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TRANSFER
SOLUTIONS

ORACLE

Accelerating Analytics!

High Performance Data Analytics in Sport

Name

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Senior Cloud Domain Specialist - Analytics



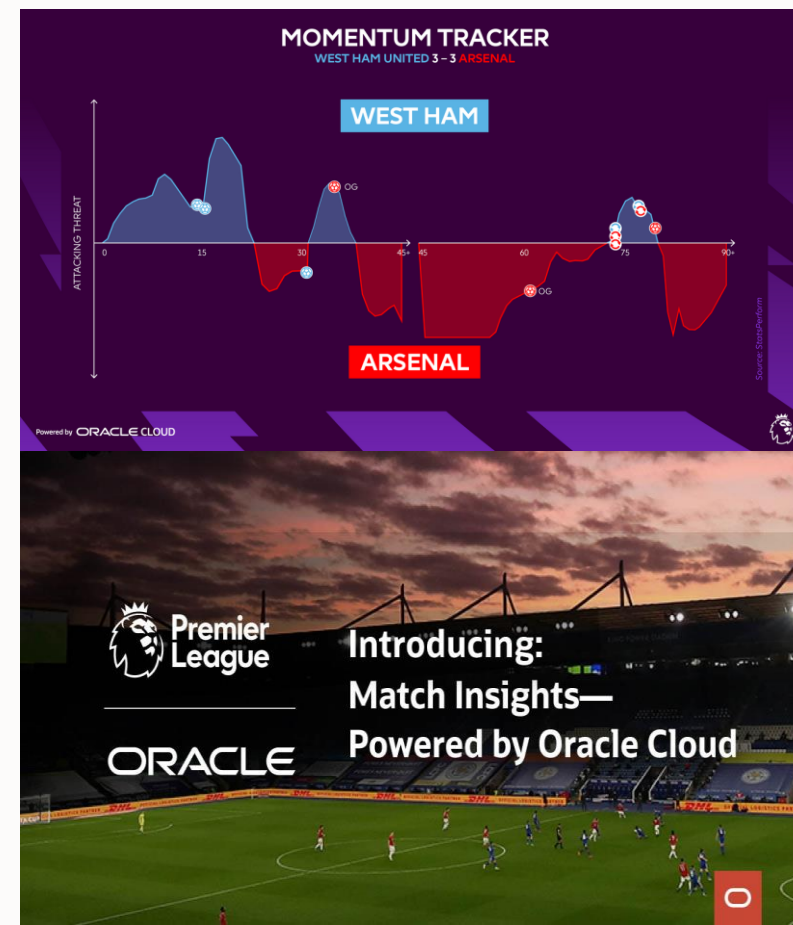
SailGP



Red Bull Racing



Premier League



SailGP

What challenges are **SailGP** facing?



Challenge 1

Data Management

Challenge 2

Analytics

Challenge 3

Machine Learning

Challenge 4

Social Interactions



SailGP Explained

*Powered by Nature™, SailGP is adrenaline-fueled racing as **eight teams** go head-to-head in iconic venues across the globe*

EIGHT TEAMS //

NINE EVENTS //

EQUAL BOATS //

The winner takes home **\$1 million**

SAIL GP



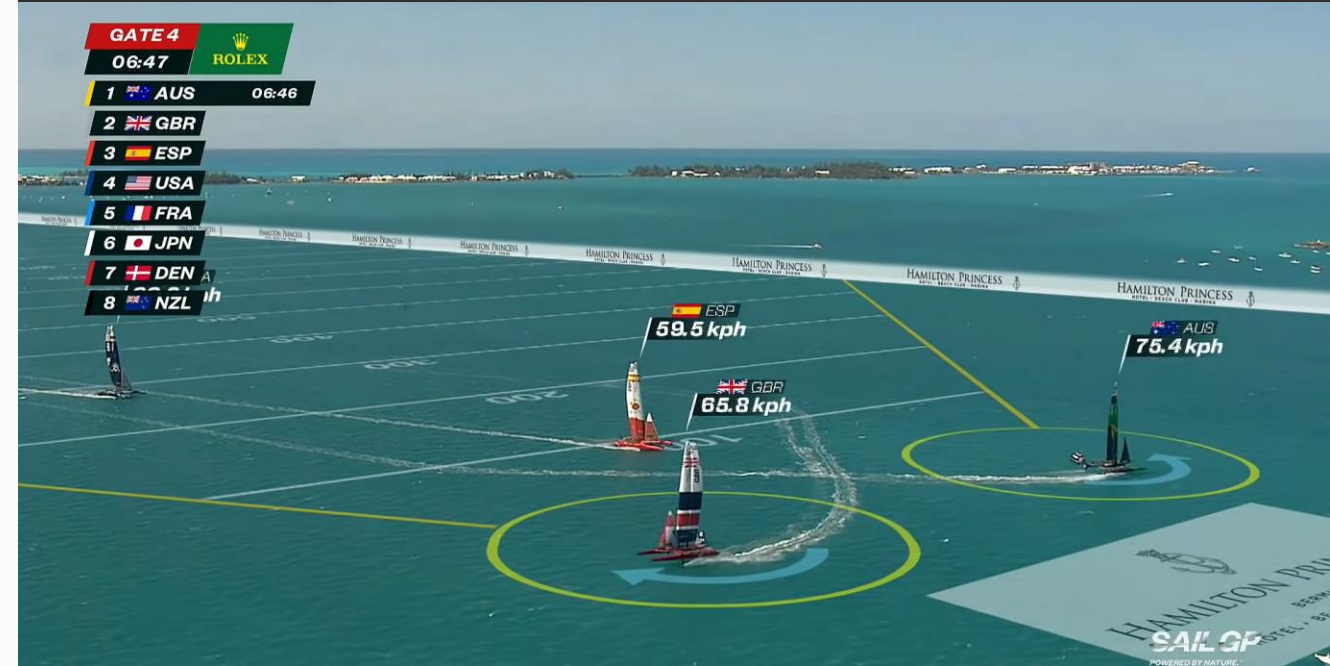
CHALLENGE 1

DATA MANAGEMENT

1 day of sailing creates **40BN** rows of data from **thousands** of **sensors**

900 data points per second for each boat

SAIL GP



Data Management Solution!



Converged Database
Oracle Autonomous Database

Data Management Use Case

Great Britain crashes
the boat in the Cadiz,
Spain Grand Prix while
leading the race!

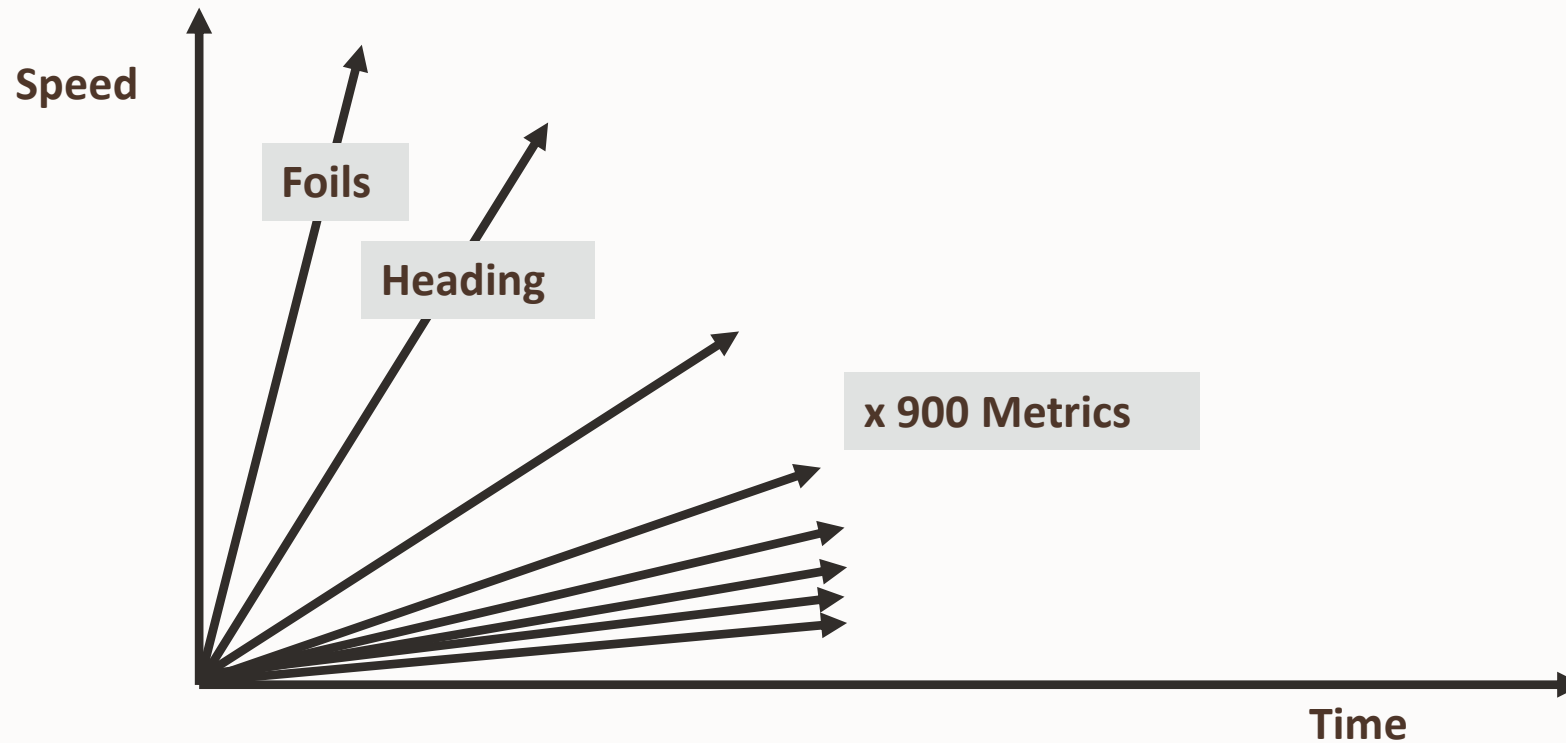
Why?

SAIL GP



What happened to GBR ?

