

Addition to S.J. Corporation Fleet



Who Are We?

Data Consultants for the S.J. Corporation:
*Fastest growing online sports betting platform in
North America*

Why Are We Here?

To identify the safest aircrafts for our
executives' business & leisure

What is Safety?

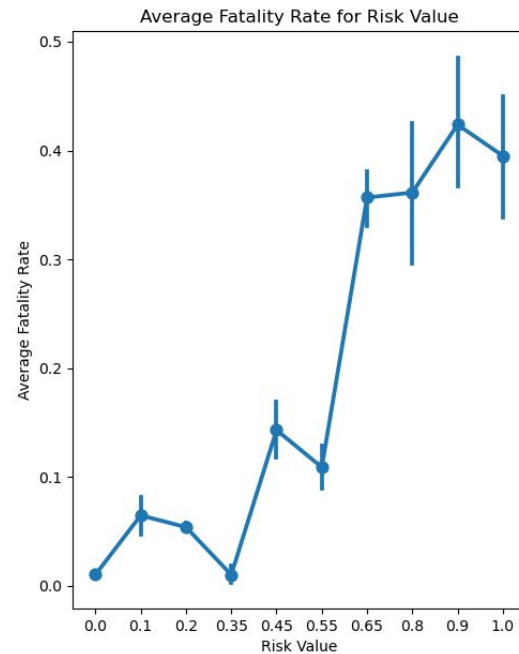
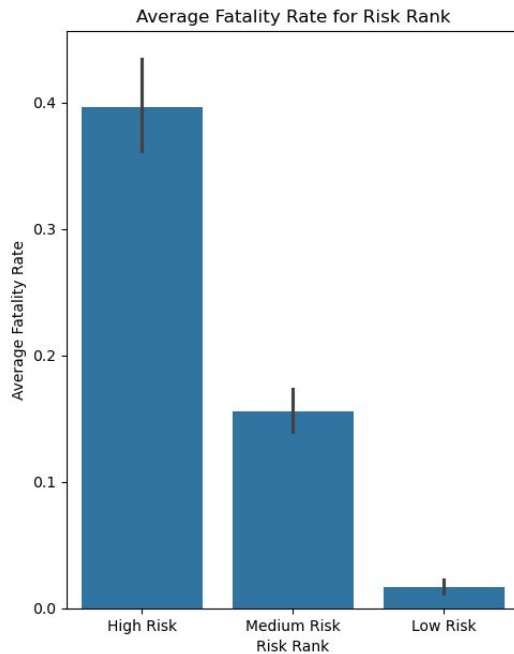
- With Substantial Damage or Destroyed Aircraft:
 - Very High Survival Rates
 - Minimal Injuries
 - Minor Injuries

