Courier Service demand during COVID-19 Pandemic in India

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***Abstract* —The Covid-19 had led to lockdowns worldwide, People stayed at home since they couldn't go shopping, and online sales rose along with parcel deliveries throughout the epidemic. Since the passenger flights were banned due to Covid-19 lockdowns and closed borders, other air couriers and cargo got canceled and some got delayed. Because of the rising freight quantities, the number of parcel carriers has also expanded. The study aims to highlight the growth and development of demand on the use of the 2 most commonly used courier services available in India during the COVID-19 pandemic. DHL and Blue are the most common players in the courier delivery service business in India. The data was analyzed using descriptive analytics to establish the mean, percentage, and correlation. These findings emphasize the importance of courier services during the COVID-19 outbreak.**

Keywords—Courier service; delivery demand; Covid-19; pandemic

I. INTRODUCTION

Courier services are companies that help with package delivery. It became one of the most successful enterprises in India during the COVID-19 Pandemic since most people were diverted due to the community quarantine imposed to prevent the spread of Corona, it is not possible to purchase things online. The speed and effectiveness of package delivery is undoubtedly significant feature that distinguishes a courier service from a conventional delivery service in this type of business.

The significance of courier services has been widely recognized since they serve as a link between businesses and customers. The desire for getting shipments on the right day or within a few days has now become a gold standard for most countries throughout the world.

The advent of online selling and E-commerce, as well as the expanding inclinations of customers to buy online, has substantially impacted the need for delivery services. Courier services have developed in India as a result of internet shopping, and the ability to buy or sell products online has made courier services more efficient.

Now the demand for courier services has gone up. The prospect of the COVID-19 pandemic has increased the demand for courier services dramatically. Supply always follows demand for all necessities. In addition, courier services carry papers, gadgets, meals, groceries, and other necessities. During the Covid-19 outbreak, these courier services were critical to the supply chain; they provided services that many other firms did not. The study focuses on the frequency with which courier services were used during the pandemic, the clients' chosen courier service, and the success of delivery by a specific courier service.

II. METHODOLOGY

A. Data Collection

This study was achieved by taking a dataset of courier services. The dataset consists of the following attributes namely: Province, Company, Courier Status, Delivery time, and delivery charge.

- The company shows the 2 main Courier Service Providers.
- Courier status shows if the courier is a successful delivery or a returned package due to some reasons.
- Delivery time shows the time taken for a courier package to reach the receiver.
- Delivery charge deals with the cost of delivery service.

B. Statistical Analysis

The dataset was obtained from Kaggle.com. The dataset was then downloaded into Microsoft Excel and saved as a csv file, which was then utilized for data analysis. The frequency with which courier services have been utilized, as well as the predominance of things being delivered by certain couriers.

1	Province	Company	Status	Time	Charges
2	0	0	1	13	150
3	1	0	1	10	150
4	0	0	1	6	150
5	1	0	1	9	150
6	0	0	1	6	150
7	1	0	1	6	150
8	1	0	1	7	150
9	1	0	1	5	150
10	1	0	1	6	150
11	0	0	1	6	150
12	1	0	1	7	150

Fig:1

- In Province, 0 denotes Sindh, and 1 denotes Punjab.
- In Company, 0 denotes Bluex, and 1 denotes DHL.
- Status, 1 denotes success delivery and 0 denotes Package returned due to some issue.

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Attribute	0	1
Province	Sindh	Punjab
Courier Company	Bluex	DHL
Delivery Status	Success Delivery	Returned

Fig 2: Attribute and description of the dataset used for research.

C. Tool Used - Jupyter

From a list of computer languages, Jupyter develops open-source software, open standards, and services for interactive computing.

Jupyter Notebook is basically a web-based program for creating and sharing documents that consist of code, visualizations, and text. It is utilized in data science, statistical modeling, machine learning, and a variety of other applications.