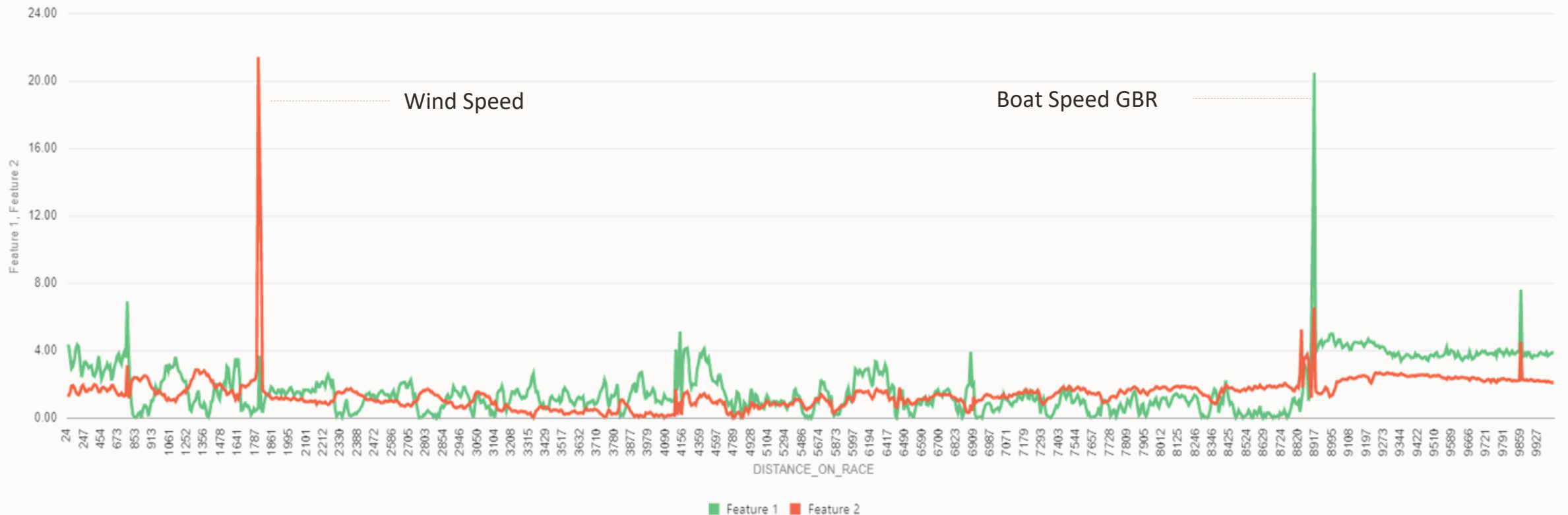
Each race generates 900 data points per second for each boat



What happened to GBR ?

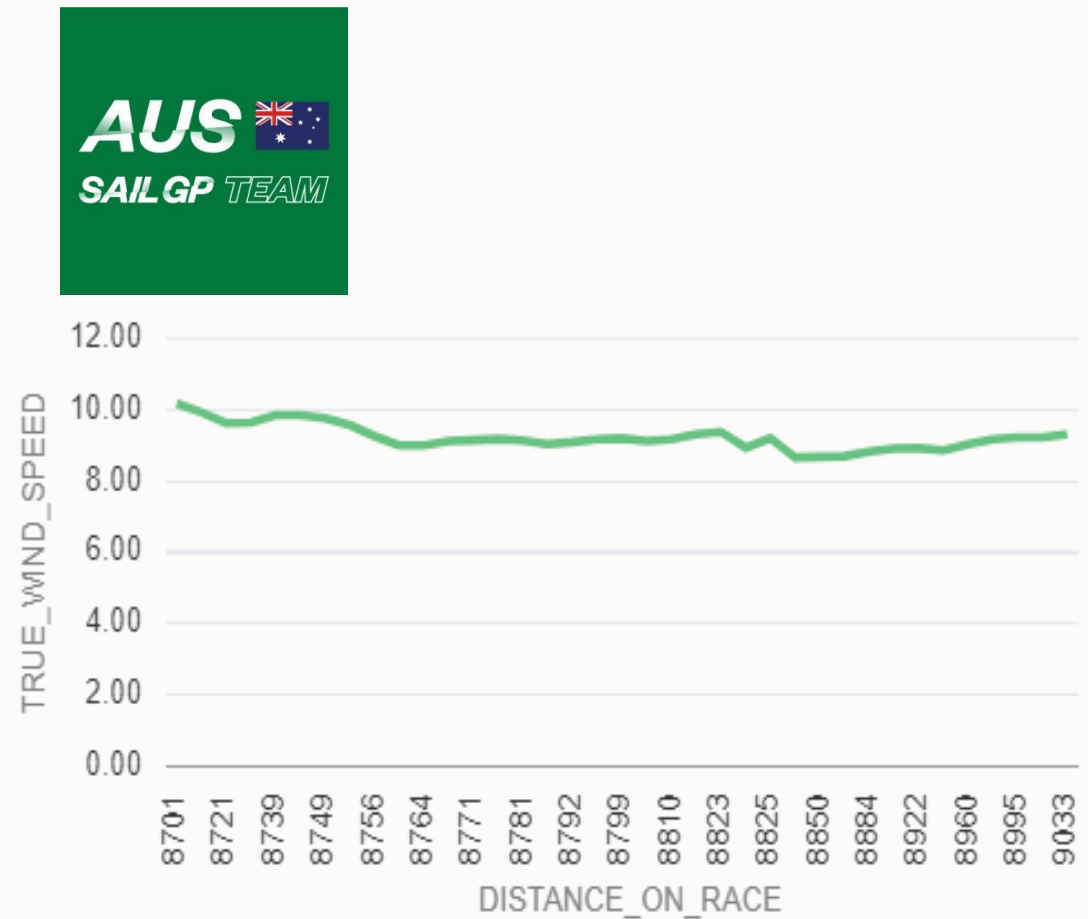
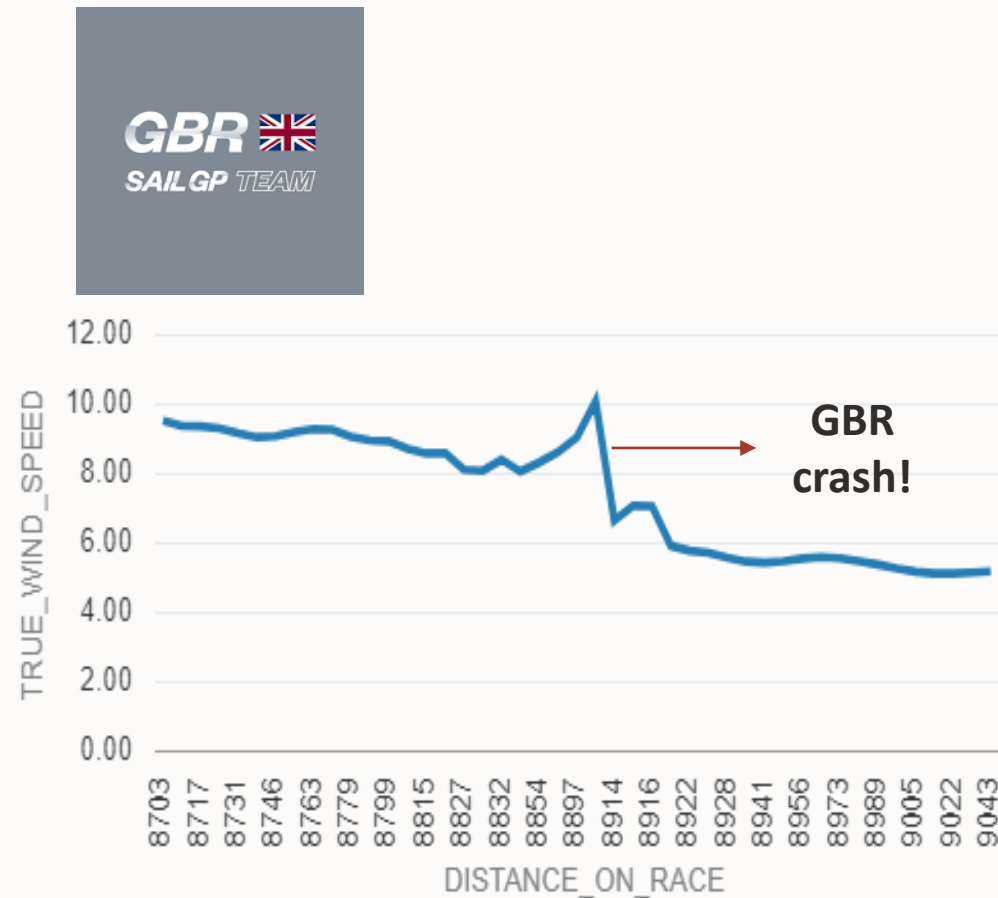
Principal Component Analysis filters 900 dimensions down to 2

Principal Component Analysis



What happened to GBR ?

Wind Speed



CHALLENGE 2

ANALYTICS

Converting 900 data points per **second** for each boat into real time **analytics**

