**Project Charter Document**



**Project Name:** Prediction of Pharma Sale using Time-Series.

**Department:** Retail

**Focus Area:** Market Analysis

**Product/Process:** Data Analysis



**Prepared By**

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| **Document Owner(s)** | **Project/Organization Role** |
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**Project Charter Version Control**

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| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Change Description** |
| 1.0 | 14/09/2021 |  | Document created |
|  |  |  |  |

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# PROJECT CHARTER PURPOSE

The project charter defines the scope, objectives, and overall approach for the work to be completed. It is a critical element for initiating, planning, executing, controlling, and assessing the project. It should be the single point of reference on the project for project goals and objectives, scope, organization, estimates, work plan, and budget. In addition, it serves as a contract between the Project Team and the Project Sponsors, stating what will be delivered according to the budget, time constraints, risks, resources, and standards agreed upon for the project.



# PROJECT EXECUTIVE SUMMARY

* Project goals:

To predict daily sales of various medicines

Granularity considered is a day

Hence seasonality is a week.

* Objectives
  + Data prepossessing:

1.Given data is analyzed using auto EDA and all the columns having numeric values, histogram of each is plotted so as to check the data is normal or not

2.The data is manually analyzed for count of sale each day in bar graph.

3.The data is analyzed for count of sale month wise

4.The same way ,data is analyzed to check how many times sale was zero for each drugs.

5.In order to check collinearity, data is analyzed using heatmap.

6. In order to use time series forecasting models, we need to ensure that our time series data is stationary i.e constant mean, constant variance and constant covariance with time.

There are 2 ways to test the stationarity of time series

a) Rolling Mean: Visualization b) Dicky - Fuller test: Statistical test

a) Rolling Mean: A rolling analysis of a time series model is often used to assess the model's stability over time. The window is rolled (slid across the data) on a weekly basis, in which the average is taken on a weekly basis. Rolling Statistics is a visualization test, where we can compare the original data with the rolled data and check if the data is stationary or not.

b) Dicky -Fuller test: This test provides us the statistical data such as p-value to understand whether we can reject the null hypothesis. The null hypothesis is that data is not stationary and the alternative hypothesis says that data is stationary. If p-value is less than the critical value (say 0.5), we will reject the null hypothesis and say that data is stationary..

7.It has been observed in Dickey Fuller test, complete data is not stationary,

8.Finally data is analyzed to check trend and seasonality.

* Scope

The scope of project is only to the given drugs prediction. After analyzing the given data model selection has been done.

* Assumptions

The given data is primary data and all values are realistic

* Risks

The predictions on given dataset, if data given is manipulated then actual results may be differ the predictions done by the model

* Costs

There are four people are working on said problem statement including team lead. The cost involved is total man hours of these resources and billing will be as per the agreement.

* Timeline

The project started on 12/05/2022 and has to be deliver on 31/05/2022

* Approach

Time series predictions are used for modeling of data

* Organization



# PROJECT OVERVIEW



# PROJECT SCOPE

## Goals and Objectives

|  |  |
| --- | --- |
| **Goals** | **Objectives** |
| * To predict daily sale of each drug given in dataset daily basis using time series model | * The main objective of this prediction is manage inventory required for manufacturing of these drugs * To manage the orders * To decide the market strategies. |

## Project Deliverables

|  |  |
| --- | --- |
| **Milestone** | **Deliverable** |
| * Identifying Constraints and design the project architecture, explore various public forums to collect relevant data, Data Preparation. | * Deliverable 1.1—Identifying Constraints and design the project architecture. * Deliverable 1.2—Explore various public forums to collect relevant data. * Deliverable 1.3— Data Preparation |
| * EDA and Descriptive Analytics, Model Building for Time series predictions. | * Deliverable 2.1— EDA and Descriptive Analytics * Deliverable 2.2— Model Building for Time series predictions |
| * Model Evaluation, tuning and insights, Deployment | * Deliverable 3.1— Model Evaluation, tuning and insights. * Deliverable 3. 2— Deployment using flask |
| * Show case and review, Final Presentation and documentation, Handover and KT. | * Deliverable4.1 – show case and review * Deliverable4.2 – Final Presentation and documentation * Deliverable4.3 – Handover and KT |

## Deliverables Out of Scope

* Fetching data from database using scheduler
* Deployment on cloud
* mobile app

## Project Duration (start date: 12/05/2022 End date: 31/05/2022)

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Milestone** | **Date Estimate** | **Deliverable(s) Included** | **Confidence Level** |
| * Identifying Constraints and design the project architecture, explore various public forums to collect relevant data, Data Preparation. | [12/05/2022]  -  [17/05/2022] | * Deliverable 1.1—Identifying Constraints and design the project architecture. * Deliverable 1.2—Explore various public forums to collect relevant data. * Deliverable 1.3— Data Preparation | [High] |
| * Establishing database connectivity with clients PostgreSQL server and importing csv | 18/05/2022  -  22/05/2022 | * Database connectivity using sqlalchemy and establishing importing and exporting csv files for further processing | [High] |
| * EDA and Descriptive Analytics, Model Building for Association (Fuzzy Algorithm) and Recommendation | [23/05/2022]  -  [25/05/2022] | * Deliverable 2.1— EDA and Descriptive Analytics * Deliverable 2.2— Model Building for Time series predictions using ARIMA model | [High] |
| * Model Evaluation, tuning and insights, Deployment | [26/05/2022]  -  [29/05/2022] | * Deliverable 3.1— Model Evaluation, tuning and insights. * Deliverable 3. 2— Deployment using flask | [High] |
| * Show case and review, Final Presentation and documentation, Handover and KT. | [30/05/2022]  -  []31/05/2022 | * Deliverable4.1 – show case and review * Deliverable4.2 – Final Presentation and documentation * Deliverable4.3 – Handover and KT | [Medium] |



# PROJECT CONDITIONS

## Project Assumptions

* Work on data which is extracted from client database server.
* Can create a web API by using flask or streamlit.
* Flask deployment should be done.
* **Robust Tested:** Application should be tested for noise data also.

## Project Issues

**Priority Criteria**

1 − High-priority/critical-path issue; requires immediate follow-up and resolution.

2 − Medium-priority issue; requires follow-up before completion of next project milestone.

3 − Low-priority issue; to be resolved prior to project completion.

4 − Closed issue.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Date** | **Priority** | **Owner** | **Description** | **Status & Resolution** |
| 1 |  | High |  |  |  |
| 2 |  | High |  |  |  |

## Project Risks

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#** | **Risk Area** | **Likelihood** | **Risk Owner** | **Project Impact-Mitigation Plan** |
| 1 | [Project Risk] | [High/Medium/Low] |  |  |
| 2 | [Project Risk] | [High/Medium/Low] |  |  |

## Project Constraints



# Project Structure Approach



# Project Team Organization Plans

|  |
| --- |
| * Deliverable 1.1— * Deliverable 1.2— * Deliverable 1.3— |
| * Deliverable 2.1— * Deliverable 2.2— |
| * Deliverable 3.1— * Deliverable 3. 2— |
| * Deliverable4.1 – * Deliverable4.2 – * Deliverable4.3 – |



# PROJECT REFERENCES

|  |  |
| --- | --- |
| **Milestone** | **Deliverable** |
| [ |  |
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# APPROVALS

**Prepared by** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Project Manager

**Approved by** Sharat Chandra M\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Project Sponsor

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Executive Sponsor

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Client Sponsor



# APPENDICES

## Document Guidelines

## Project Charter Document Sections Omitted