C.1. Steps for Installing Jupyter

Fig:3.1

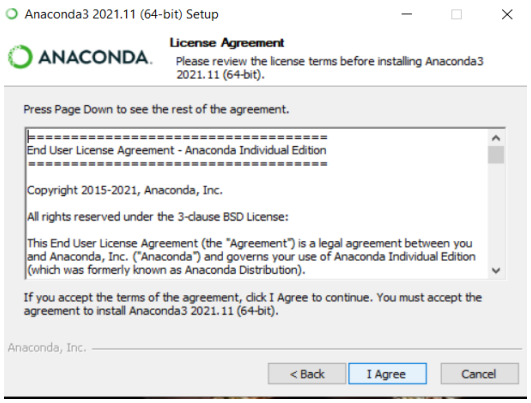
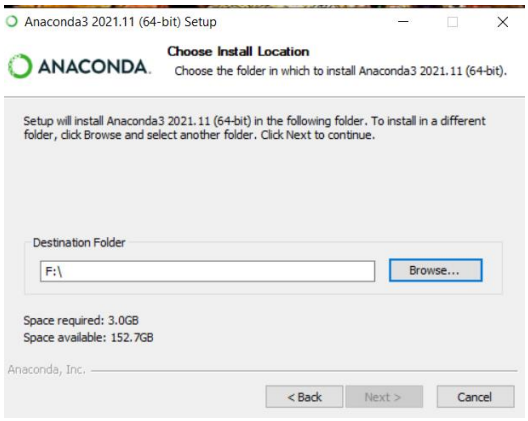


Fig:3.2



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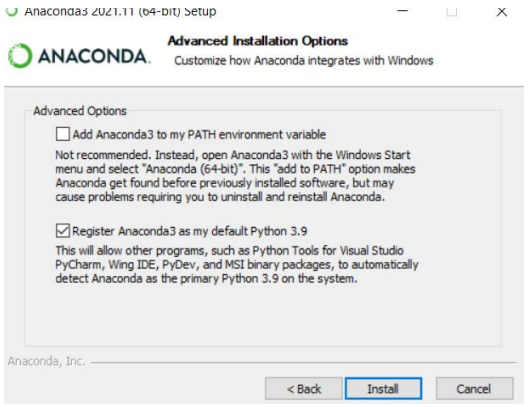
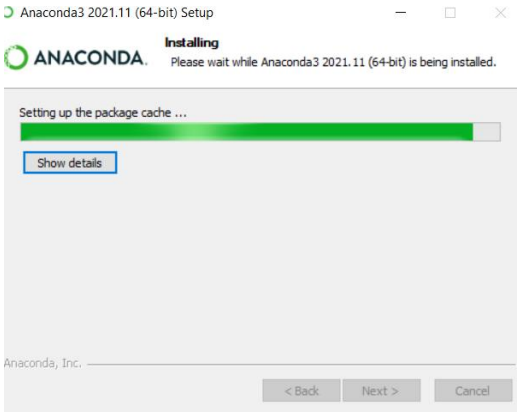


Fig:3.4



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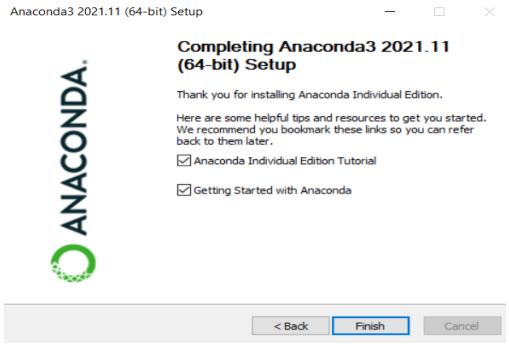

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Fig:3.6

III. DATA MINING OVERVIEW

From marketing and promotion for commodities, functions, and products to artificial intelligence research, medical sciences, crime investigations, and high-level government intelligence, data mining has a wide range of uses. Data mining technologies have been developed over decades due to their extensive use and the complexity involved in developing information mining applications. Each instrument has its own set of advantages and disadvantages. A set of data mining tools has been produced by a research community and data analysis hobbyists and is freely available under one of the current open-source licenses. An open-source development model indicates that the tool is the result of a community effort, not necessarily backed by a single organization, but rather the result of contributions from a global and informal development team.

This method of growth allows for the integration of numerous experiences. Data boring provides a variety of excavation strategies for extracting data from db. Data mining tools predict the outcome and behaviors, enabling firms to make educated, proactive decisions. Data mining algorithm creation and application necessitates the usage of extremely strong software tools. The selection of the most appropriate tool becomes increasingly difficult as the number of available tools grows.

IV.RESULTS

The Research paper is implemented using the Jupyter Tool to obtain the result.