SAIL GP

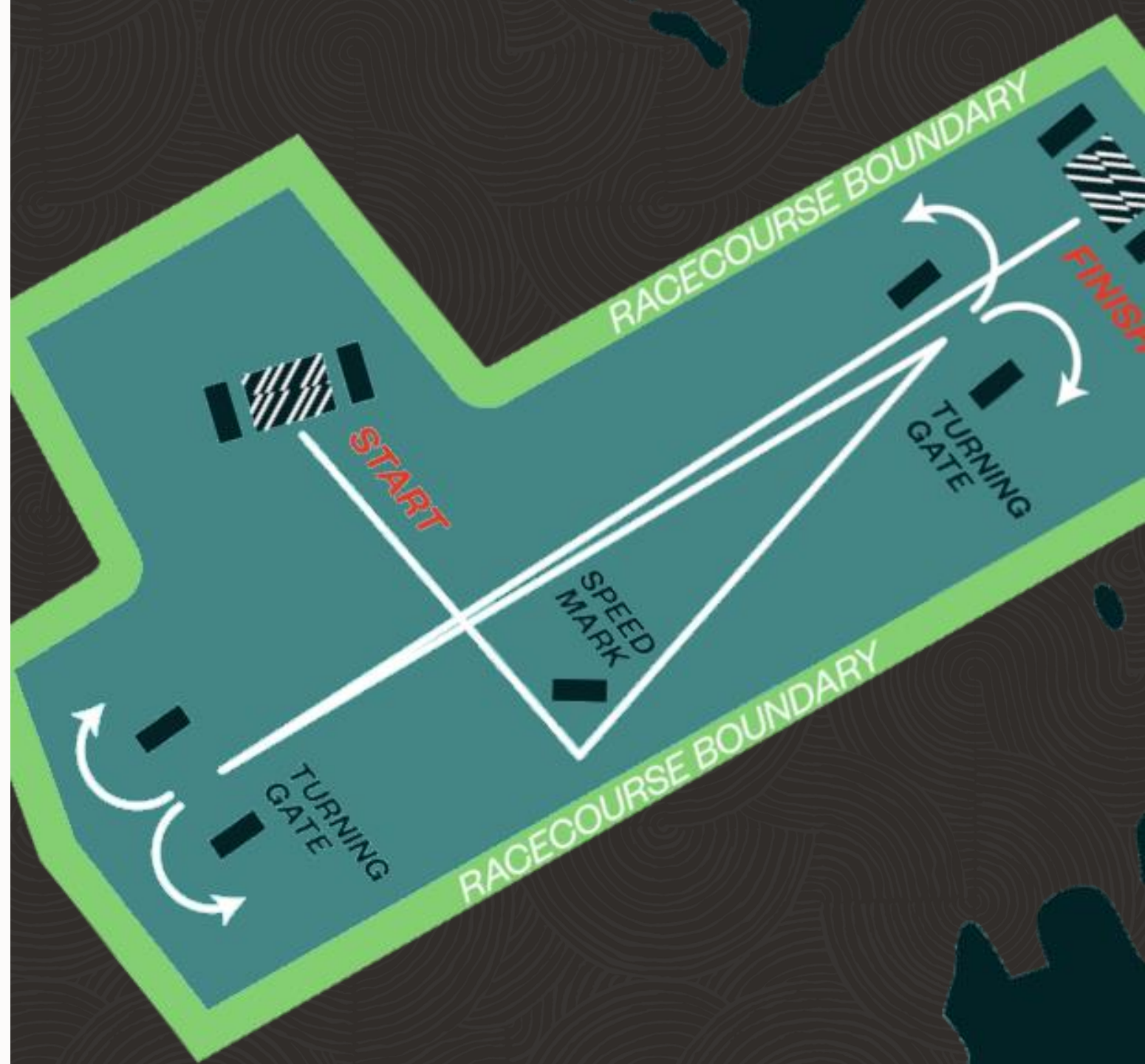




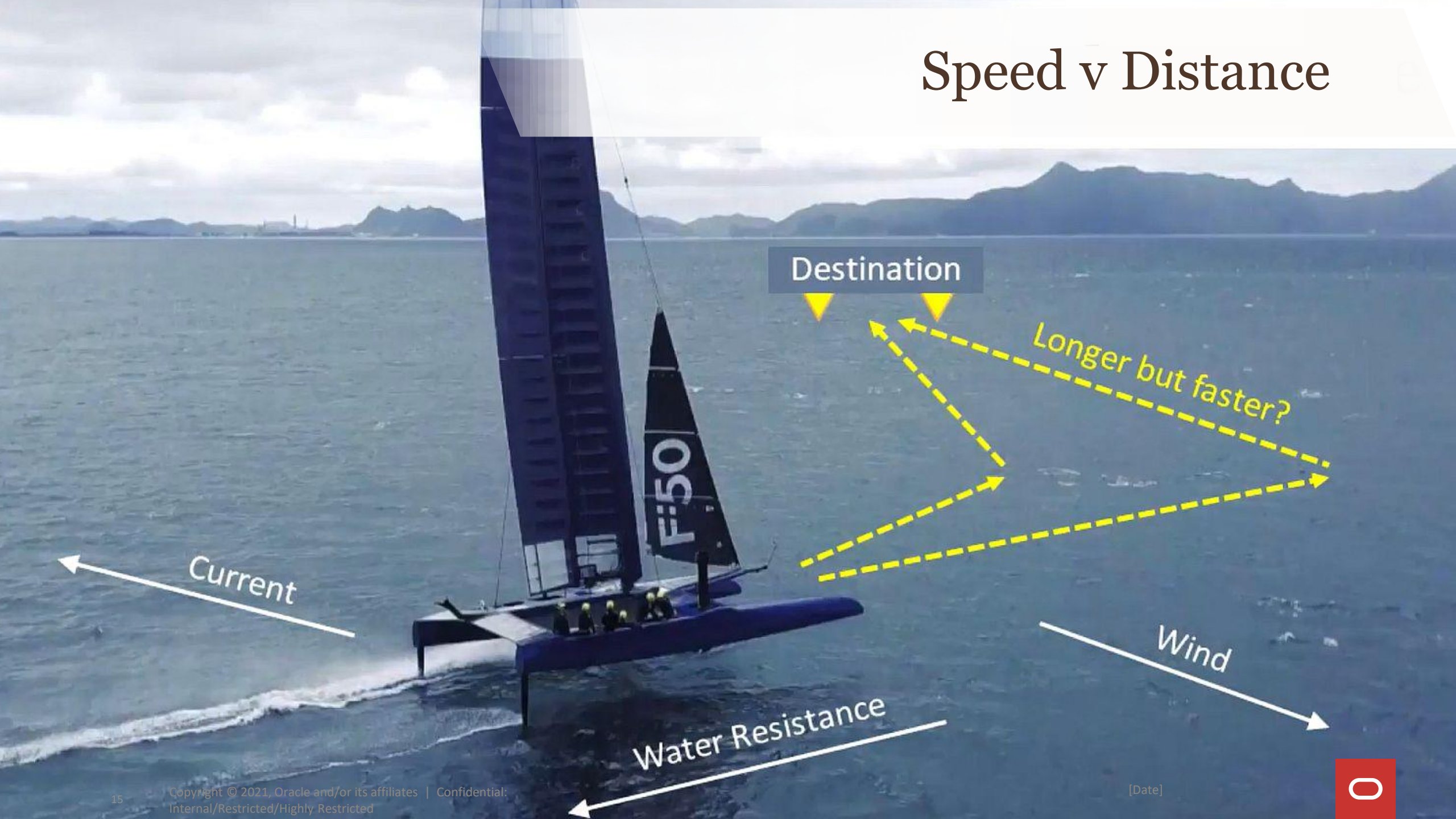
Sail GP Race Track

Starting procedure:

Cross an imaginary line between two points with maximum speed, after the starting signal of the race



Speed v Distance



Destination

Longer but faster?

Current

Wind

Water Resistance



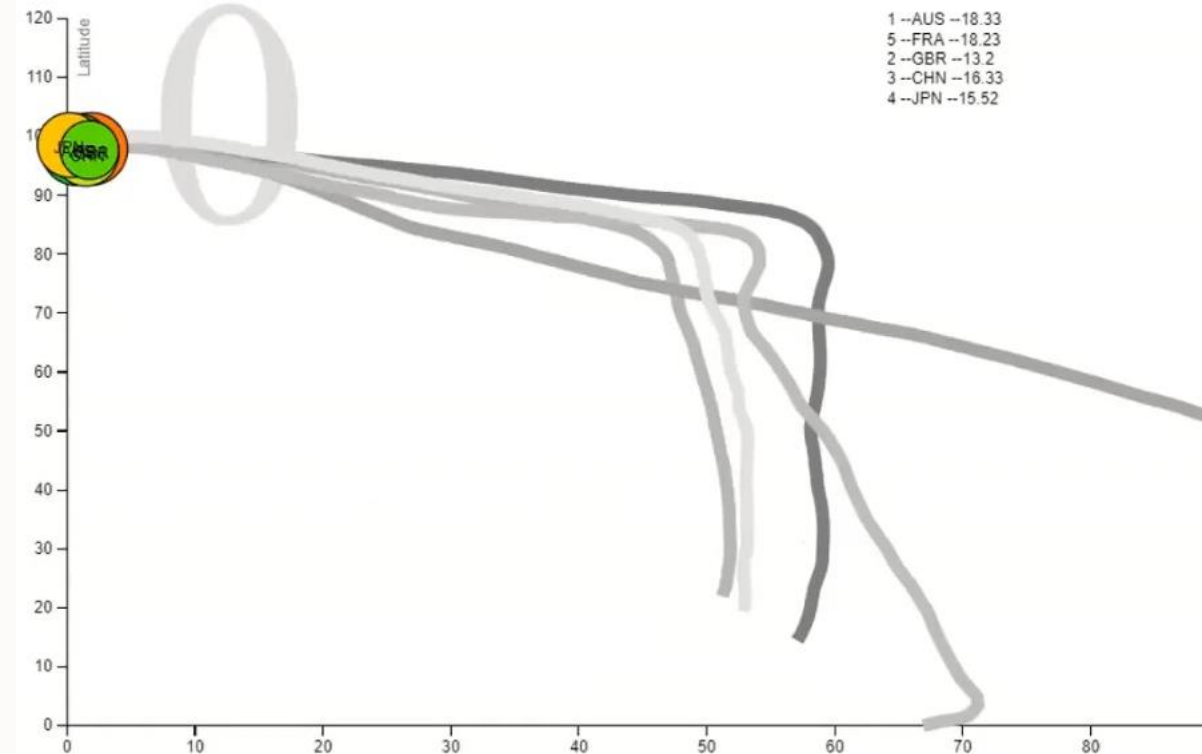
Analytics Use Case

Different routes & corners result in different speed & positions

Which route to take?

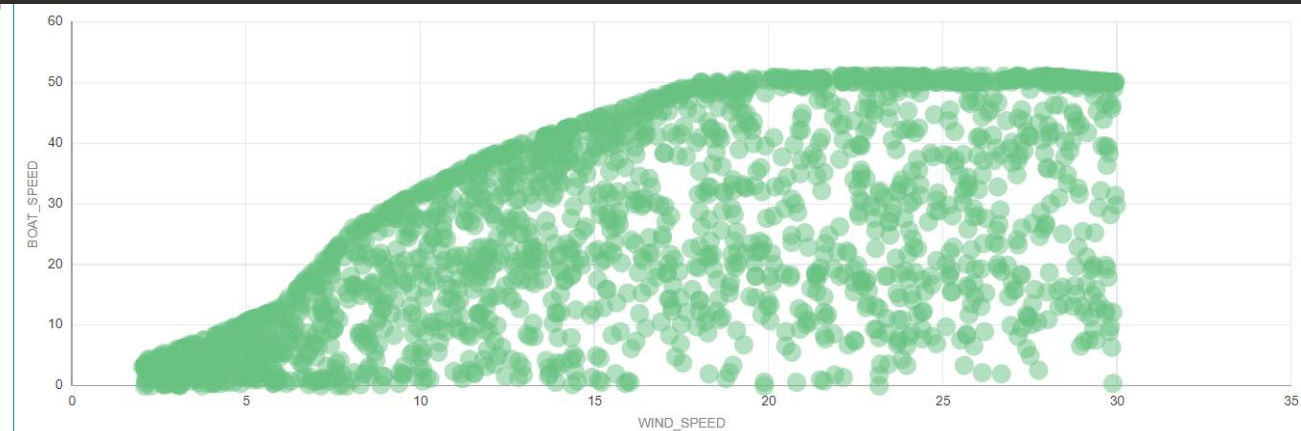
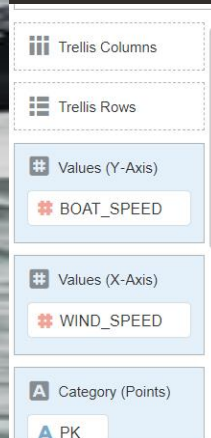
SAIL GP

