

A photograph of an airport terminal with rows of empty blue seats in the foreground. Large windows in the background show an airplane taking off and a city skyline. The text "Flight Delay Prediction and Visualization for US Travelers" is overlaid in white.

Flight Delay Prediction and Visualization for US Travelers

Objectives

- Create a ML model to predict delays for domestic flights given departure date/time and airport and/or flight number.
- Setup an interactive user interface where user can specify flight details and determine the estimated delay.



Current workflow & limitations

Traveler

Commercial



Private websites, National Airspace
System Status

- ✓ Simple Flight Stats
- ✗ ML based prediction
- ✓ Consumers have access

Academia



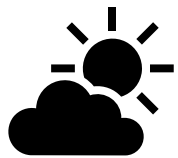
Various ML models built on historical
flight data

- ✓ Simple Flight Stats
- ✓ ML based prediction
- ✗ Consumers have access



Solution

Back end



Weather Data



Flight Data

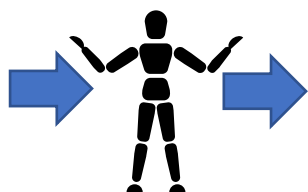


Noise cleanup



Train and Test ML models

Flight info



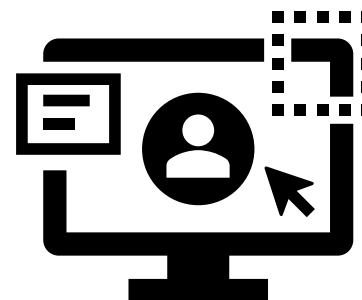
Final ML model

Delay prediction

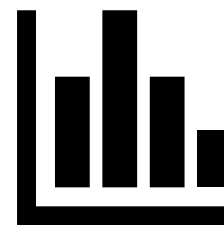
Front end



Interactive Map



User friendly Interface



Useful Stats

Traveler



Stakeholders and Impact



Travelers

Stakeholders



Airlines



Travelers avoid delays;
time savings



Avoid hotel and rental
car cancellations; cost
savings

Impact



More productivity for
business travelers



Increased passenger
satisfaction with
airlines

Risks and Rewards

Risks

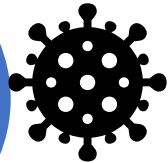
Changes in Flight Patterns due to weather etc.



Poor Data Quality impacting model effectiveness



Uncertainty & Unforeseen Events such Covid



Rewards

Improved customer experience



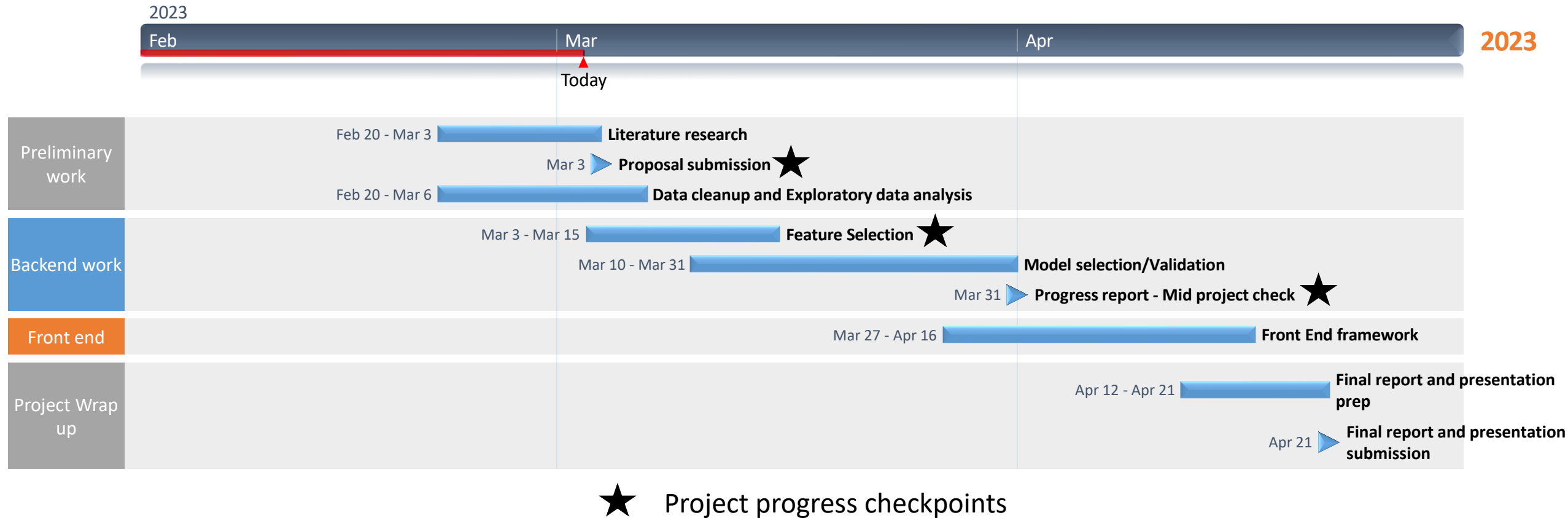
Better reputation for airlines



Overall increase in productivity



Project Plan and Costs



Costs

- No usage of any cloud services
- No additional compute resources need
- No additional cost