

RyanAir

NavBlue

Challenges

- datasets were missing column headers
- datasets were fetched from Kaggle (fail)

Kaggle

- Didn't work
- Missing fields
 - Type
 - Source

Schema Approach

- Datasets were amended
- include column headers

Problem Statement

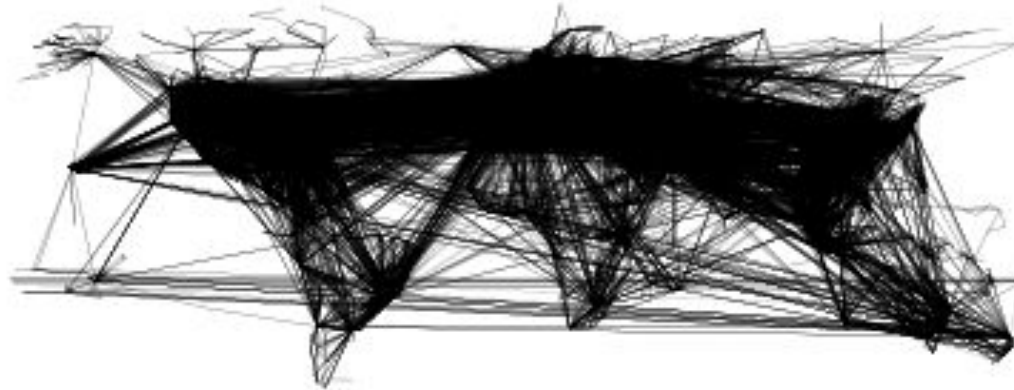
- Connections
 - Number
- Airports
 - Number
 - Percentage
- Routes
 - Number
 - Shared
 - Exclusive

Routing Visualizations

- Duplicate Airports Dataframe
 - Source Airport Dataframe
 - Destination Airport Dataframe
- Merge source to routes dataframe based on IATA codes
- Merge destination to routes dataframe based on IATA codes
- LineString's to connect
 - source_(longitude, latitude)
 - destination_(longitude, latitude)

Routes - Direct Lines

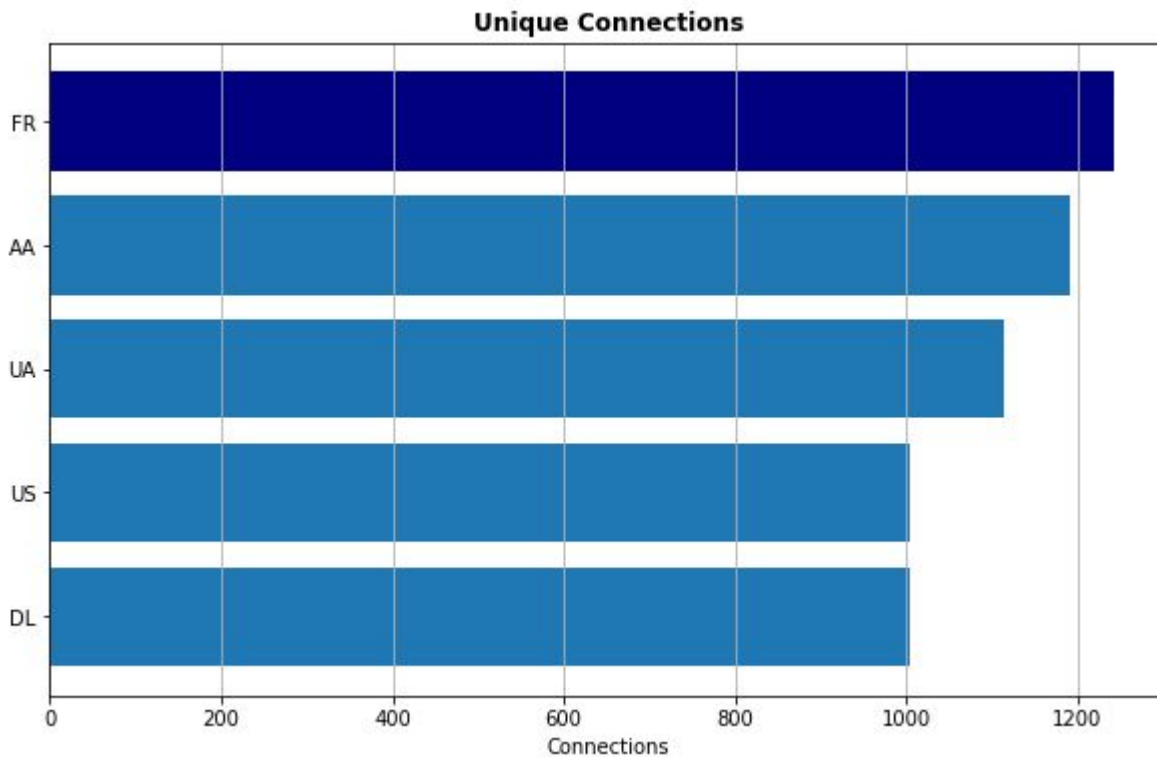
LineStrings Representing Flight Routes (Direct Lines)