Size = Boat Speed, Colour = Position

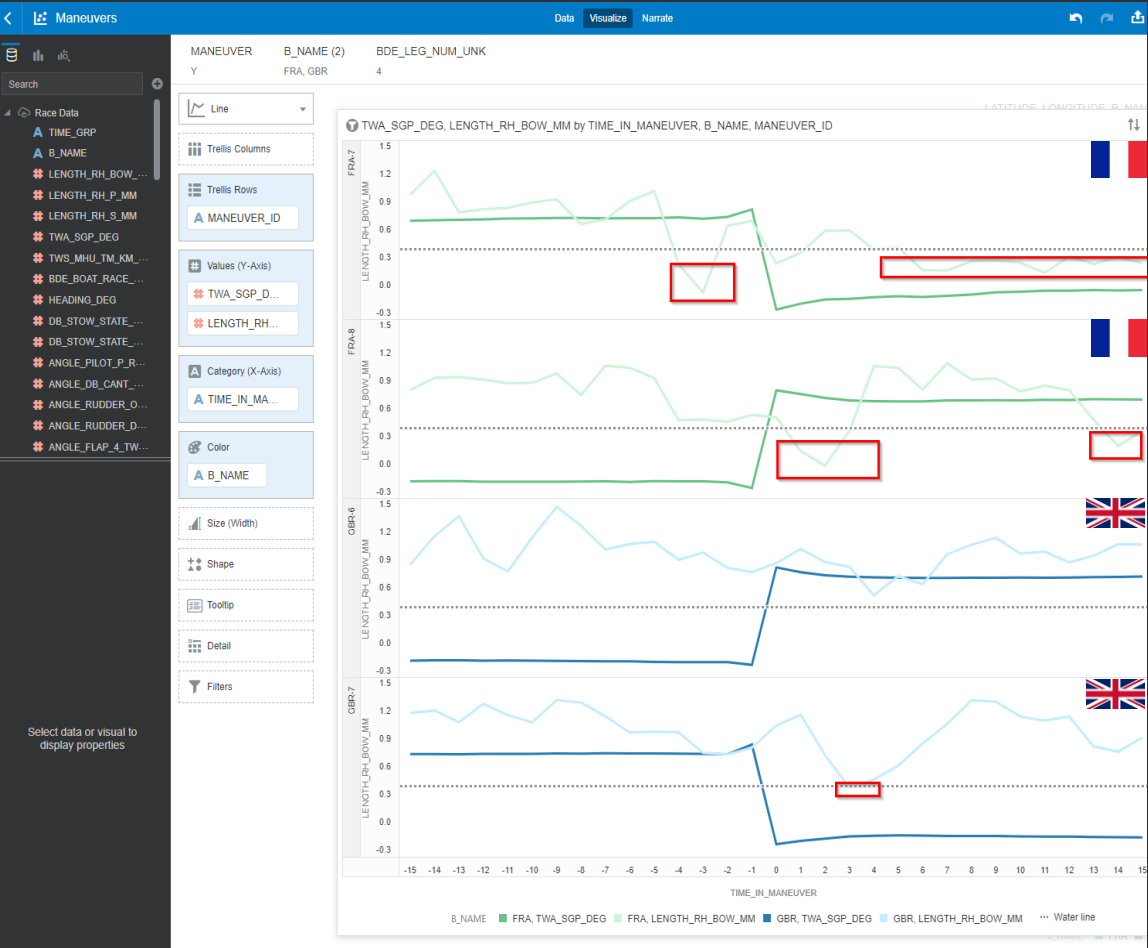




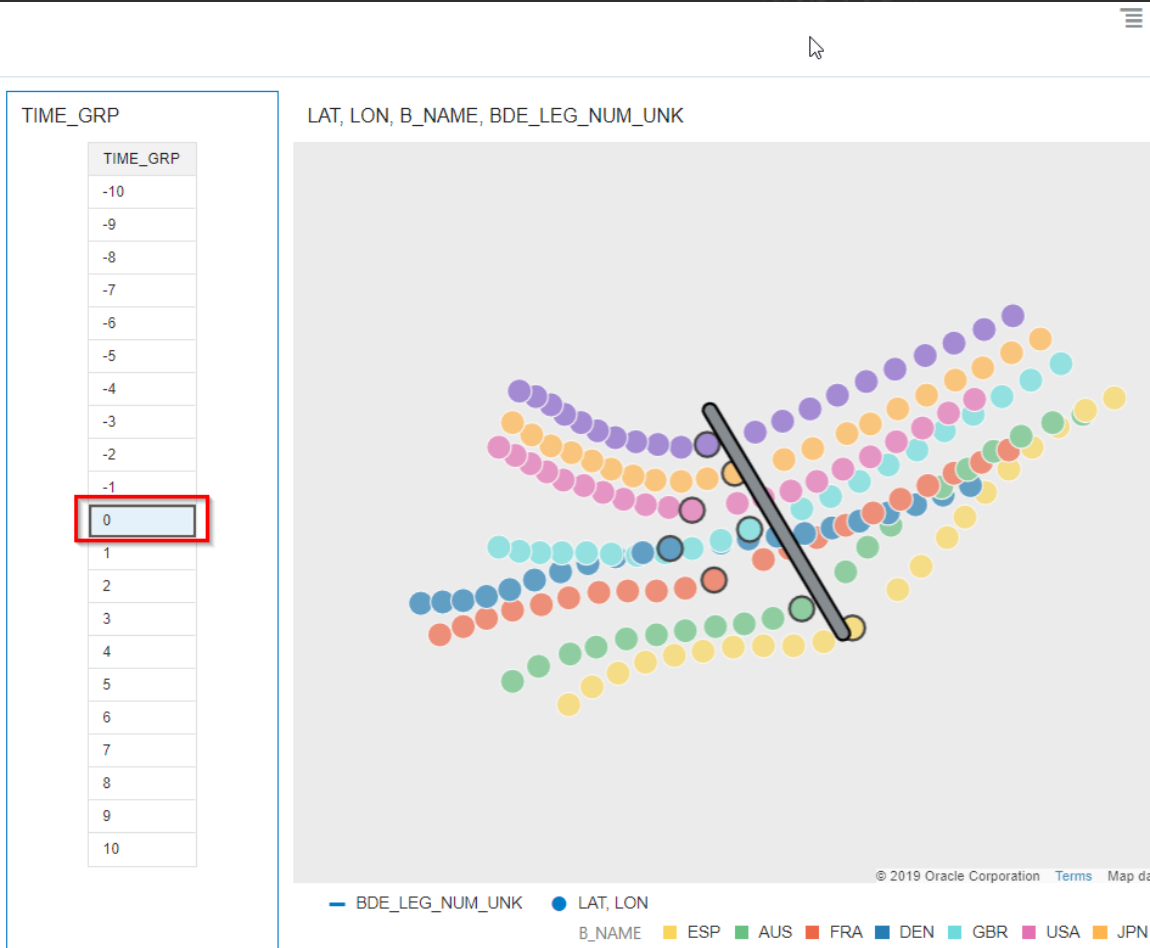
SailGP Team Australia breaks 50 knots / 93 kmh



When changing directions, when are we foiling again?



Rolling start – how did we perform vs the rest?



— Foiling

— Wind Angle





FRA

GBR

JPN

AUS

USA

DEN

ESP

START

CHALLENGE 3

MACHINE LEARNING

Predicting optimal **boat speed**
and the **optimal course** to take!

SAIL GP



Predicting Boat Speed using Machine Learning!

ORACLE Machine Learning

SAILOR Project [SAILOR Workspa...]

SAILOR

Create Experiment

Name * Predict F50 Speed

Comments

Data Source * SAILOR_SGP_SAIL_HISTORY

Prediction Type * Regression

Predict * BOAT_SPEED

Case ID PK

Value that we will try to predict

Column that uniquely identifies each row

Additional Settings

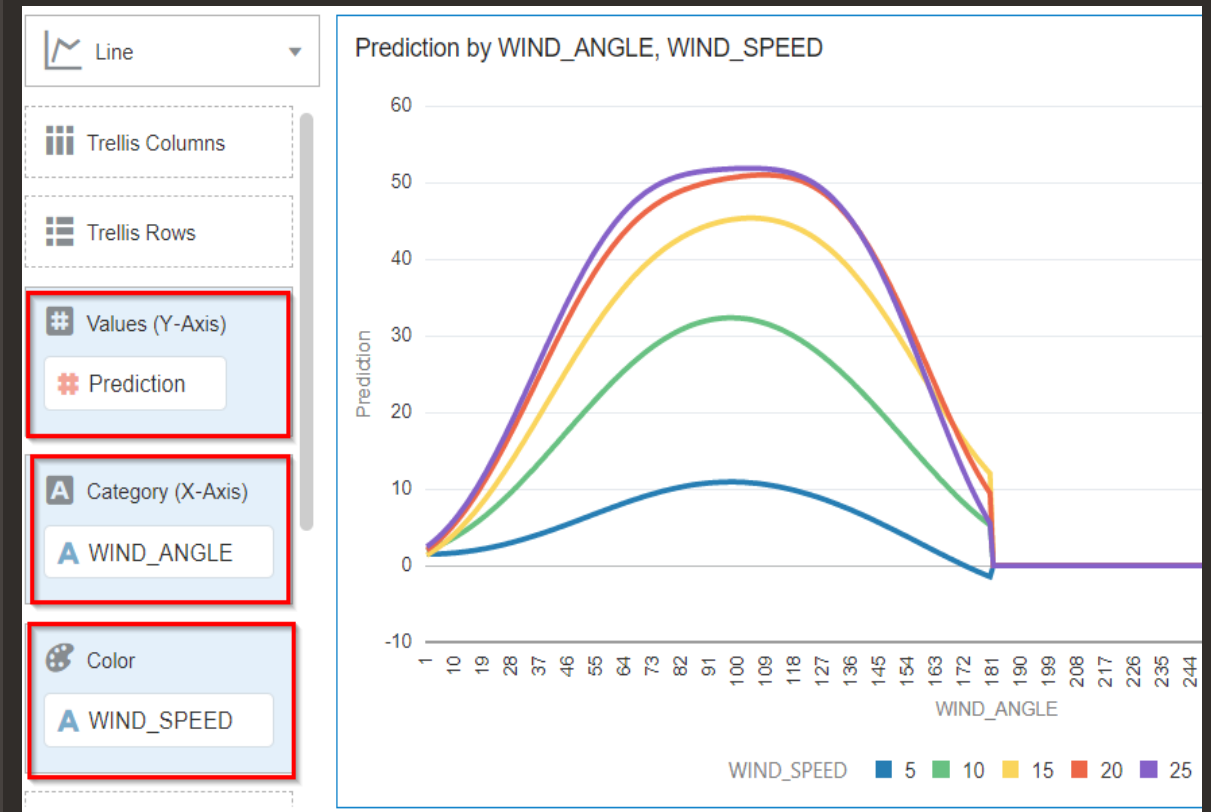
Features

| Name | Type | Percent NULLs | Distinct Values | Min | Max | Mean | Std Dev |
|----------------------|--------|---------------|-----------------|--------|-----|-------|---------|
| BOAT_SPEED | NUMBER | 0 | 1894 | 0.0042 | 51 | 29.82 | 18.12 |
| PK | NUMBER | | | | | | |
| PREDICTED_BOAT_SPEED | NUMBER | | | | | | |
| WIND_ANGLE | | | | | | | |
| WIND_SPEED | | | | | | | |

