

# TimeSeries Skeleton

*Michael McCormack*

*March 12, 2018*

```
require(tidyverse) require(ggfortify) require(forecast)
```

## Step 1: Get the data

Download from website <https://cdn.rawgit.com/mikejt33/DataViz/246c2026/data/flights.csv.gz> Easiest to unzip locally then read in the data as a csv file.

```
flights <- read.csv('flights.csv')
```

## Step 2: Initial EDA

Are there any null values?

Isolate the data you want to use. We recommend using arrival delay and departure delay times. Or Origin/Destination cities. Or Aggregate by Carrier

## Step 3: Fit the data to a TimeSeries object.

Refer to the slides for tips on how to do this.

## Step 4: Use TimeSeries object data to make an initial Visualization

Create a basic Visualization of the TimeSeries object data

### Advanced

See if you can figure out how to do this in ggplot -hint the function is called autoplot and is part of ggfortify.

## Dive in Deeper to TimeSeries

For this portion of our lab we will be using data from the AirPassengers Dataset

```
data(AirPassengers)
```

**Step 5: Make an initial TimeSeries Visual of the AirPassenger Data**

**Step 6: Compute the Moving Average of this data and visualize this**

**Step 7: Remove the Trend from the data and visualize this**

**Step 8: Create a decomposition of the data by month**

– Hint (Frequency = 12), use the decompose function, and remember this is multiplicative

**Advanced: Visually isolate certain parts of the graph**

How would you only represent the random graph.

**Step 9: Create your own simple moving average for monthly data**

Hint - A good starting place is StackOverFlow <https://stackoverflow.com/questions/743812/calculating-moving-average>