Final project

Data Science with R and python

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The Topic and Motivation

Topic

- Airlines

Motivation

- Using the skills of data science and finding out different statistics of the airline market

Introduction of the Data

Data question

- How does the number of air passengers change over time?

Modeling objective

- Finding the trend of the number of air passengers over time

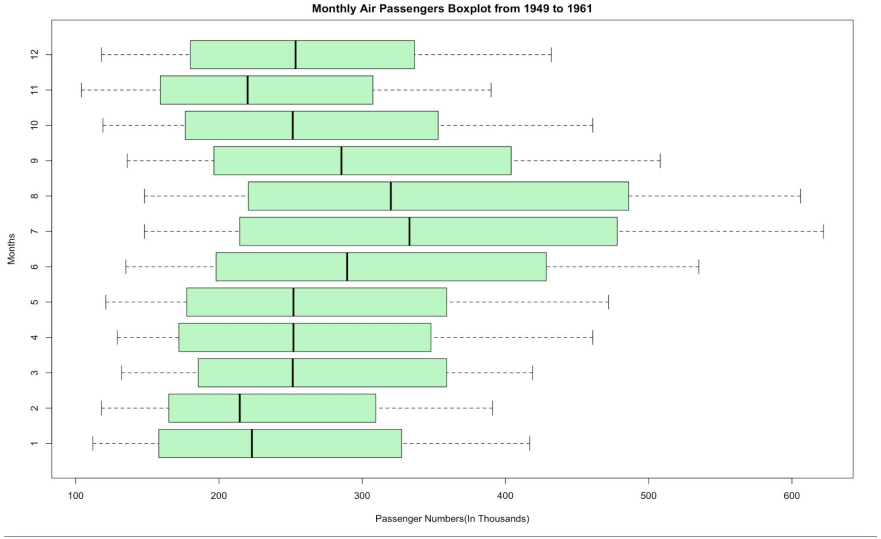
Data description

- The monthly totals of airline passengers

Response Variable

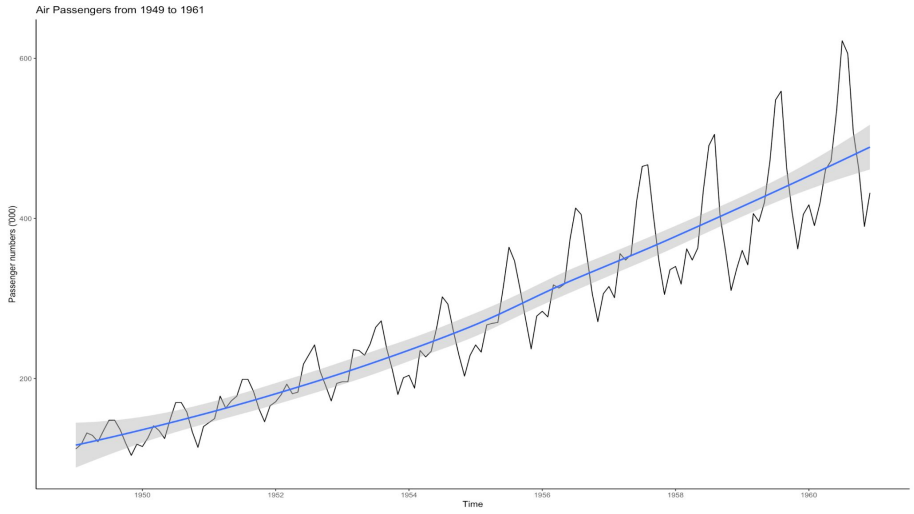
- Number of Passengers

Exploratory Data Analysis



Boxplot

Linear Regression



Final Model

```r
arimaAP <- auto.arima(AirPassengers)
arimaAP
```

```
Series: AirPassengers
ARIMA(2,1,1)(0,1,0)[12]

Coefficients:
         ar1     ar2      ma1
      0.5960  0.2143  -0.9819
s.e.  0.0888  0.0880   0.0292

sigma^2 = 132.3:  log likelihood = -504.92
AIC=1017.85   AICc=1018.17   BIC=1029.35
```

Final model: ARIMA model of AirPassangers

Findings from the Model

- ARIMA(2,1,1)(0,1,0)[12] model parameters
- P, Q, and D parameters

Conclusion + future work

- ARIMA was the final model
- Use more models as well as some more accurate models

Thank You