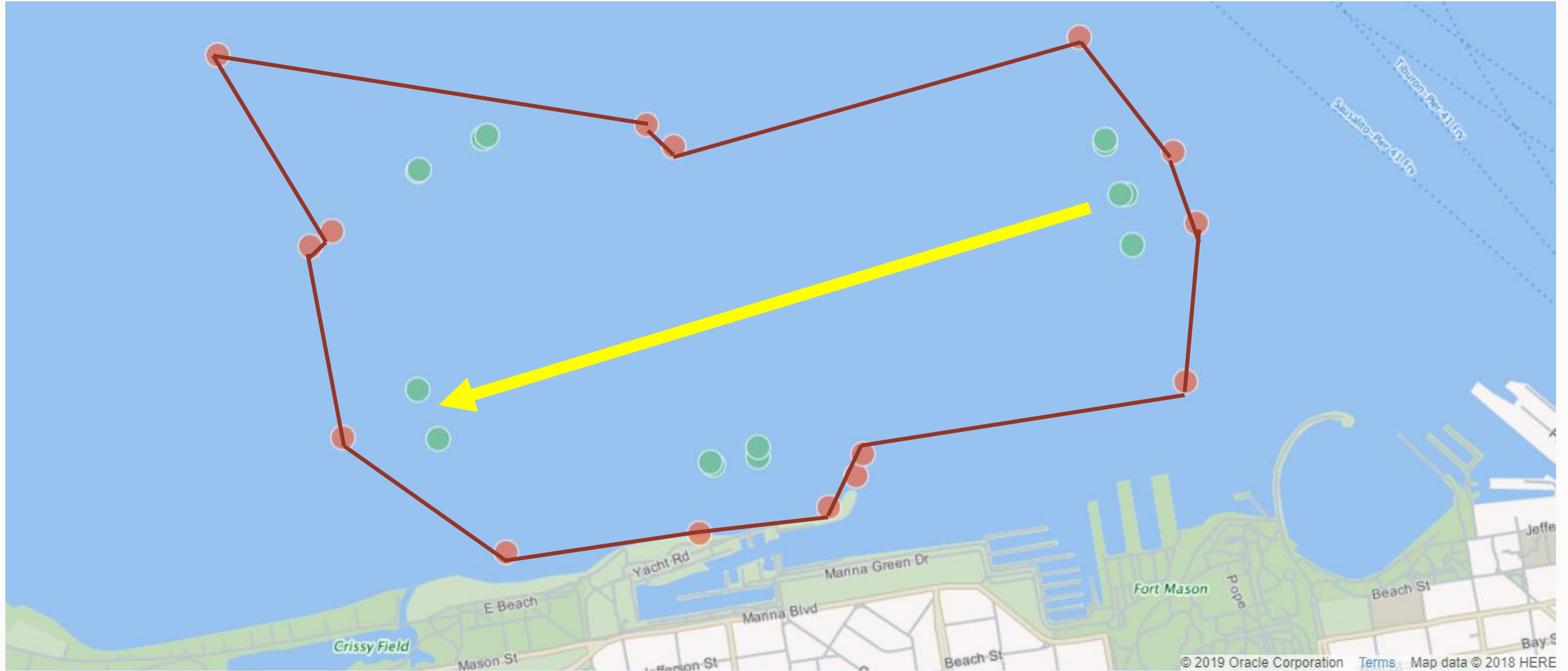
Leader Board

| Algorithm | Model Name | Negative Mean Squared Error |
|---------------------------------------|------------|-----------------------------|
| Support Vector Machine (Linear) | | -182.5455 |
| Generalized Linear Model | | -175.1573 |
| Generalized Linear Model (Ridge Re... | | -175.1572 |
| Neural Network | | -1.8046 |
| Support Vector Machine (Gaussian) | svmg_... | -0.9842 |

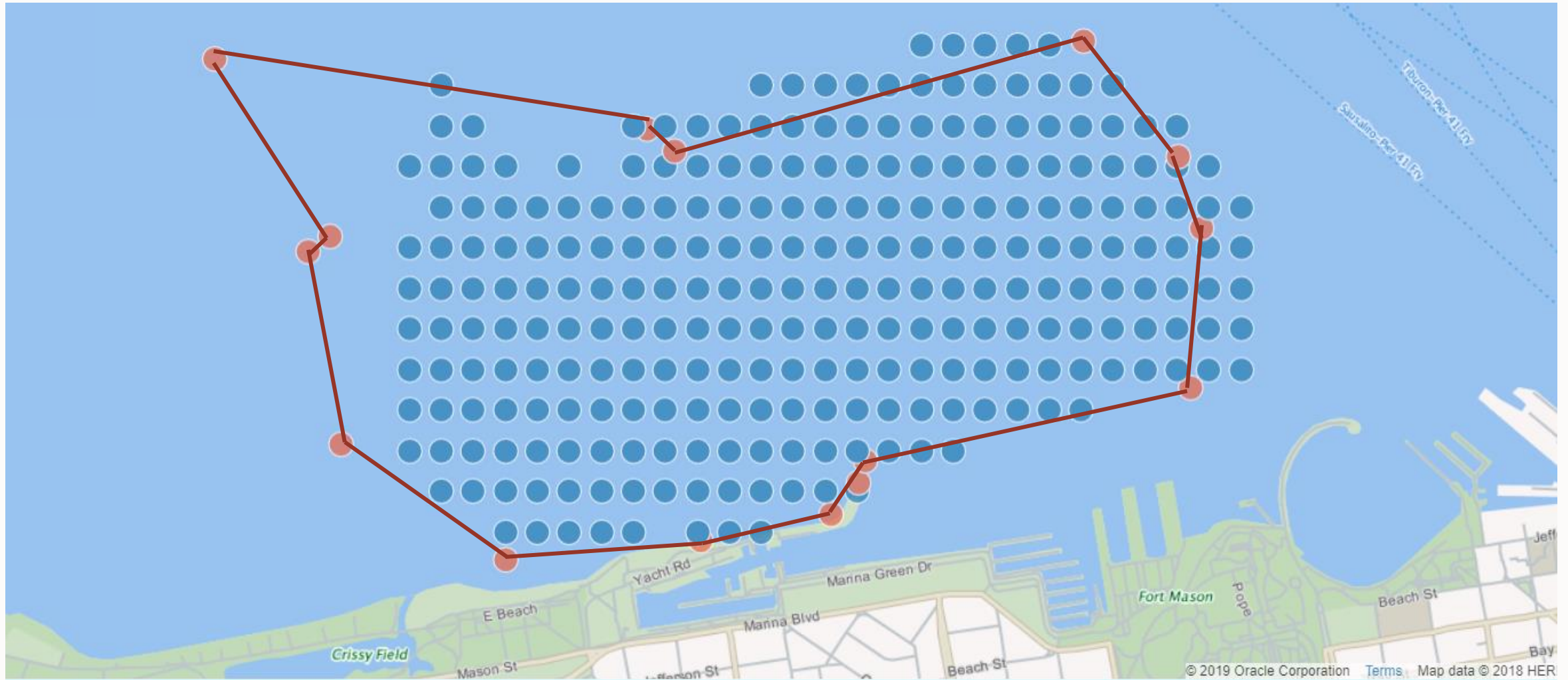
Applying Machine Learning to determine next step!



Predict the optimal course - “The Ghost Boat”