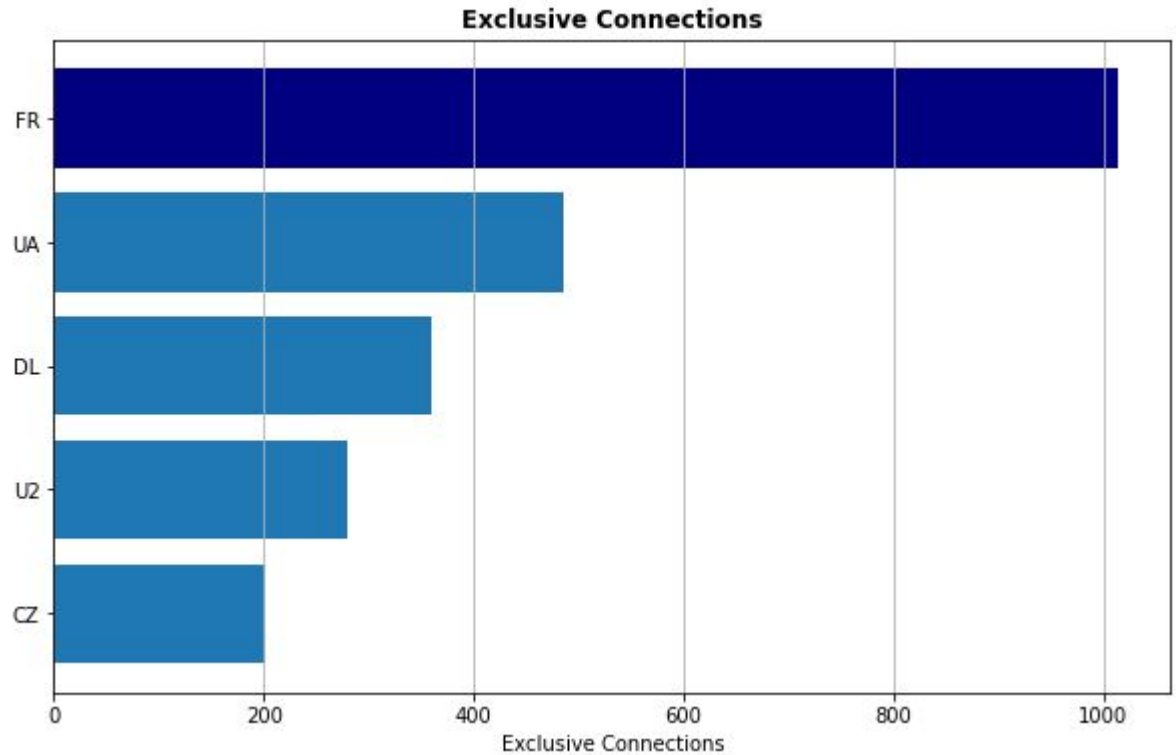
Routes - Global Curvature



Unique Connections

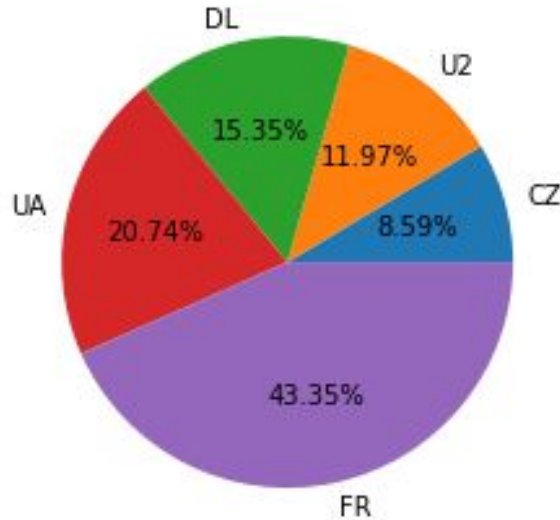


Exclusive Connections

