospective Report: All Team Members

To meet the W requirement for the course, each team member will complete one document of 1000 words or greater; the team will work collaboratively to complete the last writing deliverable. Nicholas Cashiola is the author of this document, “Project Proposal”. Donald Hacker is the author of the User Stories and User Study, and Ryan Clark is the author of the User Study Report. All team members will contribute to the Team Retrospective Report.

4 Proposed work

4.1 Evaluation of alternative solutions

Alternate Solution 1: Non-Maven Deployment

While Maven is a great framework, it comes with a large learning curve and difficult deployment scheme. We have access to people.tamu.edu as a backup option. This server will support the usage of javascript in supplement to html files - a simplified version of the Maven project. This could also serve as a secondary workflow tool in case dynamic deployment has issues.

Alternate Solution 2: Using Java Backend functionality to utilize natural language processing APIs

Maven offers powerful open-source API access. There are multiple natural language processing tools that could allow us to more easily parse data from the Trending contents and from the contextual information. This solution would allow us to have a tool that categorizes trends for us, rather than having to do it ourselves. These APIs are also free, allowing many API calls per day.

Alternate Solution 3: Using Python as the supporting scripting language

Two of the three members of our team do not have much experience with JavaScript, the primary programming language at this stage of our product. An alternate solution, should experience issues become a major problem, is to use Python, which more team members have experience with. With large API libraries and its open source nature, Python is an easy backup as a tool to allow us to implement the features our application is designed to have.

4.2 Design interface sketch

Figure 1: Dashboard Wire Frame

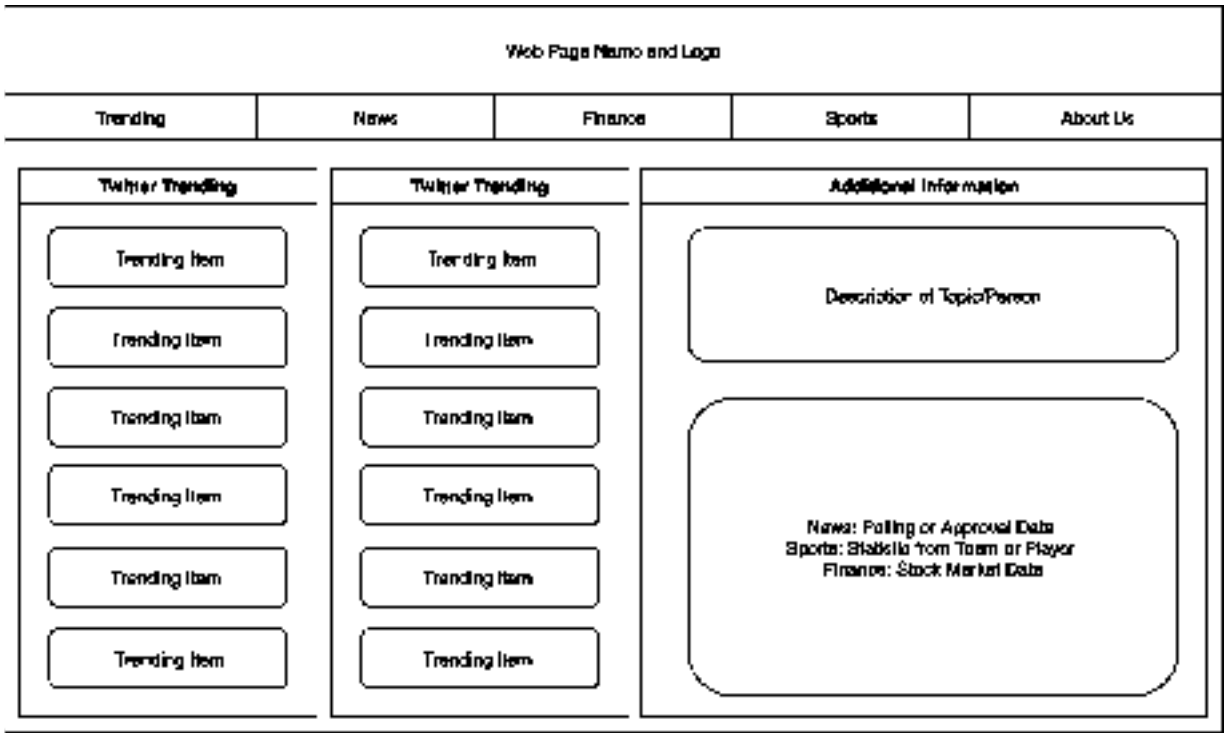