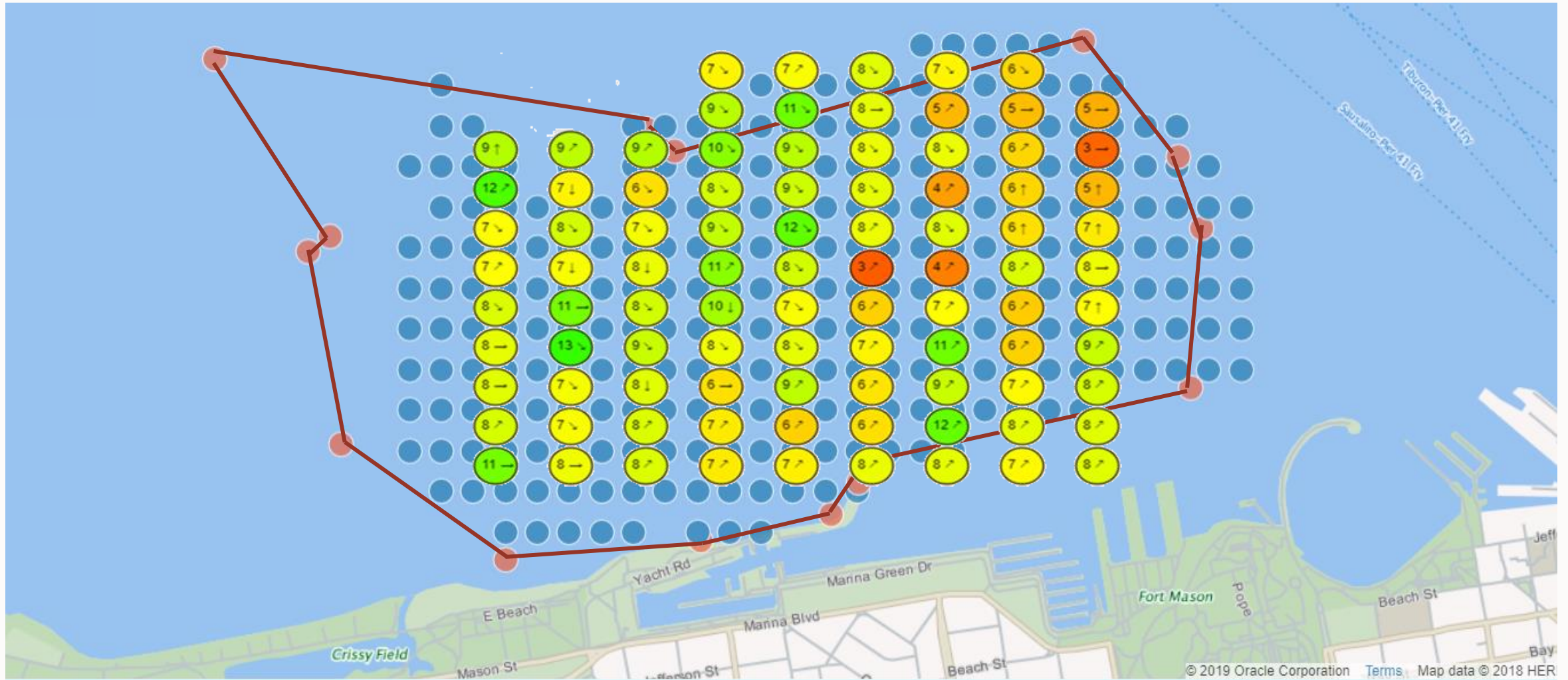


Divide the course into a Spatial Grid



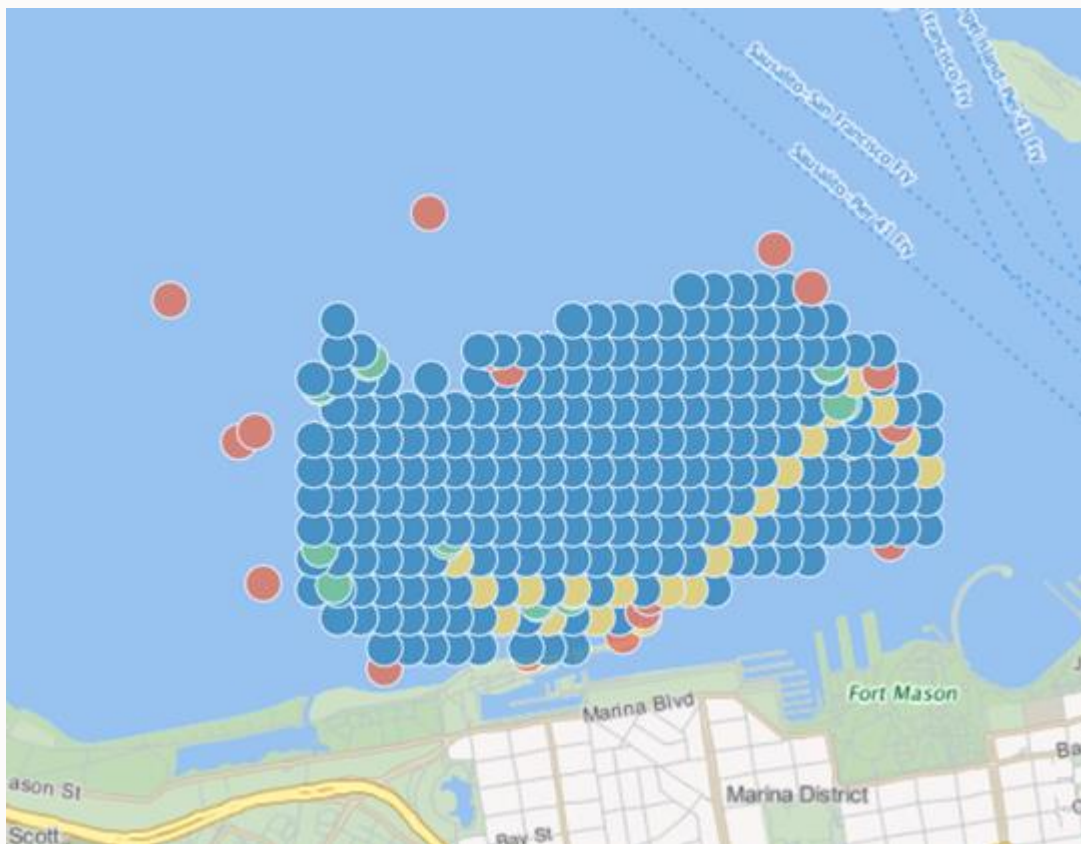
Overlay Wind Speed + Direction

Using Data from all Boats

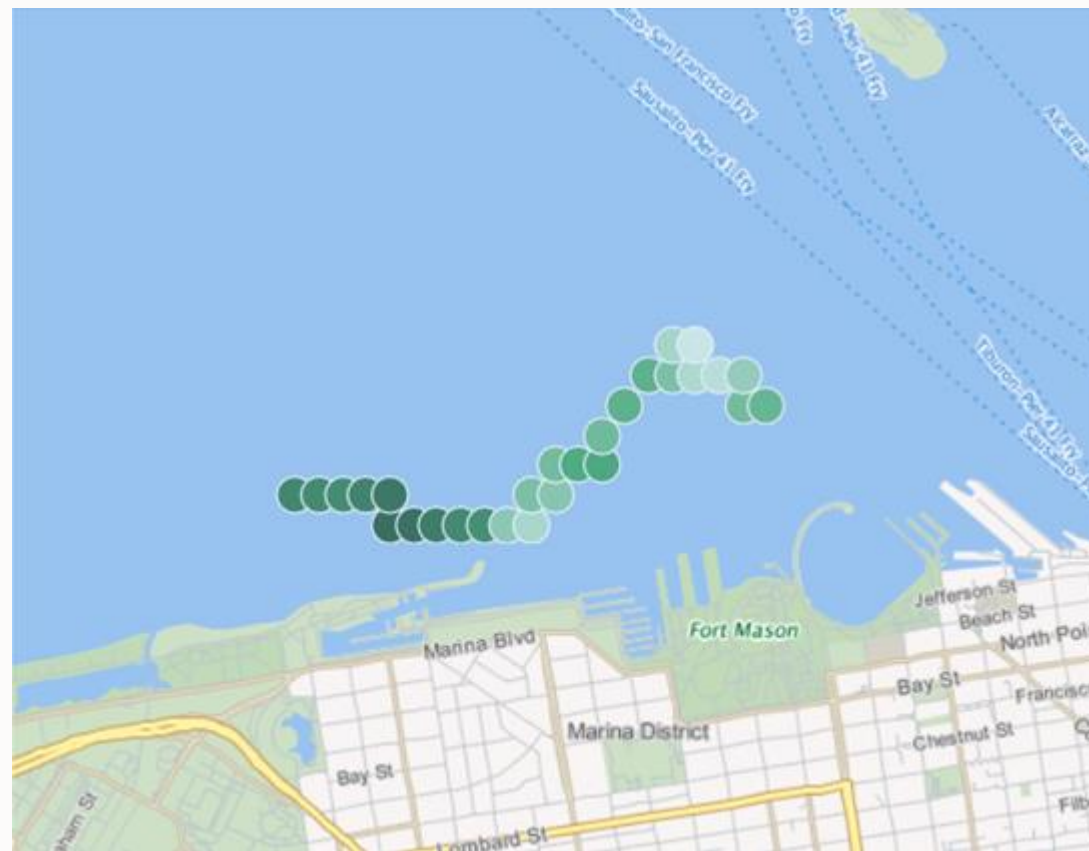


Compare with actual course taken

Optimal Course



Actual Course

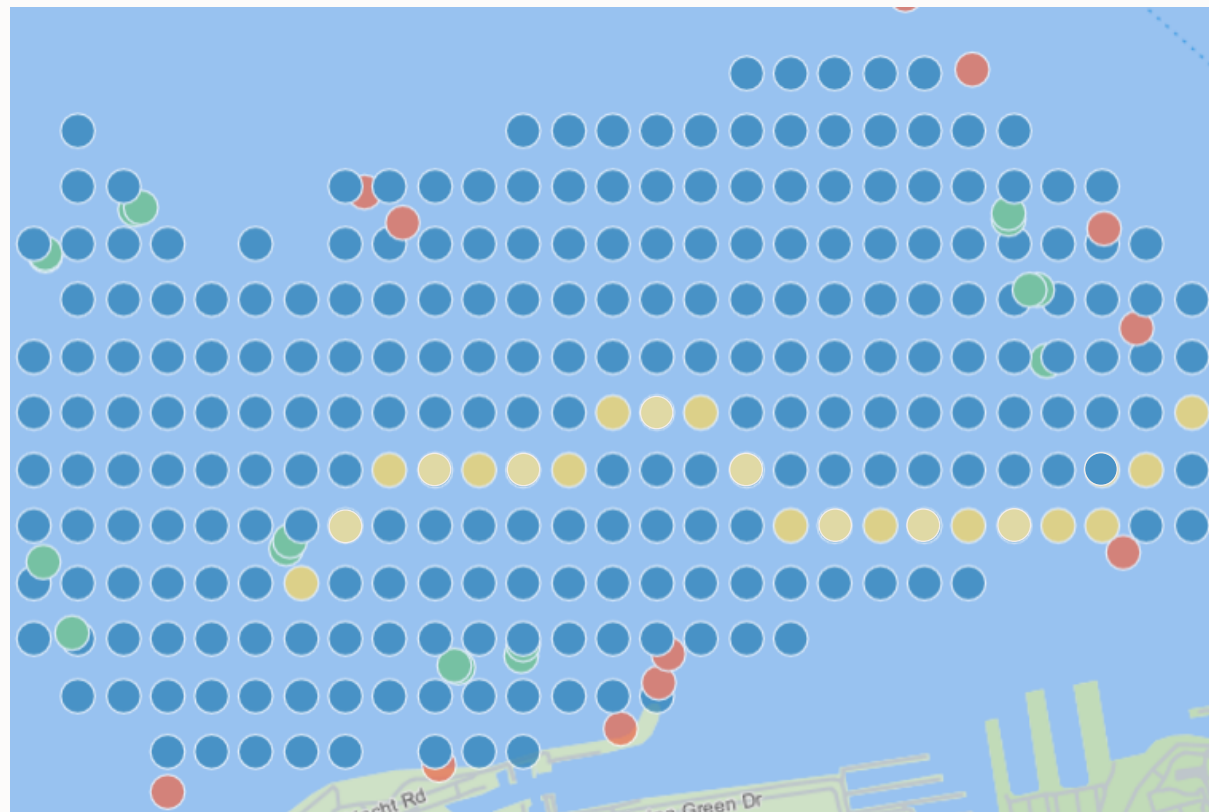


Ghost Boat model

Version 1.0 (zig-zagging)



Version 2.0



CHALLENGE 4

SOCIAL INTERACTION

Social Media Analysis and real time analytics for all viewers!

