**Graphical user interface, application

Description automatically generated**

**Effects of Covid-19 on a single Chick-Fil-A location**

**Executive Summary**

Covid-19 has impacted the business world drastically. Between record rates of unemployment, CEOs giving up their salaries to pay their employees, and even businesses shutting down permanently, the economy was at a major risk when the country shut down. That being said, the restaurant business has arguably been one of the most effected fields due to not having the ability to dine inside. When the country shut down, Chick-Fil-A (CFA) immediately went to drive-thru only. How much of an effect did this have on one business in Charleston, SC as a whole?

This project will look at sales trends leading up to the 2020 Covid pandemic lockdown, then how the lockdown immediately affected the business up until it plateaued out in the present. Finally, the project will compare how the business looks in the present compared to the previous norm.  The rest of this document will outline the objectives, scope, and requirements of how and what is needed to do this.

**Business Objectives**

1. To reflect on how successful CFA has evolved to fit the new norm (drive-thru only)
2. To analyze how labor costs have been affected by Covid? This will be calculated by looking at the percent of sales were spent on labor and by seeing how productivity for each month changes over time.
3. To show the difference in how people are ordering.

**Background**

This project has been initiated to provide information to CFA and for the completion of the final project of Bethel Tech’s Data Scientist program.

**Scope**

Covid 19 has negatively impacted the restaurant industry as a whole, but how has it impacted one specific location of the CFA restaurant chain? This project will analyze data from a CFA location in Charleston, SC.  CFA has given access to unlimited data but due to the time constraints of this project the above objectives will only be considered. The results of this analysis will be presented after the completion date of this project.

**Functional Requirements – show how to accomplish objectives - metadata**

In order to conduct this analysis, the following requirements must be met:

* Access to the CFA database to create the data needed to answer the objectives
* Metadata must be created for the data
* Wrangle data
* Objective 1 will use Sales, NormDT, MobDT, 3rdParty and Time columns and ANOVA analysis in R programming language.
* Objective 2 will use HoursUsed, Sales, Productivity, and Time columns and Dependent T test analysis in Python or R programming language. – regression by time
* Objective 3 will use MobCO, MobDI, MobDT, DineIn, Catering, CarryO, NormDT, 3rdParty and Time columns and MANOVA analysis in R programming language.
* Data modeling will be done in Tableau
* Presentation will be done in PowerPoint

**Personnel Requirements**

There will need to be at least two part time data analysts working together on each phase of the project for it to be delivered within the time frame agreed upon for delivery. A consultant will be needed to provide direction when needed. This consultant is the Bethel Tech professors and coding mentors.

**Delivery Schedule**

This project is to be delivered on Jan 24, 2021. The following contains the deadlines of each phase to ensure that the delivery date requirement is met:

Planning & Data Acquisition – Dec 13, 2020

Data Wrangling – Dec 20, 2020

Data Exploration – Jan 06, 2021

Data Visualization/Modeling – Jan 17, 2021

Completed Delivery – Jan 24, 2021

Presentation – Week of Jan 25-28, 2021

**Other Requirement**

Python and R will be used to complete the analysis of the data.

Software:

* RStudio - R
* Jupyter Notebook – Python
* Trello – project management
* Slack – communication app
* Tableau and PowerPoint – visualization for presentation

**Assumptions**

The following assumptions have been made for this project:

* The data provided from CFA is relevant and complete to answer the objectives of this project
* Access to the CFA database
* Guidance from the consultant will continue to the end of the project
* Use of GitHub
* Access to Trello will continue through the duration of this project
* Consistent internet
* Working computers

**Limitations**

The following items will contribute to the limitations of this project:

* Limited experience of the data analysts
* Limited knowledge of the fast food industry
* 8 week time frame to complete the project

**Risks**

The following are the risks of this project:

* Schedule of part time analyst may cause deadlines to not be met
* Using data analysts with little experience may cause the deadlines not to be met
* CFA decides to revoke access to data