Figure 2: Home Page

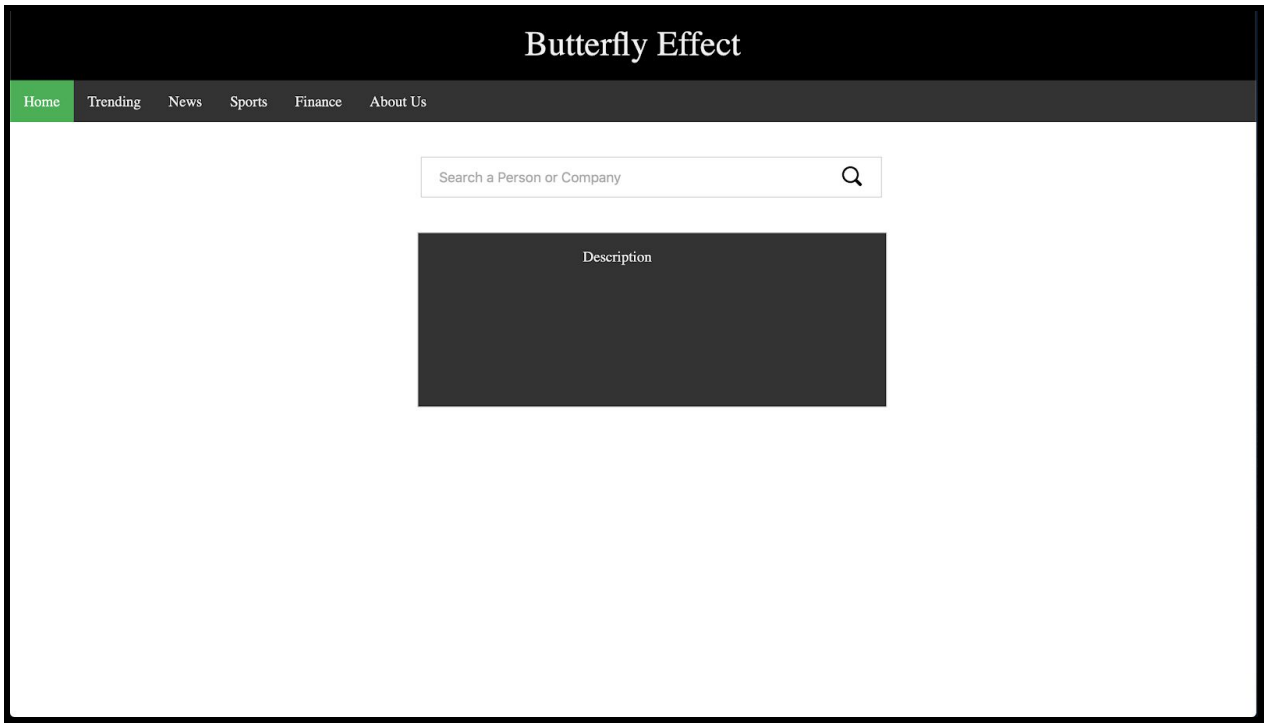
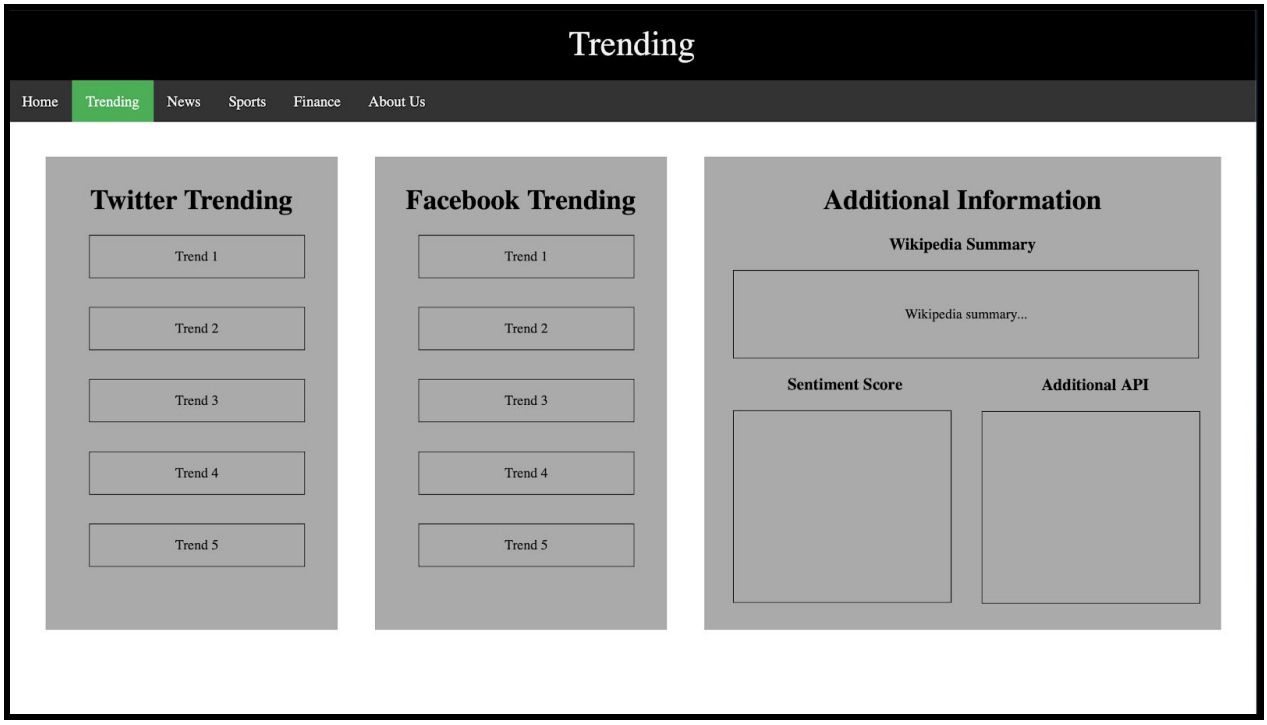


