Alpha Flight API

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Predicting Airline Delays

According to scientific method, the first step to solving a problem is identifying it. As far as we can tell our problem seem to be a <u>multivariate linear regression</u> problem. To solve it first we need to declare our hypothesis.

Our Hypothesis and its Features

$$h\theta(x) = \theta_0 + \theta_1 * x_1 + \theta_2 * x_2 + \theta_3 * x_3 + \theta_4 * x_4 + \theta_5 * x_5 + \theta_6 * x_6 + \theta_7 * x_7 + \theta_8 * x_8$$
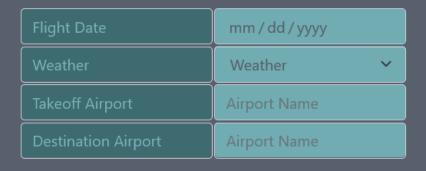
Our hypothesis so far has eight features each one being a different reason why there could be a delay in an airline.

x1	Air Traffic	x5	Carrier Related
x2	Weather	x6	Cargo Related
x3	Bird Related	x7	Crew Related
x4	Security	x8	Preparation Related

Source for delay causes : https://www.claimcompass.eu/blog/why-is-my-flight-delayed/

The Interface And the Input Page

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Flight Date	mm / dd / yyyy
Weather	Weather ⌄
Takeoff Airport	Airport Name
Destination Airport	Airport Name

Estimate Delay

We have designed an Interface for our project in accordance with the course calendar. The figure in the left shows our input page.

The Output Page

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Estimated Delay For your Flight

15-30 min.

Our New Database

Flight			
FL_DATE	OP_CARRIER	OP_CARRIER_FL_NUM	DEP_TIME
ORIGIN	DEST	CRS_DEP_TIME	WHEELS_ON
DEP_DELAY	TAXI_OUT	WHEELS_OFF	ARR_DELAY
TAXI_IN	CRS_ARR_TIME	ARR_TIME	CRS_ELAPSED_TIME
CANCELLED	CANCELLATION_CODE	DIVERTED	CARRIER_DELAY
ACTUAL_ELAPSED_TIME	AIR_TIME	DISTANCE	LATE_AIRCRAFT_DELAY
WEATHER_DELAY	NAS_DELAY	SECURITY_DELAY	

As we have been recommended the prior week, we decided to redesign our database. Our new iteration only has a single table since we believe it will be more beneficial towards later implementation stages of the project.