SAIL GP





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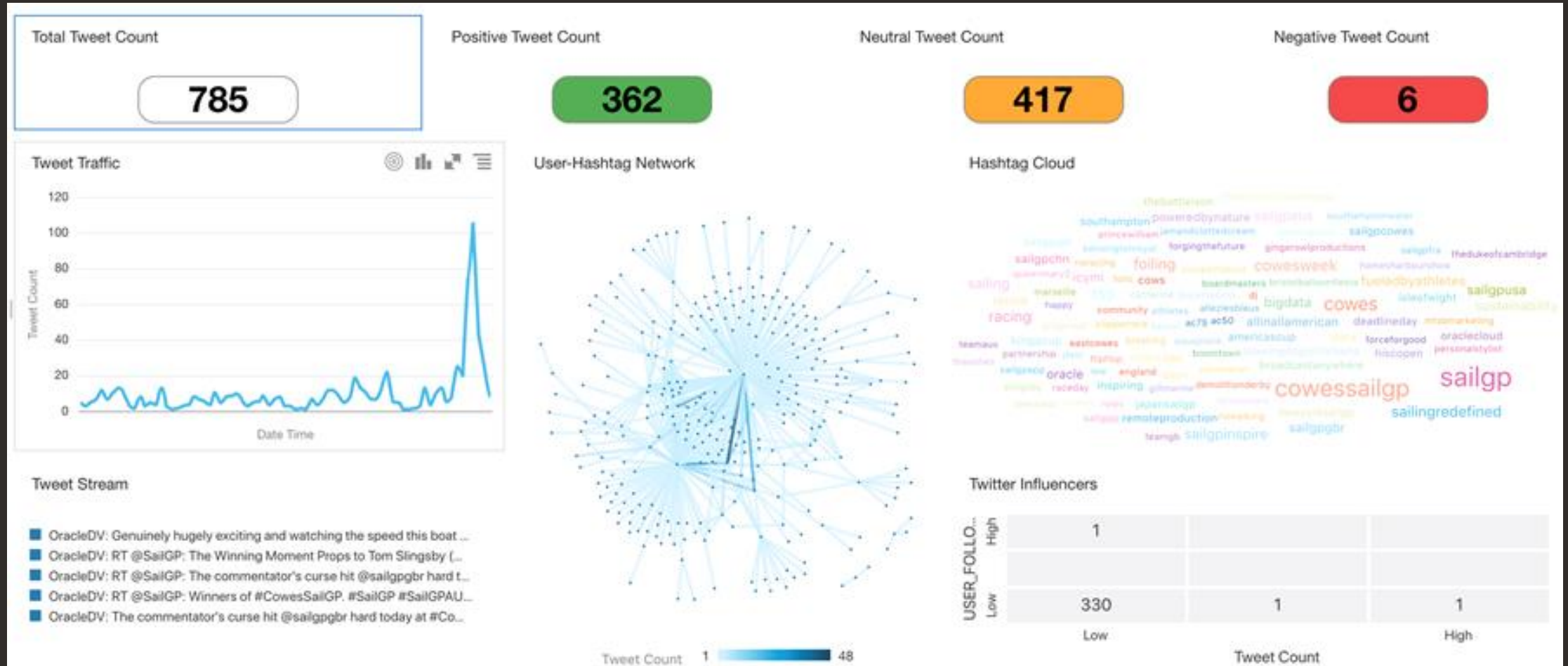
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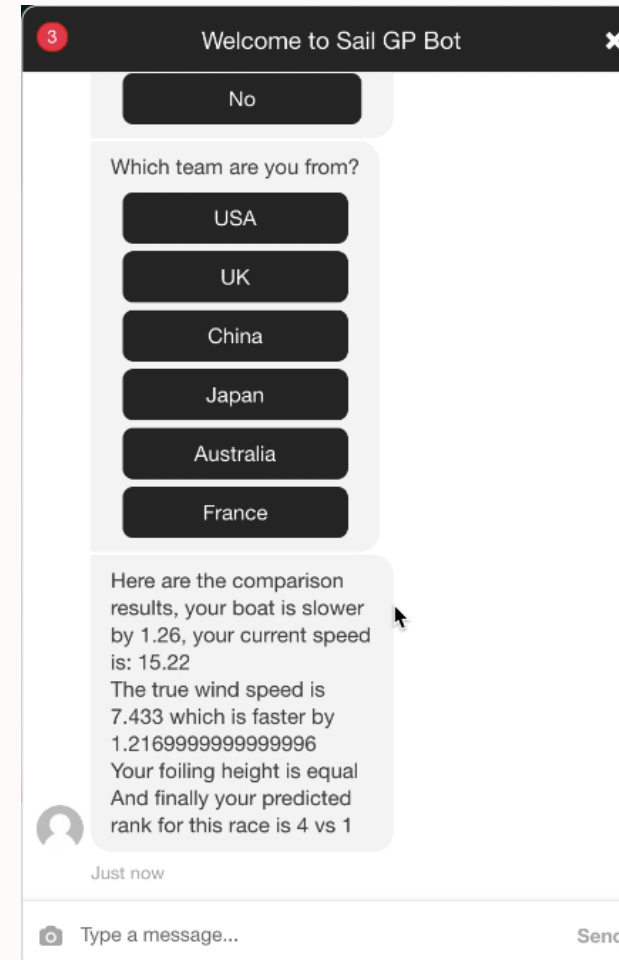
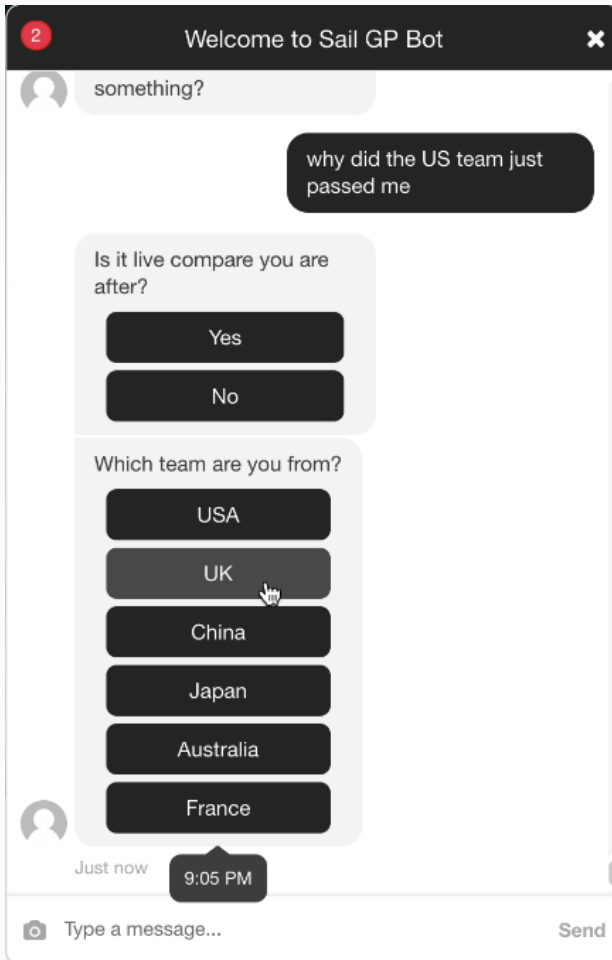
SAILGP

Social Media Analysis



Digital Assistant V2.0 – “Talk to the Boat”

Ask the Boat for Performance Stats, Competitive Info etc





Premier
League

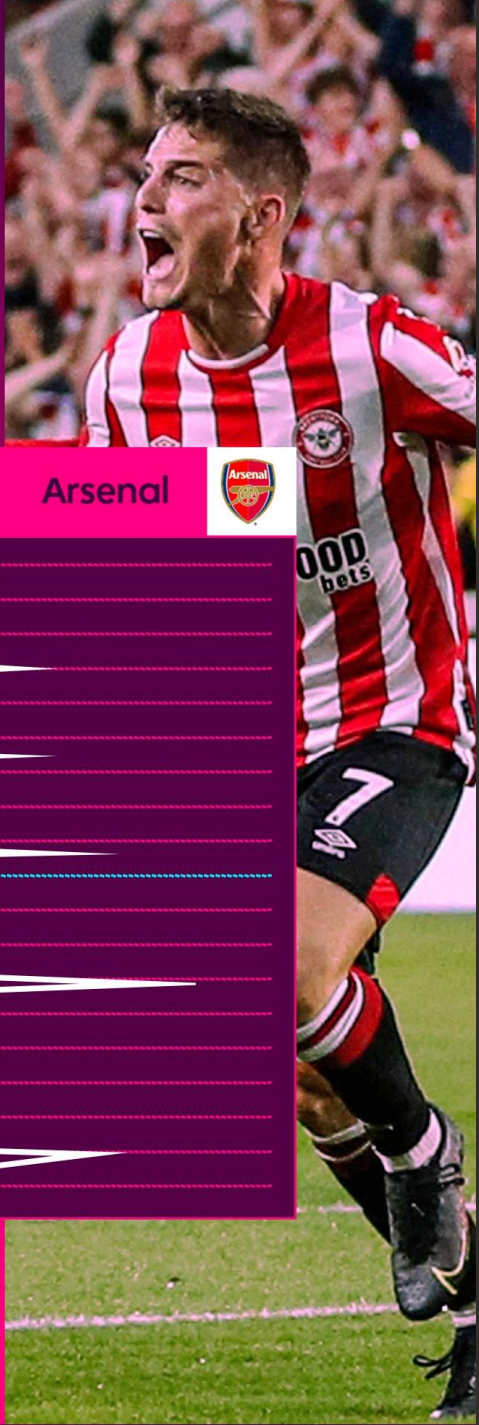
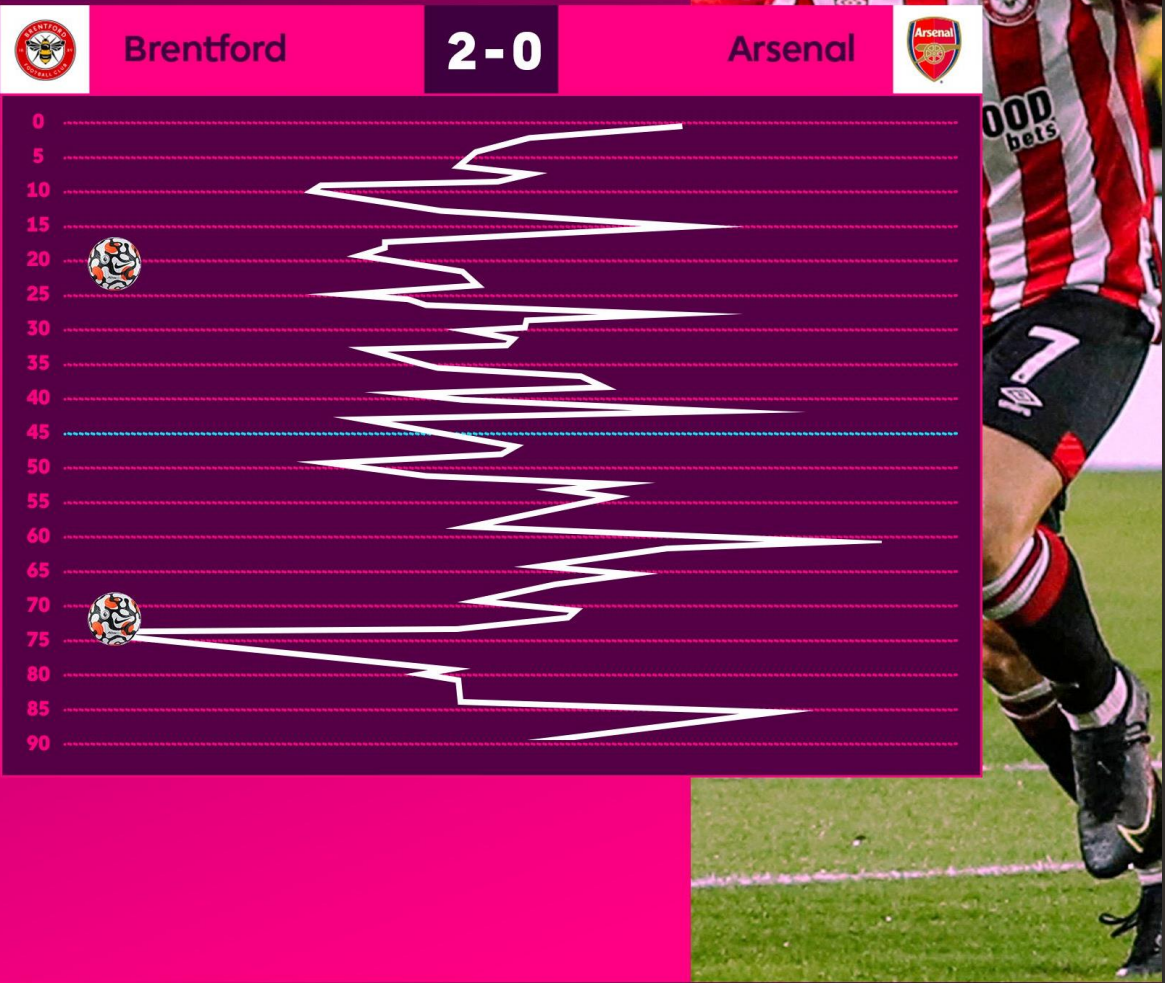
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Introducing: Match Insights— Powered by Oracle Cloud



