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BUSINESS SCHOOL

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BUS 376 FINAL PROJECT REPORT

Covid-19's Impact on Airport-Traffic

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Covid-19, which affects the world and is familiar to everyone, has a very easily contagious feature, so it is important to be at a certain distance even when talking or singing. However, although this distance does not seem very possible in airplanes, there is the opposite. Modern airplanes can take fresh air in their content and turn the air inside back into clean air thanks to HEPA filters, thus creating a more reliable option for people than other indoor spaces (Khatib, A. N., Carvalho, A. M., Primavesi, R., To, K., & Poirier, V., 2020). In addition, the seats inside the aircraft act as a barrier between people, reducing the risk of interaction. Reducing the risk of covid 19 transmissions begins first at airports. Thanks to the high technology used today, it can be easily determined whether people have any symptoms at airports. For example, it can be understood that the body temperature of people or whether they have had covid contact before. However, many new rules came. For example, only one cabin baggage is allowed, it is compulsory to wear a mask, to keep as much distance as possible from other people, etc. Thus, people preferred to travel by plane more while traveling. The precautions taken on the airplanes and airports were unfortunately not enough because the countries and the travels were banned to a great extent in line with the decision they took. Therefore, flight traffic, which has increased significantly in the past years, has come to a standstill with the emergence of this epidemic. In addition, countries have played a huge role in stopping flights both internally and externally to overcome this virus (Sokadjo, Y. M., & Atchadé, M. N., 2020). For this reason, the loss of income could not be prevented. Although the vaccine level is reached after a certain period, some countries continue to have a travel barrier.

First, during my research, I saw that one of the biggest sectors affected by Covid-19 is the service sector, so I decided to do a study on this subject. Thanks to the service sector, which is the most advanced in the world, life is more accessible for people. By following this road in transportation, people prefer plane to travel to reach long distances more quickly. Although there are many options in choosing a topic in this project, I wanted to analyze this issue because, like many people, this virus, which affects the world, affects every person at some point. Therefore, in this study, I examined people's preferred plane trips.

In the beginning, I chose a dataset and an application that I can use accordingly. Regarding the dataset, many websites have datasets of different sizes, but most of them were given incomplete or confidential. However, I chose a dataset available in the public Kaggle because it is a dataset that is constantly updated. In addition, I have determined the software I will use as Python, which is an object-oriented, interpretable software language with high quality, any syntax that is simple, easy to learn, independent of other platforms, easy to read, supports modularity (VanderPlas, J., 2017). Python is also an interpretable, interactive, and object-oriented programming language.

Afterward, I made a roadmap by examining some of the studies on this subject. I came to some conclusions by going step by step according to my roadmap. To properly explain the problem, I am going to analyze, I first uncovered the time interval in the dataset that will tell you when the problem started, namely It covers 7247 domestic flights covering many airports between March 16, 2020, and December 2, 2020. Secondly, I determined the airports in the data set and the cities and countries they are located in. Thus, I could easily see where the airports in the dataset are located the most and which ones are visited the most. Next, by identifying the dates in the dataset, I identified the days and months at which airports had increased congestion, so we could tell at what times the virus had fewer cases because travel was allowed when the number of cases decreased. Another issue is that by examining the ratio of trips on the specified date compared to the average number of trips on the same day of the week, I got a result from both cities and airports. According to this result, I determined the most and least visited cities. In addition, by comparing the airports according to the cities, it can be understood which of the airports in that city carried the most air traffic.

At the below there is the head five values of the dataset.

Table 1:

AggregationMethod	Date	Version	AirportName	PercentOfBaseline	Centroid	City	State	ISO_3166_2	Country	Geography
Daily	2020-04-03	1.0	Kingsford Smith	64	POINT(151.180087713813 -33.9459774986125)	Sydney	New South Wales	AU	Australia	POLYGON((151.164354085922 -33.9301772341877, 1..
Daily	2020-04-13	1.0	Kingsford Smith	29	POINT(151.180087713813 -33.9459774986125)	Sydney	New South Wales	AU	Australia	POLYGON((151.164354085922 -33.9301772341877, 1..
Daily	2020-07-10	1.0	Kingsford Smith	54	POINT(151.180087713813 -33.9459774986125)	Sydney	New South Wales	AU	Australia	POLYGON((151.164354085922 -33.9301772341877, 1..
Daily	2020-09-02	1.0	Kingsford Smith	18	POINT(151.180087713813 -33.9459774986125)	Sydney	New South Wales	AU	Australia	POLYGON((151.164354085922 -33.9301772341877, 1..
Daily	2020-10-31	1.0	Kingsford Smith	22	POINT(151.180087713813 -33.9459774986125)	Sydney	New South Wales	AU	Australia	POLYGON((151.164354085922 -33.9301772341877, 1..

According to the outputs I have observed, one of the main reasons why the density of the virus is so low in airports with the emergence of the virus is the travel restrictions imposed by the governments and the closed area of the planes. Also, according to the outputs, the busiest flights still belong to major cities and airports located there. I can suggest solving this problem, the density of which is very low in airports. They can provide convenience to passengers by cleaning the air inside with the air filters in closed airports. As another option, they prevent unnecessary crowds by letting only the passengers who have a flight into the airport. In addition to the measures taken at the airports, one of the measures on the planes can work with a certain capacity. In addition, campaigns can be made to encourage travelers when there are no restrictions. As a result of this study, I explained the convenience at airports by informing and visualizing this information for people who will travel or want to travel by plane during the Covid-19 period.

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