

Project Report Template

1.Introduction

1.1.Overview:

Over the last twenty years, air travel has been increasingly preferred among travelers, mainly because of its speed and in some cases comfort. This has led to phenomenal growth in air traffic and on the ground. An increase in air traffic growth has also resulted in massive levels of aircraft delays on the ground and in the air. These delays are responsible for large economic and environmental losses. According to, taxi-out operations are responsible for 4,000 tons of hydrocarbons, 8,000 tons of nitrogen oxides and 45,000 tons of carbon monoxide emissions in the United States in 2007. Moreover, the economic impact of flight delays for domestic flights in the US is estimated to be more than \$19 Billion per year to the airlines and over \$41 Billion per year to the national economy in response to growing concerns of fuel emissions and their negative impact on health, there is active research in the aviation industry for finding techniques to predict flight delays accurately in order to optimize flight operations and minimize delays.

1.2.Purpose

Using a machine learning model, we can predict flight arrival delays. The input to our algorithm is rows of feature vector like departure date, departure delay, distance between the two airports, scheduled arrival time etc. We then use decision tree classifier to predict if the flight arrival will be delayed or not. A flight is delayed when difference between scheduled and actual arrival times is greater than 15 minutes. Furthermore, we compare decision tree classifier with logistic regression and a simple neural network for various figures of merit. Finally, it will be integrated to web based application.

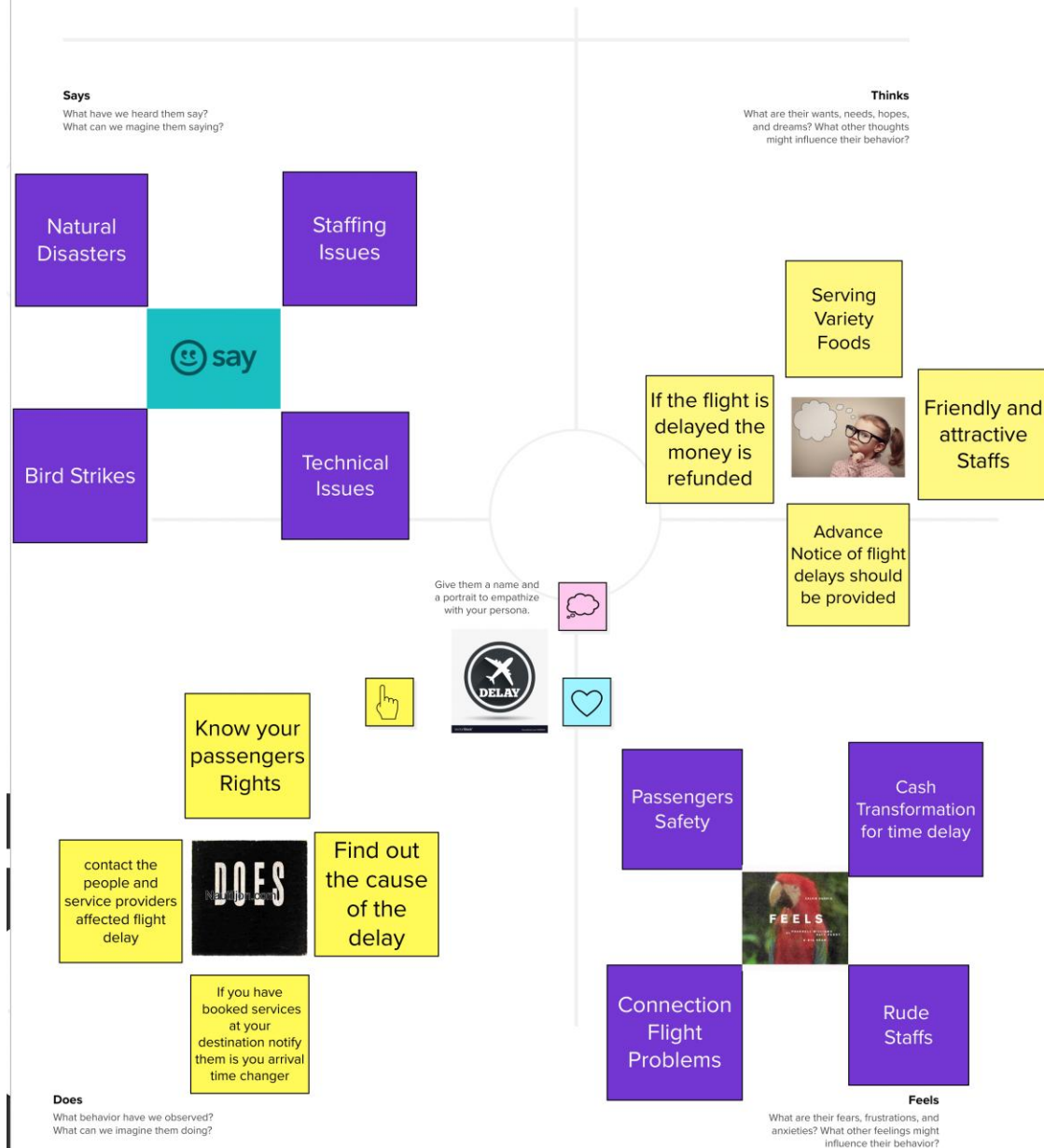
2.Problem Definition & Design Thinking:

2.1.Empathy Map:



Build empathy

The information you add here should be representative of the observations and research you've done about your users.



2.2.Ideation & Brainstorming Map:

2

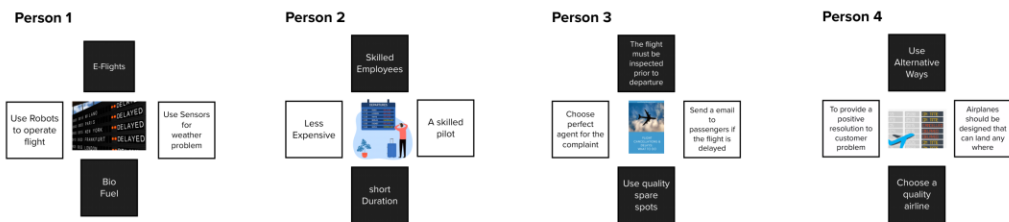
Brainstorm

Write down any ideas that come to mind that address your problem statement.

🕒 10 minutes

TIP

You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!



3.Result:

Prediction Flight Delay

origin

destination

flightnum

month

daymonth

dayweek

scheduleddeptime

scheduledartime

actualdeptime

The flight will be on Time

4.Advantages:

Predicting flight delays can improve airline operations and passengers satisfaction, which will result in a positive impact on the economy. In this study, the mai goal is to compare the performance ofmachine learning classification algorithms when predicting flight delays.

5.Applications:

- Business Requirements

- Travels
- FlightBooking

6.Conclusion:

In this project, we are able to successfully apply machine learning algorithms to predict flight arrival -delay and show simple classifiers like decision tree and ANN model can predict if a flight's arrival will be delayed or not fairly accurately. For further work we like to further improve our models, perhaps with more training-data or deeper neural network, or both.

7.Future Scope:

- E-Flights
- Bio fuel
- Use Robots to operate flight
- Use Sensors for weather problem
- Use quality spare spots
- Using deep learning algorithms for better results
- Using multiple algorithms to train and test the model

8.Appendix:

a.Source Code:

