

MICHIGAN STATE

UNIVERSITY

Alpha Presentation

United Airlines Training Forecast Model

The Capstone Experience

Team United Airlines Training

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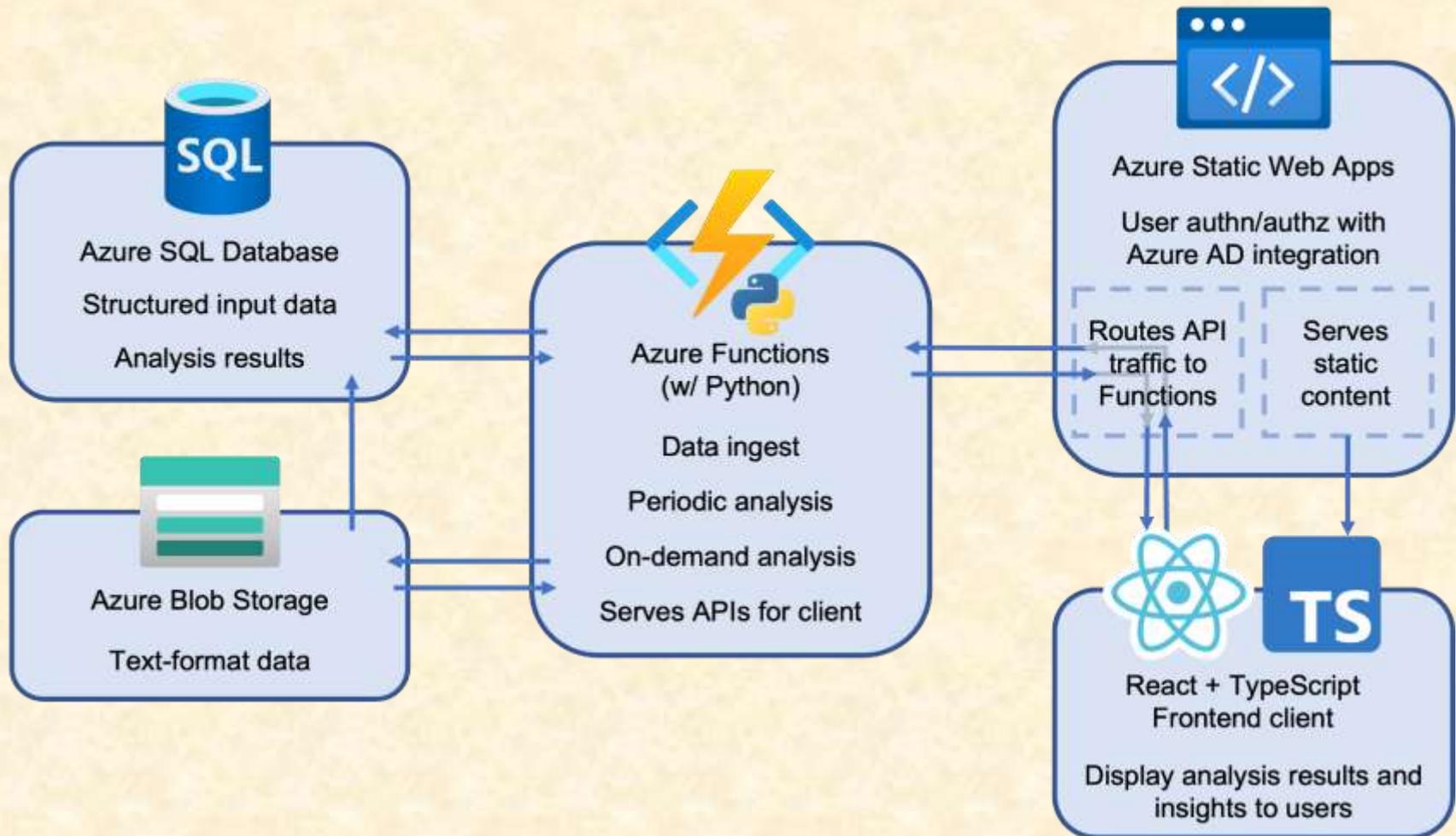
*From Students...
...to Professionals*

Project Overview

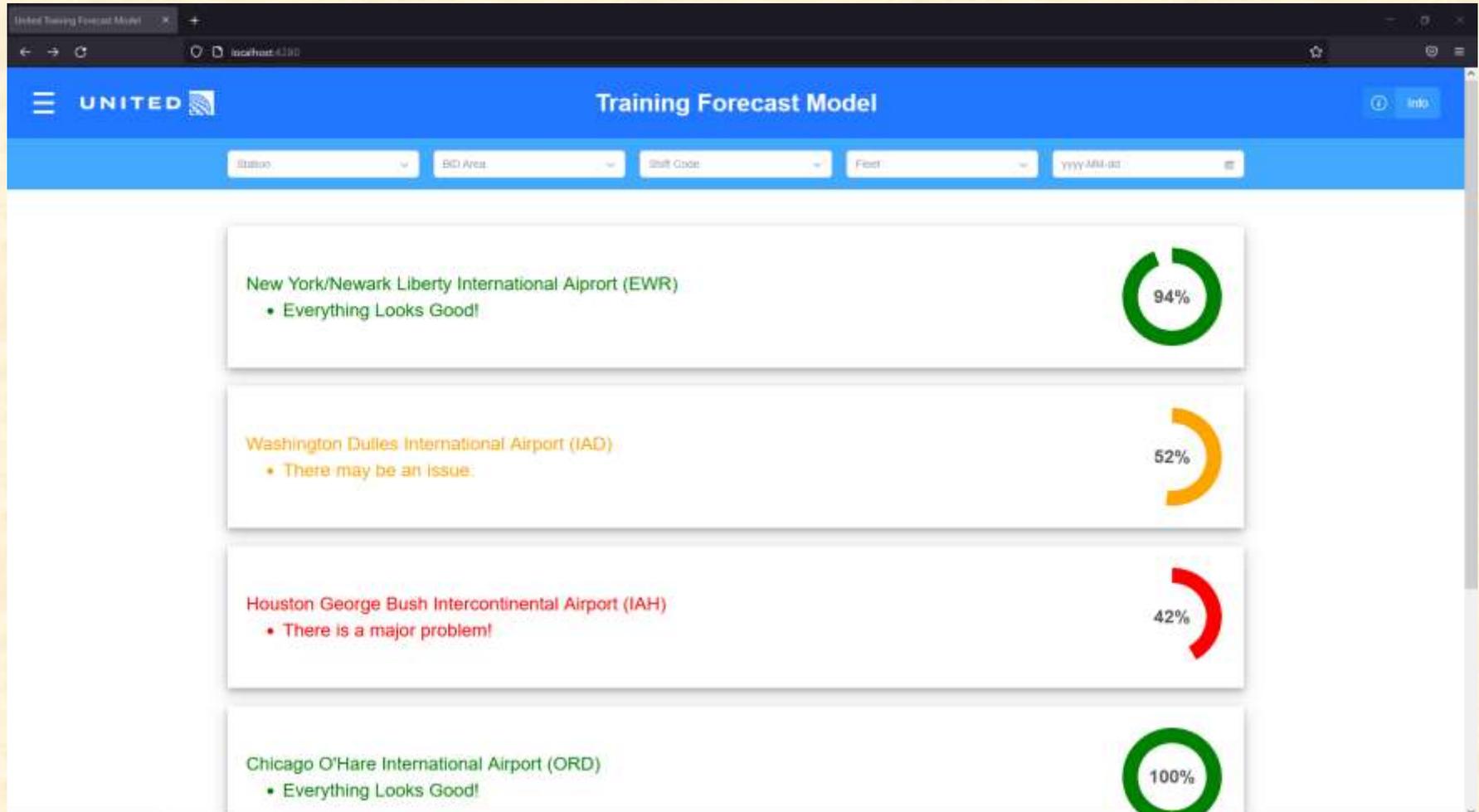
- The project analyzes the risk of becoming understaffed on airworthy technicians at various United Airline hubs.
- Each station has detailed analysis, providing information at a deep granularity, allowing specifications by day, shift, technician type and plane type.
- There is also a graphical forecast page to look over time in a more visual way.



System Architecture



Forecast Dashboard



Stations Page - Good

United Training Forecast Model

localhost:4200/stations

UNITED Training Forecast Model Info

EWR X BID Area SMT Code Fleet yyyy-MM-dd

Currently at Station EWR: 100%

There is a slight issue

Use buttons to view problem areas or all data:

Problem Areas All Data

Station	BID Ac.	SMT	Date	T14H	POH	TF	OH	Techn Needed	Techn (Hwths)	Techn Difference	Techn Difference %	Techn Avail
EWR	101	day	10/27/20...	737NG	0	1	0	1	111	110	110	120
EWR	101	day	10/27/20...	737NG	0	5	1	6	111	105	17.5	120
EWR	101	day	10/27/20...	737NG	0	11	0	11	111	100	9.000000000000000	120
EWR	101	day	10/27/20...	737MAX	0	4	0	4	31	27	6.75	120
EWR	101	day	10/27/20...	757	1	2	0	3	115	112	37.33333333333333	120
EWR	101	day	10/27/20...	757	1	3	0	4	98	94	4.0	120