Risk Index Variables

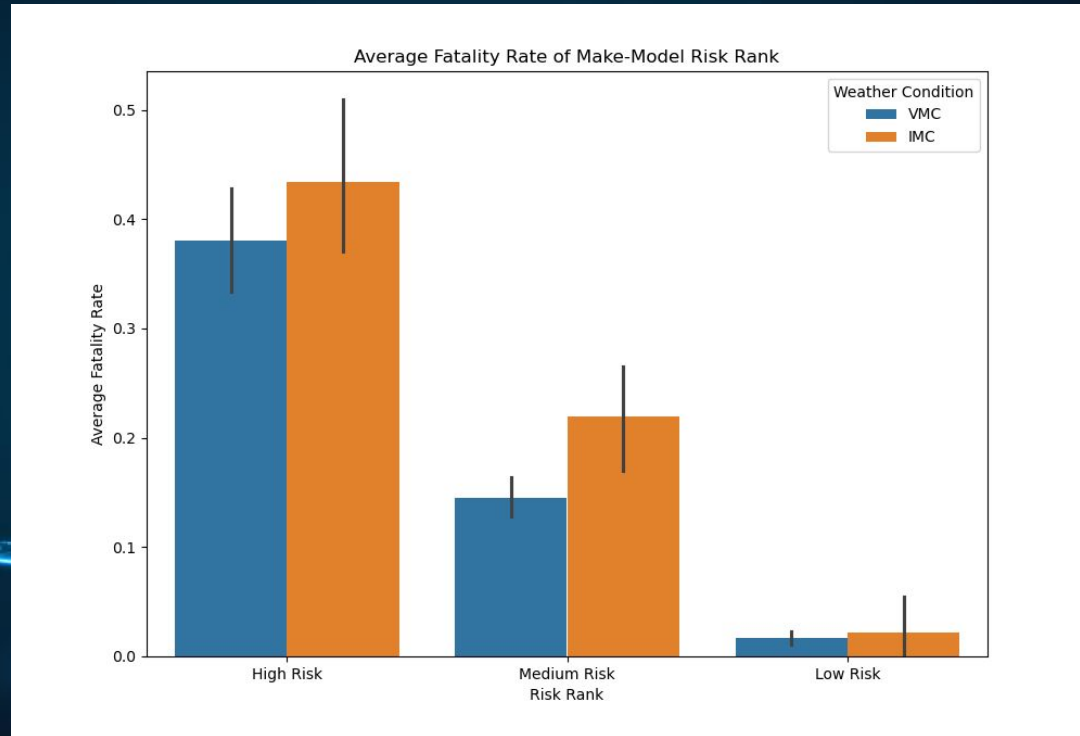
- Average Fatality Rate w/ Substantial Damage
- Average Fatality Rate
- Average Serious Injury Rate
- Average Minor Injury Rate