Figure 3: Trending Dashboard



Social Media Trending Box:

The dashboard is planned to have two social media trending boxes; one for Twitter, one for Facebook. These boxes will display a live feed of the latest trends on the two social media giants. These trends will be interactable, allowing the user to display information about the trend such as statistics, definitions, and, if applicable, financial data. The end goal is to have these feeds be updated automatically, refreshing content without user action.

Additional Information Box:

The meat and potatoes of our application, the Additional Information Box is where our application displays the data that our program has obtained about the trending topic that the user selected or searched for. This box will utilize the Wikipedia API, Yahoo Finance, and a dictionary information to generate the output for our users.

Navigation Bar:

The navigation bar will allow our users to easily and fluidly access different parts of the application.

Category-Specific Content Page:

Each category specific webpage will display more detailed information about trends in this topic. For example, the Finance page will display a candlestick chart if a specific company is trending and the user chooses to inspect that trend. The News may display more detailed information, or longer excerpts from articles appearing in Trends. The Sports page follows suit by displaying more detailed box scores about trending games.

5 Engineering standards

5.1 Project management

Nicholas

- Role: Software Engineer
- Qualifications:
    - AGILE Project Management Internship at AEXA Aerospace
    - Software Engineering Internship at AT&T
    - Research Assistant for AggiE_Challenge

Donald

- Role: Web Design
- Qualifications:
    - Worked on the backend for the HowdyHack Registration Site using Python
    - Worked on a Regression calculator GUI using MATLAB
    - Programmed arduino robots to complete obstacle courses using C++
    - Created multiple websites using CSS and HTML

Ryan

- Role: Project Manager
- Qualifications
    - Familiar with Software Development Processes
    - Created small computer game in C++ using FLTK library
    - Developed Website using HTML and CSS

5.2 Product and sprint backlog

Goal Features List:

1. Display current Twitter Trends
    a. Reach:
        i. Display Archived Trends based off date
        ii. Grab keywords using a natural language processing api
2. Display current Facebook Trends
    a. Reach:
        i. Display Archived Trends based off date

        ii. Grab keywords using a natural language processing api
    b. Subtasks:
3. Display Wikipedia information based off keywords in trends
    a. Subtasks: Parse JSON data returned by API
4. Display Bloomberg/Yahoo Finance information based off company names appearing in trends
    a. Subtasks: Parse JSON data returned by API
5. Display Wikipedia Information
    a. Subtasks: Create display section on front end of website
6. Display FiveThirtyEight information based people or event. Eg. 2020 election or Approval Rating
    a. Subtasks: Create display section on front end of website
7. Include a search bar to find specific trends about specific people, events, or location
8. Taskbar with page links
    a. Subtasks: Create pages to be linked
9. Title (Butterfly Effect)
    a. Subtasks: Code graphically appealing title bar
10. Team Logo

Product Backlog:

Priority	Product Backlog Items	Estimate (hours)
1	Create a Trending.JS File	0.5
2	Build a navigation bar for the Trending Page	0.5
3	Create 5 Sections on the navigation bar on the Trending Page	0.5
4	Name the titles of each item of the navigation bar on the Trending Page	0.25
2	Insert Navigation links for each item of the navigation bar on the trending page	0.25
2	Build a title box area on the Trending Page	0.5
4	Create trending title on the Trending Page	0.25
4	Display the team logo on the Trending Page	0.25

1	Build a Box area for Twitter trends on the Trending Page	0.5
4	Create title for Twitter trends on the Trending Page	0.25
2	Display top 6 Twitter trends on the Trending Page	1
3	Ability to “Select” a trend from the Twitter Trending Box	1
1	Build a Box area for Facebook trends on the Trending Page	1
4	Create title for FaceBook trends on the Trending Page	0.25
2	Display top 6 Twitter trends on the Trending Page	1.5
3	Ability to “Select” a trend from the FaceBookTrending Box on the Trending Page	1
1	Build a box area for additional information on the Trending page	1
4	Create title for for additional information on the Trending page	0.25
1	Build a text area to display results from Wikipedia search to Information Box on the Trending Page	1
1	Create News.JS File	1
1	Build a navigation bar for the News Page	1
2	Create 5 Sections on the navigation bar on the News Page	0.5
4	Name the titles of each item of the navigation bar on the News Page	0.5
3	Insert Navigation links for each item of the navigation bar on the News page	0.5
2	Build a title box area on the News Page	0.5

3	Create trending title on the News Page	0.5
4	Display the team logo on the News Page	0.5
1	Build a Box area for Twitter trends on the News Page	1
3	Create title for Twitter trends on the News Page	0.5
2	Display top 6 Twitter trends on the News Page	1
2	Ability to “Select” a trend from the Twitter News Box	1
2	Build a Box area for Facebook trends on the News Page	0.5
4	Create title for FaceBook trends on the News Page	0.25
2	Display top 6 FaceBook trends on the News Page	1
2	Ability to “Select” a trend from the FacebookTrending Box on the News Page	1
1	Build a box area for additional information on the News page	0.5
4	Create title for for additional information on the News page	0.5
1	Build a text area to display results from Wikipedia search to Information Box on the News Page	1
2	Create Finance.JS File	1
3	Build a navigation bar for the Finance Page	1
4	Create 5 Sections on the navigation bar on the Finance Page	0.5
2	Name the titles of each item of the navigation bar on the Finance Page	0.5

