**Project Overview**

You're a supply chain analyst that creates and sells video games. our manager has tasked you to forecast monthly sales data in order to help plan out the supply with demand for the company's video games.

**How Do I Complete this Project?**

This project uses skills learned throughout the "Time Series Forecasting ” course. To complete this project:

* Go through the course
* Apply the skills learned in the course to solve the business problem given in the project details section.
* Use our guidelines and rubric to help build your project.
* When you're ready, submit it to us for review using the submission template found in the supporting materials section.

**Skills Required**

In order to complete this project, you must be able to:

* Cleanup, format, and blend a wide range of data sources
* Analyze a time-series and apply ETS and ARIMA models to the time-series

### The Business Problem

You recently started working for a company as a supply chain analyst that creates and sells video games. Many businesses have to be on point when it comes to ordering supplies to meet the demand of its customers. An overestimation of demand leads to bloated inventory and high costs. Underestimating demand means many valued customers won't get the products they want. Your manager has tasked you to forecast monthly sales data in order to synchronize supply with demand, aid in decision making that will help build a competitive infrastructure and measure company performance. You, the supply chain analyst, are assigned to help your manager run the numbers through a time series forecasting model.

You’ve been asked to provide a forecast for the next 4 months of sales and report your findings.

### Steps to Success

#### Step 1: Investigate and Prepare the Data

Look at your data set and determine whether the data is appropriate to use time series models. Determine which records should be held for validation later on.

#### Step 2: Determine Trend, Seasonal and Error components

Graph the data set and decompose the time series into its three main components: trend, seasonality, and error.

#### Step 3: Build your Models

Determine the appropriate measurements to apply to your ARIMA and ETS models and describe the errors for both models.

#### Step 4: Forecast

Compare the in-sample error measurements to both models and compare error measurements for the holdout sample in your forecast. Choose the best fitting model and forecast the next four periods.

NEXT

### Review

Use the [**project rubric**](https://review.udacity.com/#!/rubrics/302/view) to review your project. If you are happy with your submission, then you're ready to submit your project. If you see room for improvement, keep working to improve your project.

### Submission Template

Use the submission template at the bottom of this section to submit your project. After filling it out, save it as a PDF and submit the PDF in the next section.

#### Data

monthly\_sales.xlsx - This file contains store information for the company's sales by month.

#### Supporting Materials

**[Monthly Sales](https://d17h27t6h515a5.cloudfront.net/topher/2016/October/57f40ea1_monthly-sales/monthly-sales.xlsx" \t "_blank)**

**[Submission Template](https://d17h27t6h515a5.cloudfront.net/topher/2016/October/5817ace2_submissiontemplate/submissiontemplate.docx" \t "_blank)**