Findings

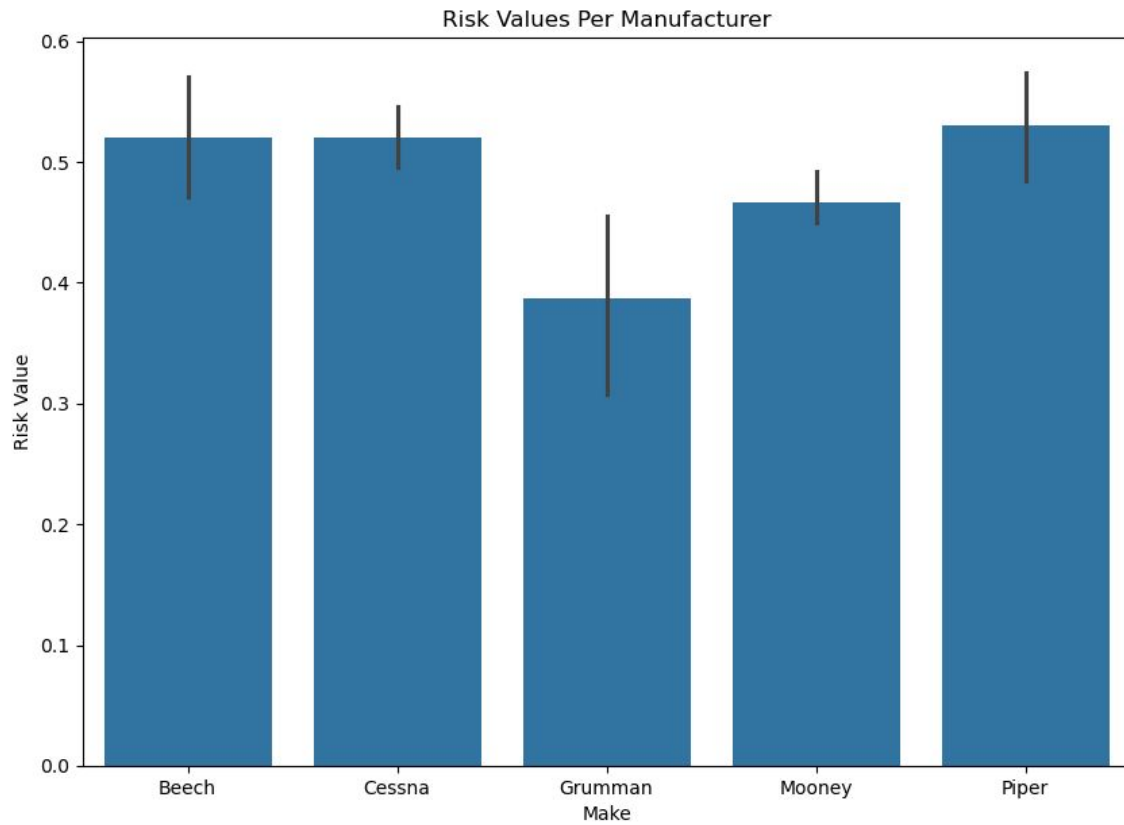


Findings From Risk Index

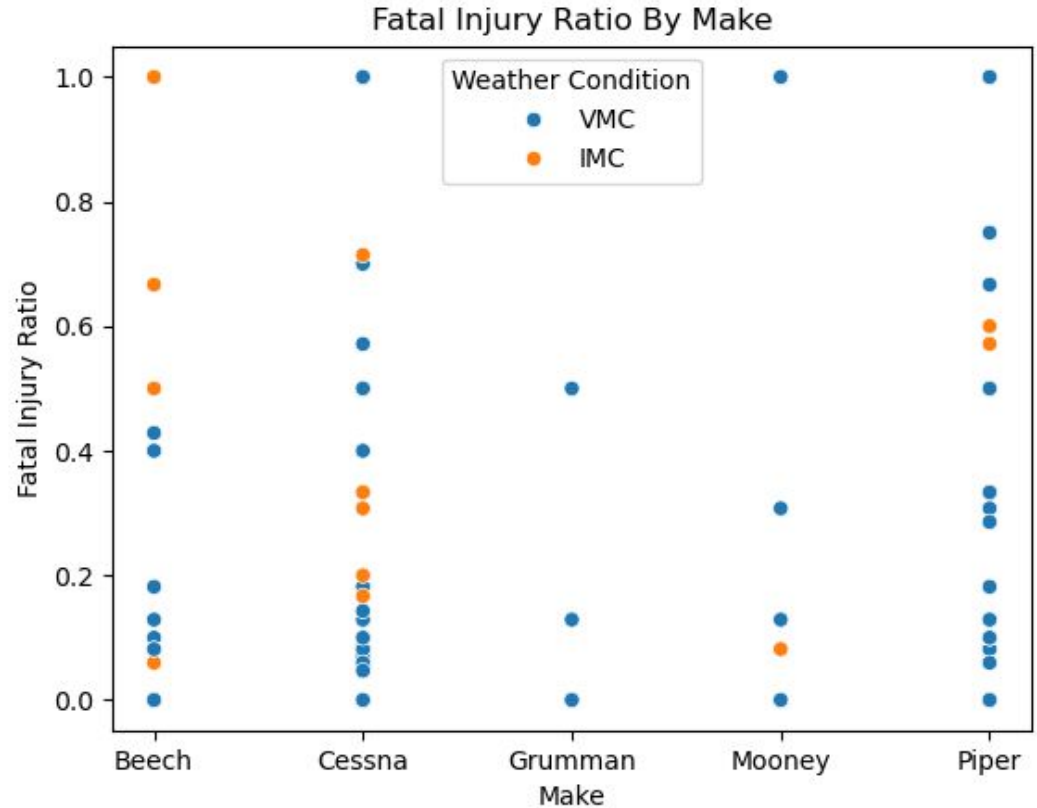


