

COVID Analyzer

(Unofficial Name)

Technical Design Document

Project Managers:

Fabian Martinez

Nathan Short

Widler Risin

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Document Changes

Revision ID	Date	Author	Summary
1.0	5/21/2020	Fabian Martinez	Initial Draft
1.1	5/22/2020	Nathan Short	Added Requirements
1.2	5/22/2020	Widler Risin	Added Risks and Mitigations, Communications Plan
1.3	5/22/2020	Fabian Martinez	Compiled documents into final draft

Abstract

Objective

To deploy a web application that displays a logistic analysis by comparison of confirmed COVID-19 cases to timeframes of rules instantiated on a county-by-county basis in Florida. The analysis is up to user interpretation as the information displayed will be as objective as possible.

Motivation

There is a gap in data analysis when comparing medical and political environments that this project aims to lay the foundation in.

Requirements

Legend

Term	Definition
Actor	Defines who the requirement pertains to
User	Client-side actor that will access the web application
Dev	Server-side actor that develops the web application
U#.#	Requirement ID pertaining to Actors of type "User"
D#.#	Requirement ID pertaining to Actors of type "Dev"

Product Requirements

Requirement ID	Requirement	Actor
U1.0	Access to web application	User
U2.0	County-by-county dashboard	User
U2.1	Infection counts	User
U2.2	Recovery counts	User
U2.3	Death counts	User
U2.4	Curfew requirements	User
U2.5	Mask requirements	User
U2.6	Re-opening phase(s)	User
U3.0	Display CDC recommendations	User
U4.0	Display comparison of COVID-19 and flu trends	User
U5.0	Compare infection rates as new restrictions are implemented or relaxed	User

Technical Requirements

Requirement ID	Requirement	Actor
D1.0	Access to web application	Dev
D1.1	Develop on Java platform	Dev
D1.2	Apache Tomcat server for development	Dev
D1.3	Free-host server for production	Dev
D2.0	County-by-county dashboard	Dev
D2.1	Web scrape for data	Dev
<i>D2.1.1</i>	<i>Obtain data from Florida counties</i>	<i>Dev</i>
<i>D2.1.2</i>	<i>Ongoing historical data storage</i>	<i>Dev</i>
<i>D2.1.3</i>	<i>Graphics comparing data</i>	<i>Dev</i>
D3.0	Display CDC recommendations	Dev
D3.1	Textbox containing information by category	Dev
D4.0	Display comparison of COVID-19 and flu trends	Dev
D4.1	Follows requirements for D2.1 → D2.1.1 - D2.1.3	Dev
D5.0	Compare infection rates as new restrictions are implemented or relaxed	Dev
D5.1	Utilizes Requirement D2.0 and D2.1.2	

Technical Design

Implementation

- **Apache Tomcat**
 - Server hosted on a local machine to run the web application
- **Java**
 - Main backend code of program hosted on Tomcat Server
- **JDBC (Java Database Connectivity)**
 - To interface between Java and SQL database
- **Javascript**
 - code to call the Java backend for stored data
- **HTML/CSS**
 - to properly design and organize the webpage
- **SQL/SQLite**
 - to store all scraped COVID-19 data
- **Python (Web Scraping Tool)**
 - code to automate data grabs and updates from sources

Testing

- **Development**
 - Will align with requirements, minimizing the need to change functionalities.
 - Unit testing before committing changes
 - JMeter for load testing before deployment
- **Data will be auto sourced**
 - Will be used for both testing and production environments.
 - Scripting will happen separate from application source code before being integrated.

Risks and Mitigations

Level 1	Level 2	Level 2 Risk	Plan/Mitigation
COVID-19 Analyzer	Planning/ Documentation	Covid-19 restrictions lifted limiting our project scope	Reduce scope of project, lean more heavily into the data analysis aspect of our website
		Tools needed are too costly.	Look for open source options or trial periods.
		Different work Schedules limits the amount of possible meeting times	Take advantage of asynchronous meeting options such as Discord, use Jira to organize work, try to get as much work done during limited meeting times.
	Prototype	Uncertainty about the direction of our project.	Discuss the issue with team members and Dr. Macon
	Beta Testing	Scope changes requiring us to reconsider implementation	Discuss the changes with team members and Dr. Macon
	Deployment	Bugs found during testing	Document bugs found in Jira to address formally.
		Undiscovered bug reported by user.	Confirm the bug; discuss with the team to resolve it.
		Server unable to handle user load.	Purchase additional servers.
		Political influences change source data due to how cases were reported.	Provide user warnings on how to interpret data safely.

Communications Plan

Communications Plan	
Project Name: Covid-19 Analyzer	Beginning Date: May 4, 2020
Project Managers: Fabian Martinez, Widler Rislin, Nathan Short	Completion Date: July,27, 2020
Planning	
Project Objectives: <ul style="list-style-type: none"> ● Gather Requirements ● Design Web App ● Develop Web App ● Test Web App ● Revise Web App ● Deploy Web App 	
Stakeholders: Dr. Lisa Macon, Professor Jerry Reed, Widler Rislin, Fabian Martinez, Nathan Short	

Communication Type	Date	Target Audience	Tool	Length	Message
Scrum Meeting	Weekly 5/16/2020 -7/25/2020	Widler Rislin, Fabian Martinez, Nathan Short	Discord	2 hours	Discuss progress, establish tasks to complete during next sprint.
Informal Progress Updates	Asynchronous 5/4/2020-7/27/2020	Widler Rislin, Fabian Martinez, Nathan Short	Discord	Asynchronous	Informal project discussions
Software Development Project Meeting	Weekly 5/4/2020 -7/27/2020	Dr. Macon, Widler Rislin, Fabian Martinez, Nathan Short	Zoom	1 hour	Discuss our progress with Dr. Macon
Planning Documentation Submission	5/22/2020	Dr. Macon, Widler Rislin, Fabian Martinez,	Canvas	Asynchronous	We will submit our planning documentations for Dr. Macon to review and

		Nathan Short			provide Feedback.
Prototype Submission	6/3/2020	Dr. Macon, Widler Rislin, Fabian Martinez, Nathan Short	Canvas	Asynchronous	We will submit our prototype for Dr. Macon to review and provide Feedback.
Test Plan Submission	6/12/2020	Dr. Macon, Widler Rislin, Fabian Martinez, Nathan Short	Canvas	Asynchronous	We will submit our test plans for Dr. Macon to review and provide Feedback.
Beta Version Submission	6/26/2020	Dr. Macon, Widler Rislin, Fabian Martinez, Nathan Short	Canvas	Asynchronous	We will submit our Beta version for Dr. Macon to review and provide Feedback.
Beta Test and Revision Report Submission	7/3/2020	Dr. Macon, Widler Rislin, Fabian Martinez, Nathan Short	Canvas	Asynchronous	After performing our test, we will submit the results and revisions for Dr. Macon to review and provide feedback
User Manual Submission	7/13/2020	Dr. Macon, Widler Rislin, Fabian Martinez, Nathan Short	Canvas	Asynchronous	We will submit our User Manual for Dr. Macon to review and provide Feedback.
Seminar in Data Engineering Meeting	Weekly 5/13/2020 – 7/22/2020	Professor Reed, Widler Rislin, Fabian Martinez, Nathan Short	Zoom	1 hour	Data Engineering help with Professor Reed