- If Jupyter is installed in the system then first, navigate to the Jupyter Notebook interface home page.
- Then, select the file you want to upload by clicking the Upload button.
- Finally, click the upload button

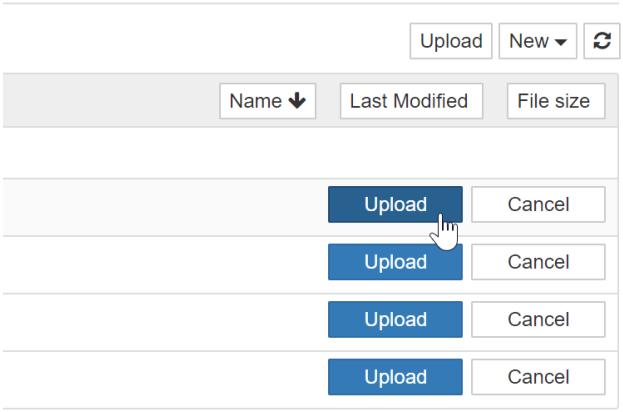

Fig:4.1

A. Import necessary Libraries

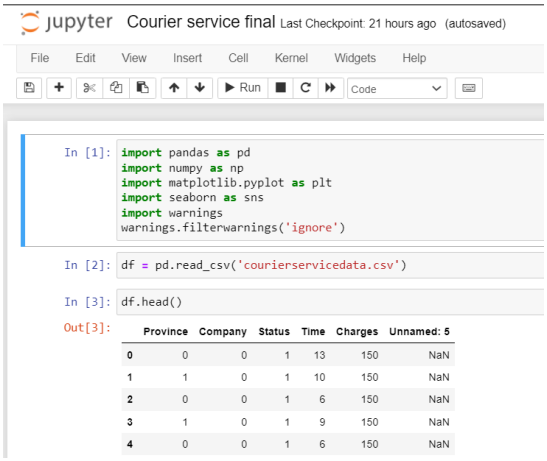

Fig:4.2

B. Analyzing the data collection to extract useful information

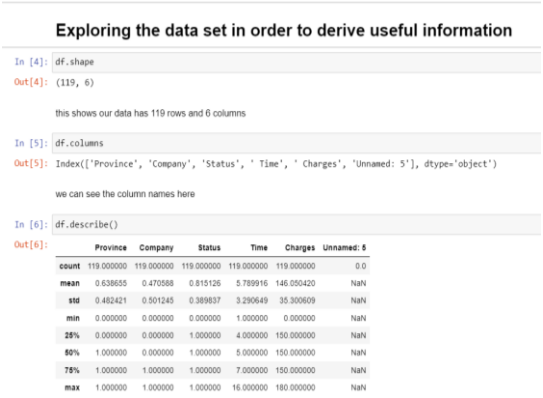

Fig:4.3

C. Finding the correlation among the attributes

Fig:4.4

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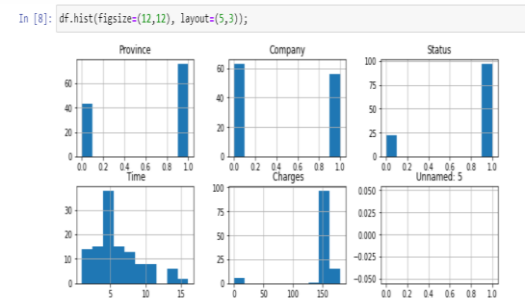

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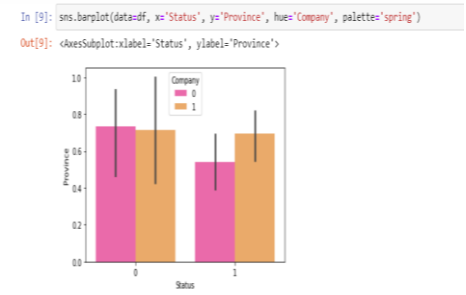

Fig:4.6

Fig:4.7

D. Cross Tables

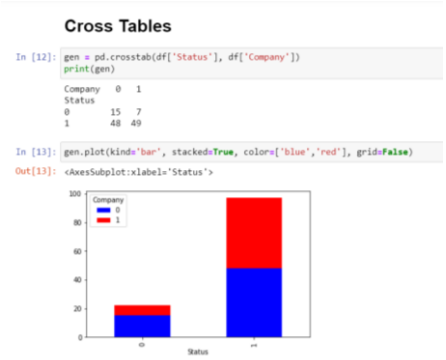

Fig:4.8

V.CONCLUSON

The figure given above is plotted against Delivery Status and Courier service Provider. Status 1 denotes that the delivery is a Success and 0 denotes that the parcel is returned. Company 1 denotes DHL and 0 denotes Bluex. From the figure, it is clear that Bluex Courier Service provider has more successful courier delivery than that DHL in Punjab and Sindh. So the study concluded that the Covid-19 Pandemic in India, which indeed led to a complete lockdown made the people of Sindh and Punjab prefer Bluex Courier Service to that of DHL.

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