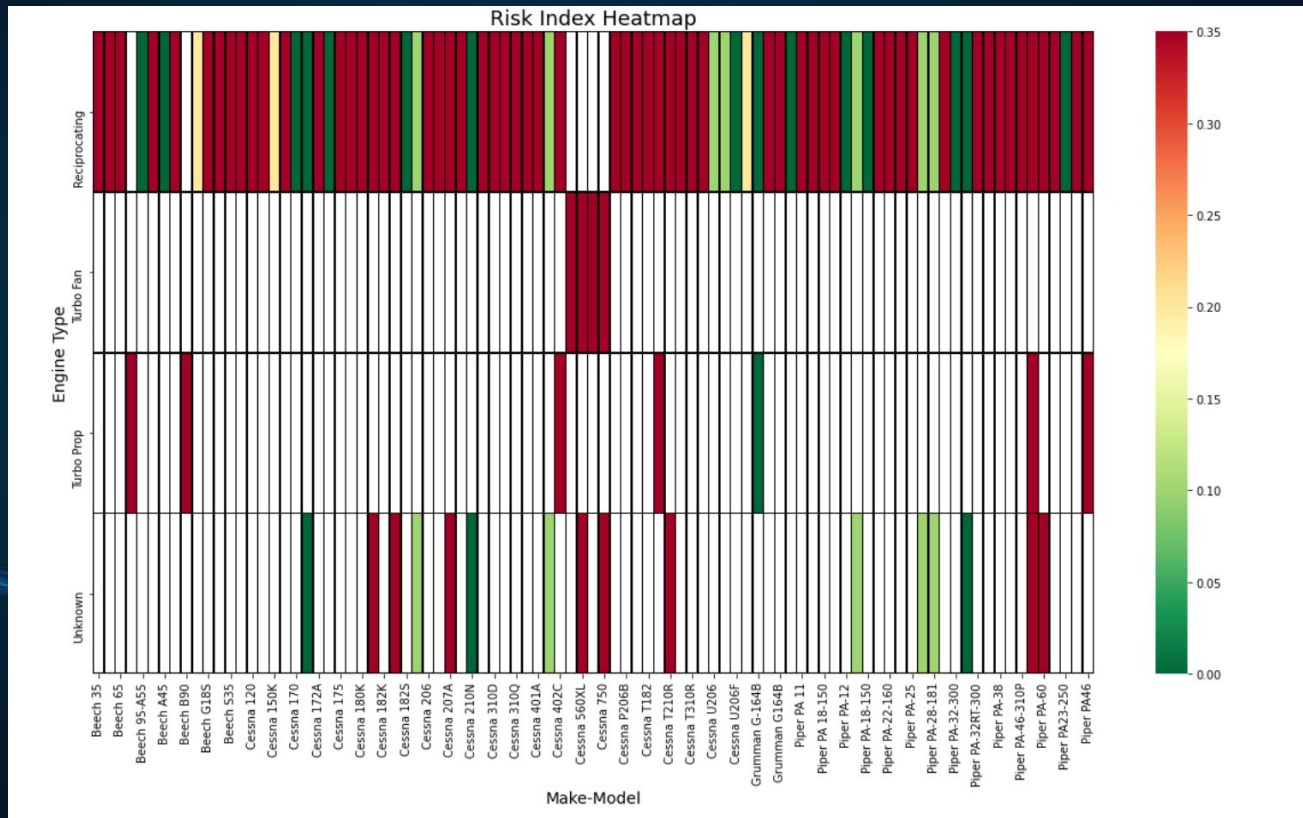
What manufacturers have the
lowest risk?