2	Insert Navigation links for each item of the navigation bar on the Finance page	0.5
4	Build a title box area on the Finance Page	0.5
4	Create trending title on the Finance Page	0.5
1	Display the team logo on the Finance Page	0.5
4	Build a Box area for Twitter trends on the Finance Page	1
2	Create title for Twitter trends on the Finance Page	0.5
3	Display top 6 Twitter trends on the Finance Page	1
1	Ability to “Select” a trend from the Twitter Finance Box	1
4	Build a Box area for Facebook trends on the Finance Page	0.5
2	Create title for Twitter trends on the Finance Page	0.25
3	Display top 6 Twitter trends on the Finance Page	1
1	Ability to “Select” a trend from the Twitter Trending Box on the Finance Page	1
4	Build a box area for additional information on the Finance Page	0.5
1	Create title for for additional information on the Finance Page	0.25
1	Build a text area to display results from Wikipedia search to Information Box on the Finance Page	0.5
1	Create Sports.JS File	0.5
2	Build a navigation bar for the Sports Page	0.5

3	Create 5 Sections on the navigation bar on the Sports Page	0.5
4	Name the titles of each item of the navigation bar on the Sports Page	0.25
2	Insert Navigation links for each item of the navigation bar on the Sports page	0.25
2	Build a title box area on the Sports Page	0.5
4	Create trending title on the Sports Page	0.25
4	Display the team logo on the SportsPage	0.25
1	Build a Box area for Twitter trends on the Sports Page	0.5
4	Create title for Twitter trends on the Sports Page	0.25
2	Display top 6 Twitter trends on the Sports Page	1
3	Ability to “Select” a trend from the Twitter Sports Box	1
1	Build a Box area for Facebook trends on the Sports Page	1
4	Create title for Twitter trends on the Sports Page	0.25
2	Display top 6 Twitter trends on the Sports Page	1.5
3	Ability to “Select” a trend from the Twitter Trending Box on the Sports Page	1
1	Build a box area for additional information on the Sports page	1
4	Create title for for additional information on the Sports page	0.25
1	Build a text area to display results from Wikipedia search to Information Box on the Sports page	1

4	Create AboutUs.JS File	0.5
4	Create Meet our team title on the About Us Page	0.5
4	Build Box area for Team Member 1 Bio	0.5
4	Create text for Team Member 1's Name	0.5
4	Build text area for bio description for Team Member 1's Name	0.5
4	Insert image of for Team Member 1	0.5
4	Build Box area for Team Member 2 Bio	0.5
4	Create text for Team Member 2's Name	0.5
4	Build text area for bio description for Team Member 2's Name	0.5
4	Insert image of for Team Member 2	0.5
4	Build Box area for Team Member 3 Bio	0.5
4	Create text for Team Member 3's Name	0.5
4	Build text area for bio description for Team Member 3's Name	0.5
4	Insert image of for Team Member 3	0.5
3	Add a natural language processing api to pom.xml	1
3	Use a natural language processing api to parse keywords	1.5
2	Use the keywords to search Wikipedia API	1
1	Display results from Wikipedia search to Information Box	1
1	Finalize Deployment Scheme	0.5

Sprint 1 Backlog:

Priority	Product Backlog Items	Estimate (hours)
1	Create a Trending.JS File	0.5
2	Insert Navigation links for each item of the navigation bar on the trending page	0.25
2	Build a title box area on the Trending Page	0.5
4	Create trending title on the Trending Page	0.25
1	Build a Box area for Twitter trends on the Trending Page	0.5
4	Create title for Twitter trends on the Trending Page	0.25
2	Display top 6 Twitter trends on the Trending Page	1
3	Ability to “Select” a trend from the Twitter Trending Box	1
1	Build a Box area for Facebook trends on the Trending Page	1
4	Create title for FaceBook trends on the Trending Page	0.25
2	Display top 6 FaceBook trends on the Trending Page	1.5
3	Ability to “Select” a trend from the FaceBookTrending Box on the Trending Page	1
1	Build a box area for additional information on the Trending page	1
4	Create title for for additional information on the Trending page	0.25