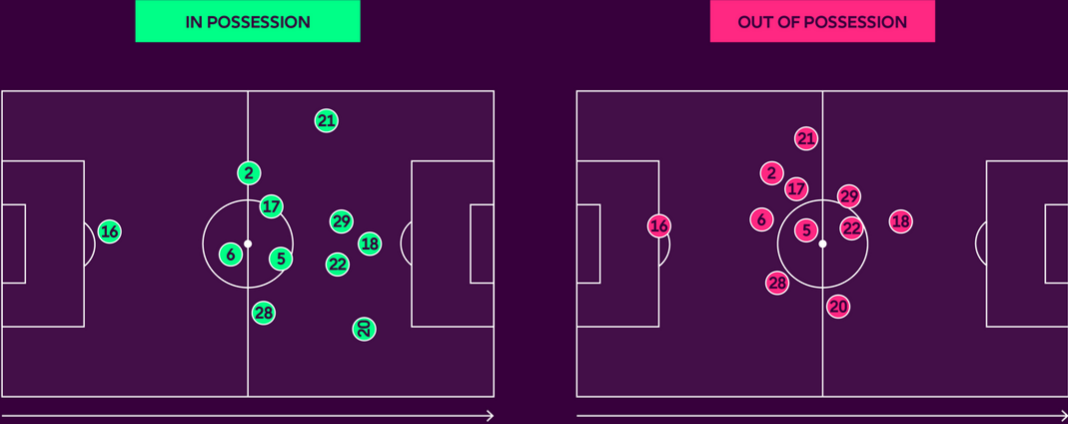
ATTACKING THREAT

Powered by ORACLE CLOUD



CHELSEA AVERAGE POSITION

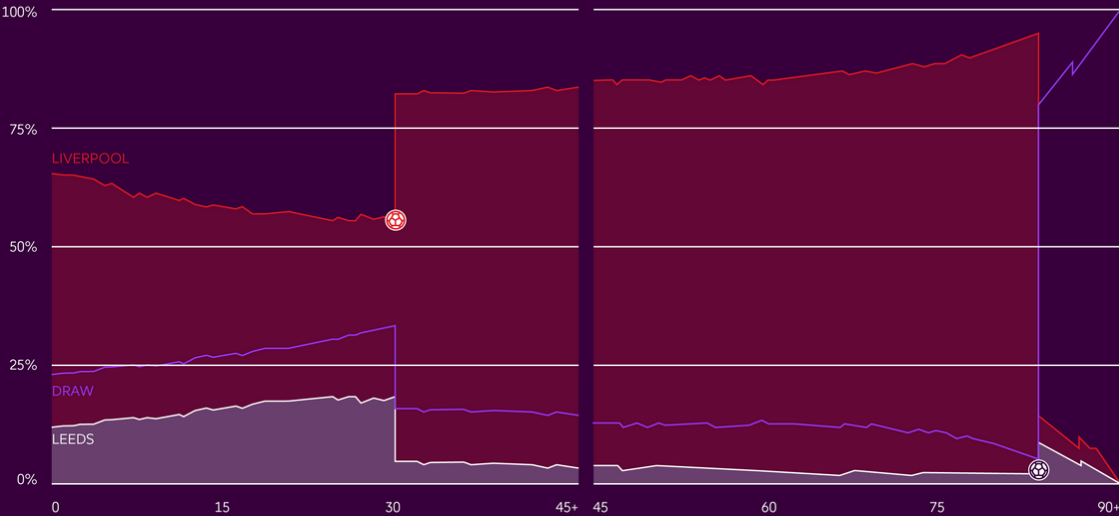
CHELSEA 0 - 0 WOLVES



Source: StatsPerform

WIN PROBABILITY

LEEDS UNITED 1 - 1 LIVERPOOL



Source: StatsPerform





Red Bull
RACING

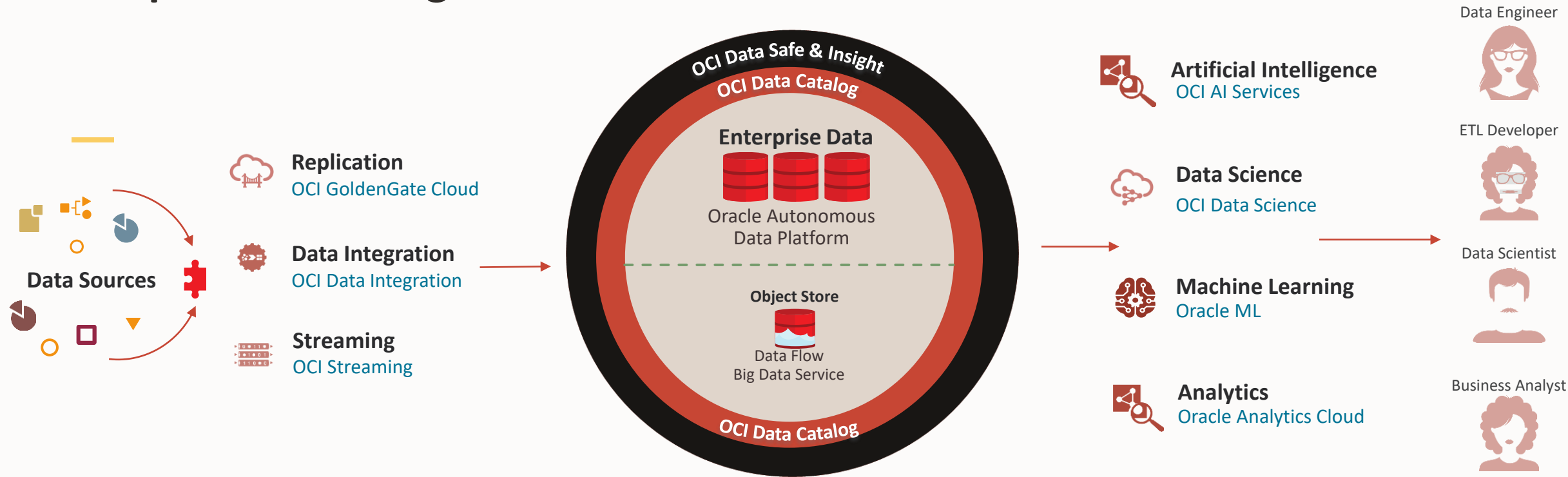
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A Red Bull Racing Formula 1 car is shown from a front-three-quarter perspective. The car is primarily black with red and yellow accents. It features several sponsor logos: ORACLE, Tezos, citrix, Pirelli, Infinitum, and Mobil 1. The driver's helmet is visible in the cockpit. The background is dark and out of focus.

A Partnership Driven By Data

A Complete and Integrated Data & AI Platform



Oracle Cloud Infrastructure



Try it Yourself with Oracle Livelabs

The screenshot shows the Oracle LiveLabs website interface. At the top, there is a dark navigation bar with the LiveLabs logo, a search bar labeled 'Search Workshops...', and links for 'Feedback', a help icon, and 'Sign In'. Below this is a secondary navigation bar with links for 'Home', 'Available Workshops', 'My Reservations', 'Have an Event Code?', and 'FAQ'. The main content area features a large green banner for the 'Learn Analytics and Machine Learning with SailGP Workshop', which includes the text 'Explore Analytics and Machine Learning with real-life data from SailGP.' and 'Workshop length: 2 hours'. To the left of the main content, a section titled 'Other LiveLabs you might like' lists three workshops: 'Oracle RAC Fundamentals', 'Autonomous Database Quick Start', and 'Picking a Good Wine Using ADW, OML and OAC'. The central part of the page is titled 'Ways to run this workshop' and offers three options: 'Launch Always Free Workshop', 'Launch Free Trial Workshop', and 'Run On Your Tenancy', each with a 'More about' link. To the right, a 'Workshop Outline' section lists topics such as 'Introduction', 'Get Started', 'Provision Analytics Cloud', 'Provision Autonomous Data Warehouse', 'Load Data', 'Analytics: Basic Statistics', 'Analytics: The Start of the Race', 'Analytics: Maneuvers', and 'Machine Learning'. A 'Workshop Details' section is partially visible at the bottom right. A 'Share Workshop Link' button is located near the top right of the main content area.

LiveLabs Search Workshops... Feedback ? Sign In

Home Available Workshops My Reservations Have an Event Code? FAQ

Learn Analytics and Machine Learning with SailGP Workshop

Explore Analytics and Machine Learning with real-life data from SailGP.

Workshop length: 2 hours

Share Workshop Link

Other LiveLabs you might like

- Oracle RAC Fundamentals
- Autonomous Database Quick Start
- Picking a Good Wine Using ADW, OML and OAC

Ways to run this workshop

Choose how you want to run this workshop.

- Launch **Always Free** Workshop
More about [Always Free](#)
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More about [Free Trial](#)
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More about using Oracle Universal Credits you've purchased: [Using your credits](#) | [Services available](#)

Workshop Outline

- Introduction
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- Analytics: Basic Statistics
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- Analytics: Maneuvers
- Machine Learning

Workshop Details

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