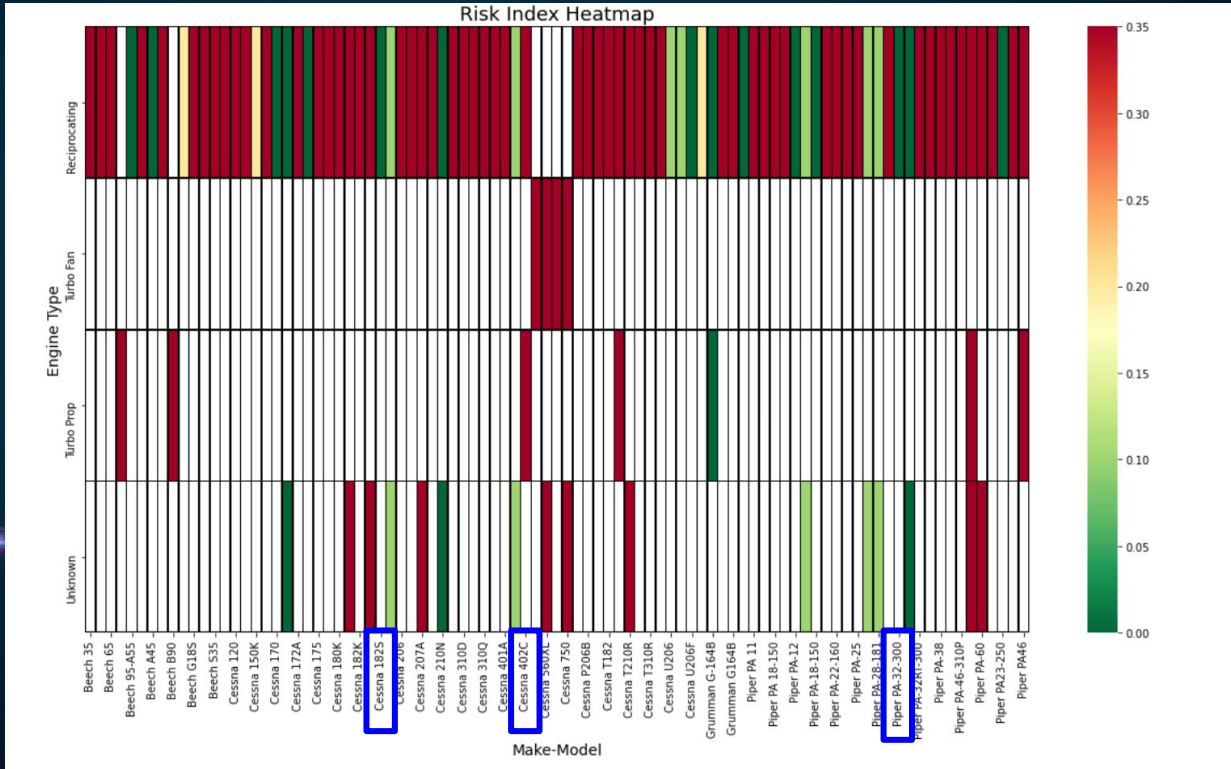




- Cessna performs well in both weather conditions
- Claim is limited by lack of data







Time To Vote

Cessna 182



Piper PA-32-300



Cessna 402C



Questions?

Risk Index Function

```
def risk_index(make_model, risk_index_df):  
  
    row = risk_index_df.loc[make_model]  
  
    if row.empty:  
        return "Make-Model not found"  
  
    avg_fatality_rate = row['Average Fatality Rate']  
    avg_serious_injury_rate = row['Average Serious Injury Rate']  
    avg_fatality_substantial_damage = row['Average Fatality Rate w/ Substantial Damage']  
    avg_uninjured_rate = row['Average Uninjured Rate']  
    avg_minor_injury = row['Average Minor Injury Rate']  
  
    weights = {  
        'fatality_rate': .10,  
        'serious_injury_rate': .10,  
        'minor_injury_rate': .35,  
        'substantial_damage_rate': .10,  
        'uninjured_rate': .35  
    }  
  
    score = 0  
    weights['fatality_rate'] * (avg_fatality_rate > 0.20) +  
    weights['serious_injury_rate'] * (avg_serious_injury_rate > 0.10) +  
    weights['substantial_damage_rate'] * (avg_fatality_substantial_damage > 0.08) +  
    weights['uninjured_rate'] * (avg_uninjured_rate < 0.60) +  
    weights['minor_injury_rate'] * (avg_minor_injury < 0.13)  
  
    if score > .7:  
        return f"High Risk, {score}"  
    elif score > .4:  
        return f"Medium Risk, {score}"  
    else:  
        return f"Low Risk, {score}"
```

- Mean of each indicator serves as the threshold for risk conditions
- Given weights based on distribution of individual indicators
- Risk score = $\text{sum}(\text{weight} * \text{condition})$
- Create bins for risk scores
- Input a Make-Model, Output a Risk Index(Rank, Score)