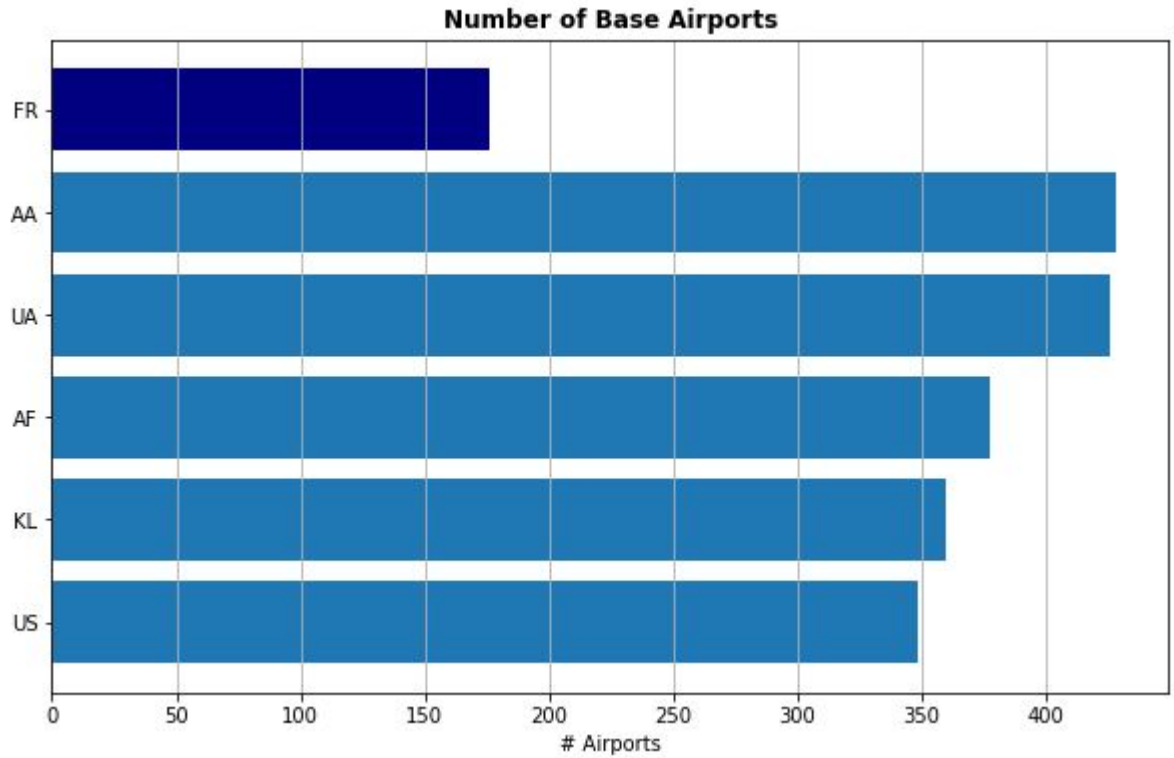


Percent Exclusive Connections

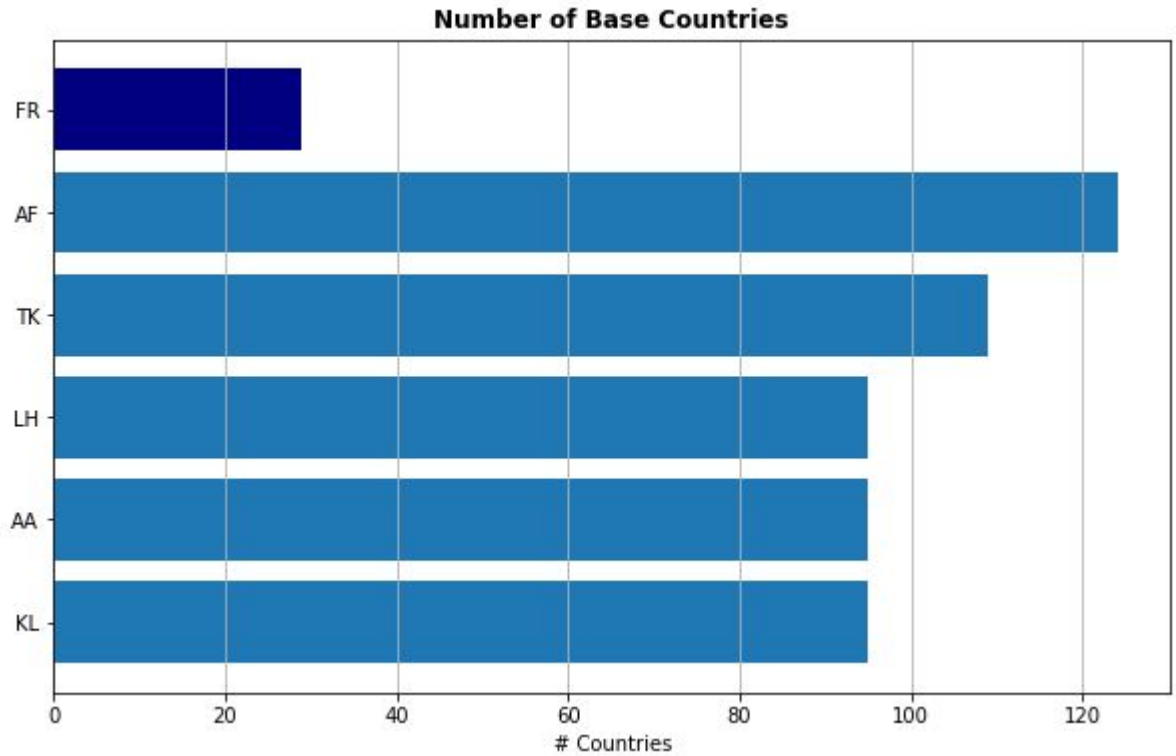
Percent of Exclusive Connections (Top 5 Airlines)