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7 Appendices

7.1 Product backlog

Product Backlog:

Priority	Product Backlog Items	Estimate (hours)
1	Create a Trending.JS File	0.5
2	Build a navigation bar for the Trending Page	0.5
3	Create 5 Sections on the navigation bar on the Trending Page	0.5
4	Name the titles of each item of the navigation bar on the Trending Page	0.25
2	Insert Navigation links for each item of the navigation bar on the trending page	0.25
2	Build a title box area on the Trending Page	0.5
4	Create trending title on the Trending Page	0.25
4	Display the team logo on the Trending Page	0.25
1	Build a Box area for Twitter trends on the Trending Page	0.5
4	Create title for Twitter trends on the Trending Page	0.25
2	Display top 6 Twitter trends on the Trending Page	1
3	Ability to “Select” a trend from the Twitter Trending Box	1

1	Build a Box area for Facebook trends on the Trending Page	1
4	Create title for FaceBook trends on the Trending Page	0.25
2	Display top 6 Twitter trends on the Trending Page	1.5
3	Ability to “Select” a trend from the FaceBookTrending Box on the Trending Page	1
1	Build a box area for additional information on the Trending page	1
4	Create title for for additional information on the Trending page	0.25
1	Build a text area to display results from Wikipedia search to Information Box on the Trending Page	1
1	Create News.JS File	1
1	Build a navigation bar for the News Page	1
2	Create 5 Sections on the navigation bar on the News Page	0.5
4	Name the titles of each item of the navigation bar on the News Page	0.5
3	Insert Navigation links for each item of the navigation bar on the News page	0.5
2	Build a title box area on the News Page	0.5
3	Create trending title on the News Page	0.5
4	Display the team logo on the News Page	0.5
1	Build a Box area for Twitter trends on the News Page	1
3	Create title for Twitter trends on the News Page	0.5
2	Display top 6 Twitter trends on the News	1

	Page	
2	Ability to “Select” a trend from the Twitter News Box	1
2	Build a Box area for Facebook trends on the News Page	0.5
4	Create title for FaceBook trends on the News Page	0.25
2	Display top 6 FaceBook trends on the News Page	1
2	Ability to “Select” a trend from the FacebookTrending Box on the News Page	1
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2	Name the titles of each item of the navigation bar on the Finance Page	0.5
2	Insert Navigation links for each item of the navigation bar on the Finance page	0.5
4	Build a title box area on the Finance Page	0.5
4	Create trending title on the Finance Page	0.5
1	Display the team logo on the Finance Page	0.5

4	Build a Box area for Twitter trends on the Finance Page	1
2	Create title for Twitter trends on the Finance Page	0.5
3	Display top 6 Twitter trends on the Finance Page	1
1	Ability to “Select” a trend from the Twitter Finance Box	1
4	Build a Box area for Facebook trends on the Finance Page	0.5
2	Create title for Twitter trends on the Finance Page	0.25
3	Display top 6 Twitter trends on the Finance Page	1
1	Ability to “Select” a trend from the Twitter Trending Box on the Finance Page	1
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1	Create title for for additional information on the Finance Page	0.25
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4	Name the titles of each item of the navigation bar on the Sports Page	0.25
2	Insert Navigation links for each item of the navigation bar on the Sports page	0.25
2	Build a title box area on the Sports Page	0.5

4	Create trending title on the Sports Page	0.25
4	Display the team logo on the SportsPage	0.25
1	Build a Box area for Twitter trends on the Sports Page	0.5
4	Create title for Twitter trends on the Sports Page	0.25
2	Display top 6 Twitter trends on the Sports Page	1
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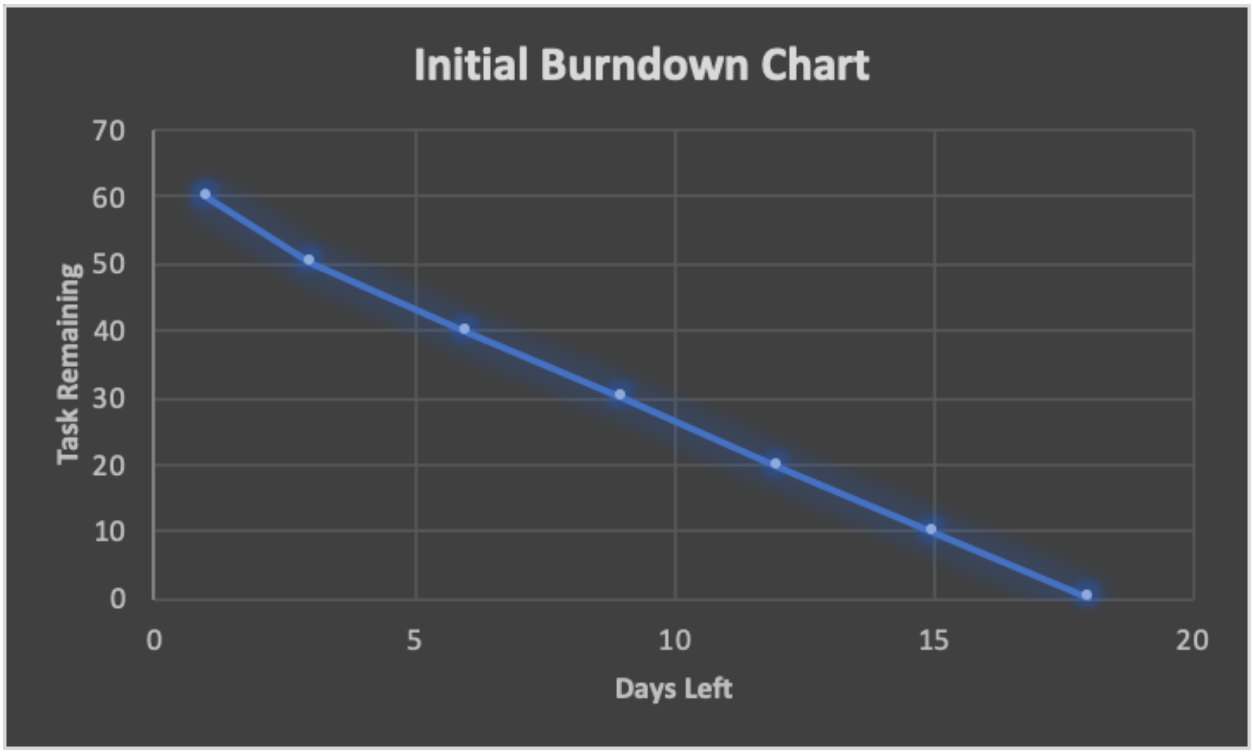
4	Build Box area for Team Member 1 Bio	0.5
4	Create text for Team Member 1’s Name	0.5
4	Build text area for bio description for Team Member 1’s Name	0.5

4	Insert image of for Team Member 1	0.5
4	Build Box area for Team Member 2 Bio	0.5
4	Create text for Team Member 2's Name	0.5
4	Build text area for bio description for Team Member 2's Name	0.5
4	Insert image of for Team Member 2	0.5
4	Build Box area for Team Member 3 Bio	0.5
4	Create text for Team Member 3's Name	0.5
4	Build text area for bio description for Team Member 3's Name	0.5
4	Insert image of for Team Member 3	0.5
3	Add a natural language processing api to pom.xml	1
3	Use a natural language processing api to parse keywords	1.5
2	Use the keywords to search Wikipedia API	1
1	Display results from Wikipedia search to Information Box	1
1	Finalize Deployment Scheme	0.5

7.2 Burn-down chart


Initial Burndown Chart
Task Remaining
70
60
50
40
30
20
10
0
0
5
10
15
20
Days Left