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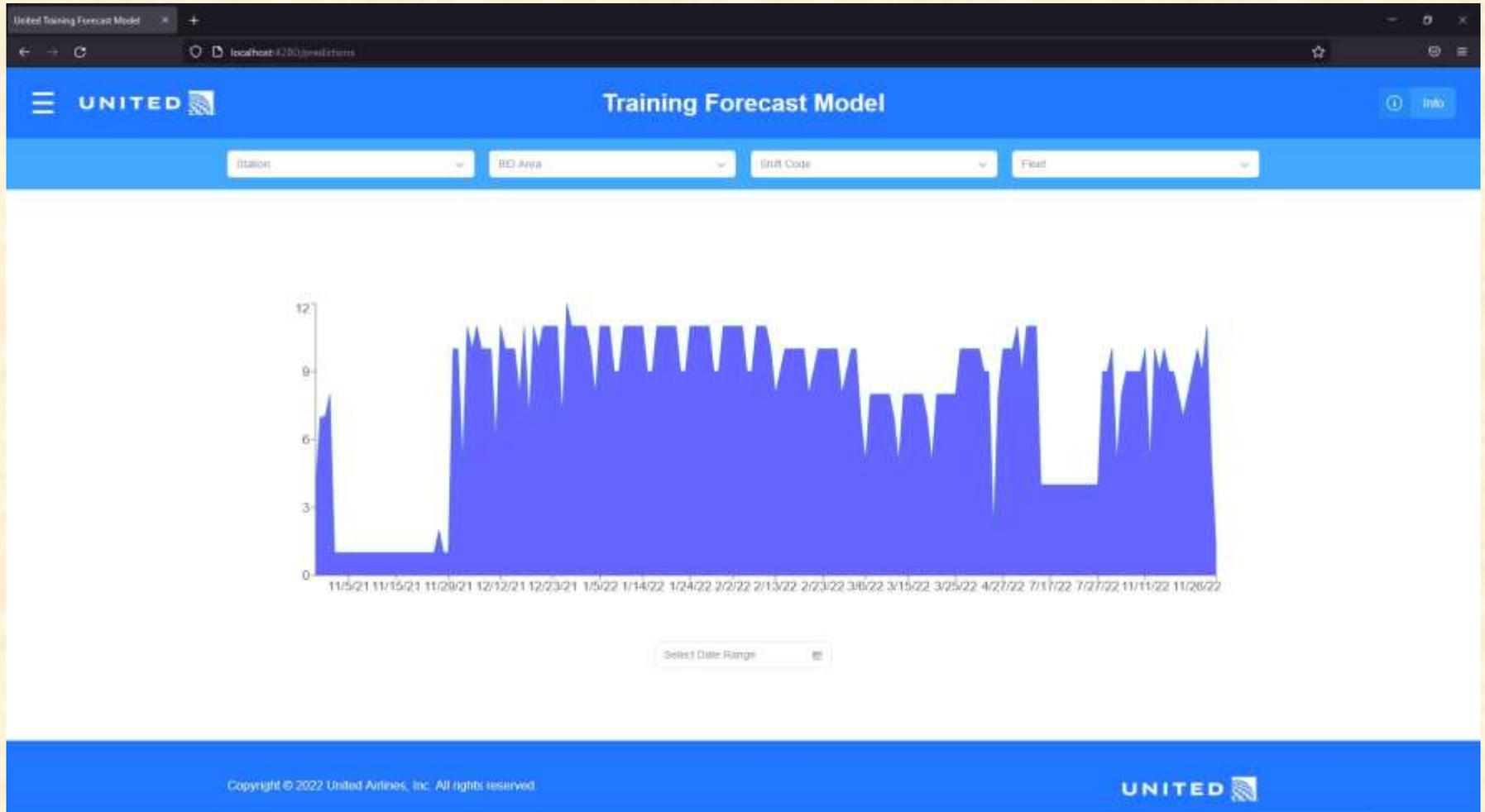
Stations Page - Bad

The screenshot shows the 'United Training Forecast Model' web application. The header includes the United logo and the title 'Training Forecast Model'. Below the header is a navigation bar with filters for Station, BD Area, BRF Code, Fleet, and a search field. The main content area displays 'Currently at Station SFO:' with a red progress indicator showing 18% and a red warning message: 'There is a major issue'. Below this, there is a prompt to 'Use buttons to view problem areas or all data:' with two buttons: 'Problem Areas' (selected) and 'All Data'. A table of training data is displayed below the buttons.

Station	BD Area	BRF Code	Date	Fleet	BDK	TF	DR	Techs Needed	Techs (Months)	Techs Difference	Techs Difference %	Techs Total
SFO	101	day	10/27/20	737NG	0	4	0	4	59	55	13.75	85
SFO	102	day	10/27/20	737NG	0	4	0	4	10	6	1.5	13
SFO	101	day	10/27/20	737NG	0	6	0	6	59	53	11.833333333333333	85
SFO	102	day	10/27/20	737NG	0	6	0	6	10	4	0.6666666666666666	13
SFO	101	day	10/27/20	737MAX	0	1	0	1	29	28	28	85
SFO	102	day	10/27/20	737MAX	0	1	0	1	6	6	0	13



Predictions Page



What's left to do?

- Machine Learning needs to become more robust and complete across additional areas
- The filters on each page need to become implemented with what is ultimately displayed
- The graph on the predictions page needs additional refinements in filtering and appearance
- Add page to help with data ingest flow when client has additional data



Questions?

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