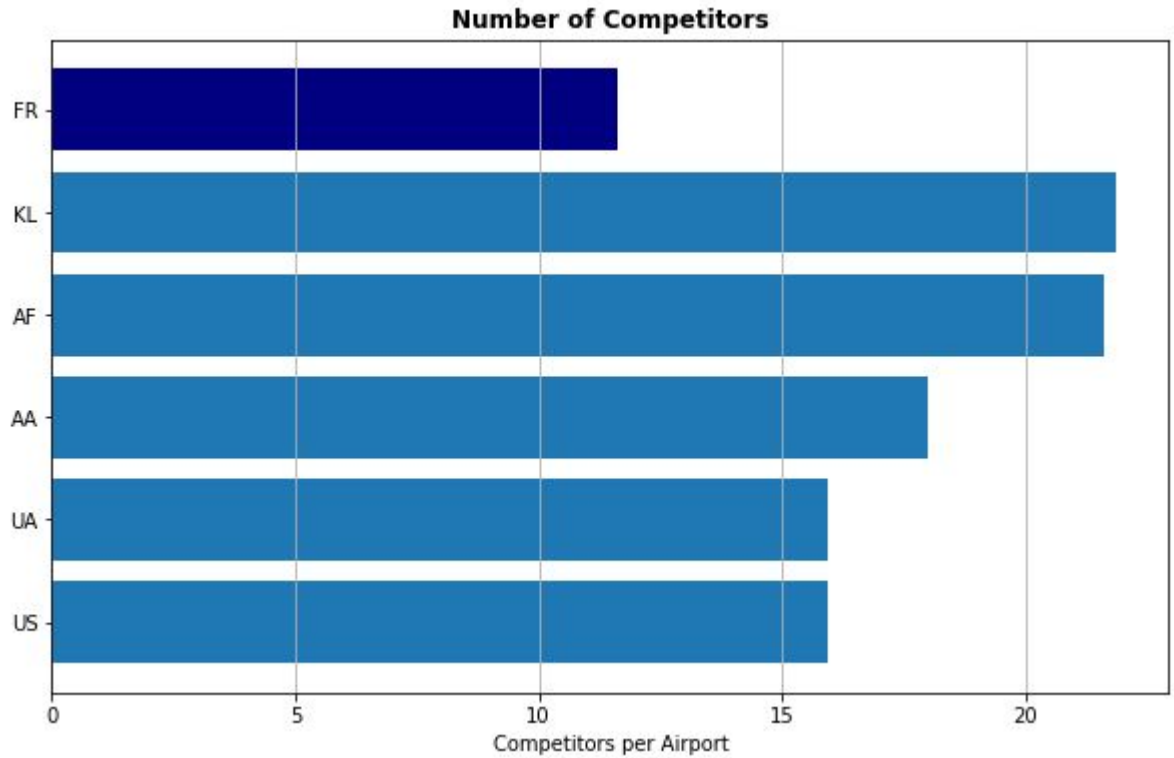
Base Airports



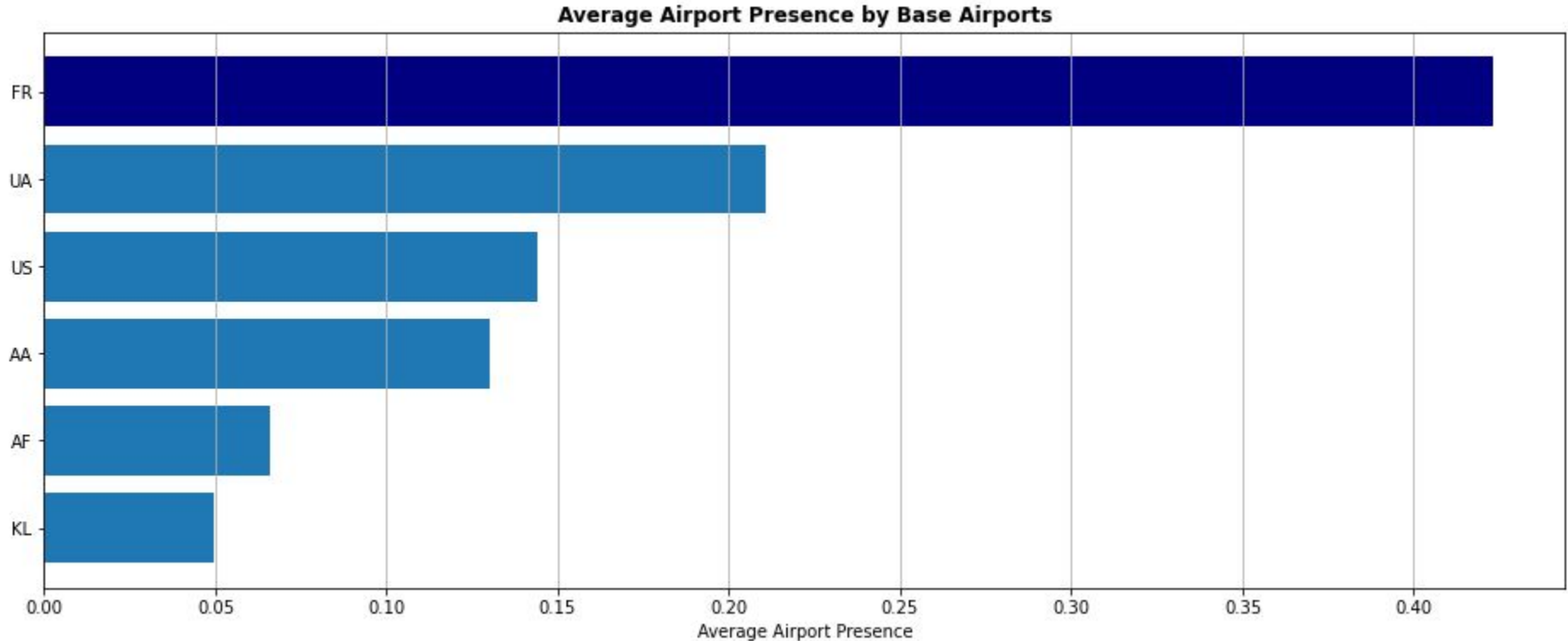
Base Countries



Competitors



Average Airport Presence by Number of Base Airports



Conclusion

RyanAir has the highest number of:

- Unique Connections
- Exclusive Connections (43%)
- Average Airport Presence by Number of Base Airports (42%)

Conclusion

RyanAir has the least number of:

- Competitors
 - Routing Advantage
- Base Countries
 - Reduced operational expenditures

Conclusion

- Ryanair has a competitive advantage within Europe as well as globally.
- base airports in fewer countries to reduce operating overhead
- higher competitive advantage with most unique and exclusive connections

Future Work

- Further investigation required:
 - Aircraft passenger saturation
 - Fuel to Payload ratio
 - Maintenance time and cost
 - Types of aircraft (single / dual / quad)
 - Average airborne time per aircraft type
 - Average hangar time per aircraft type

Takeaways

We hope this will support RyanAir's profit margin sufficiently so they are not pressured to charge passengers for using onboard restrooms (nice try team).