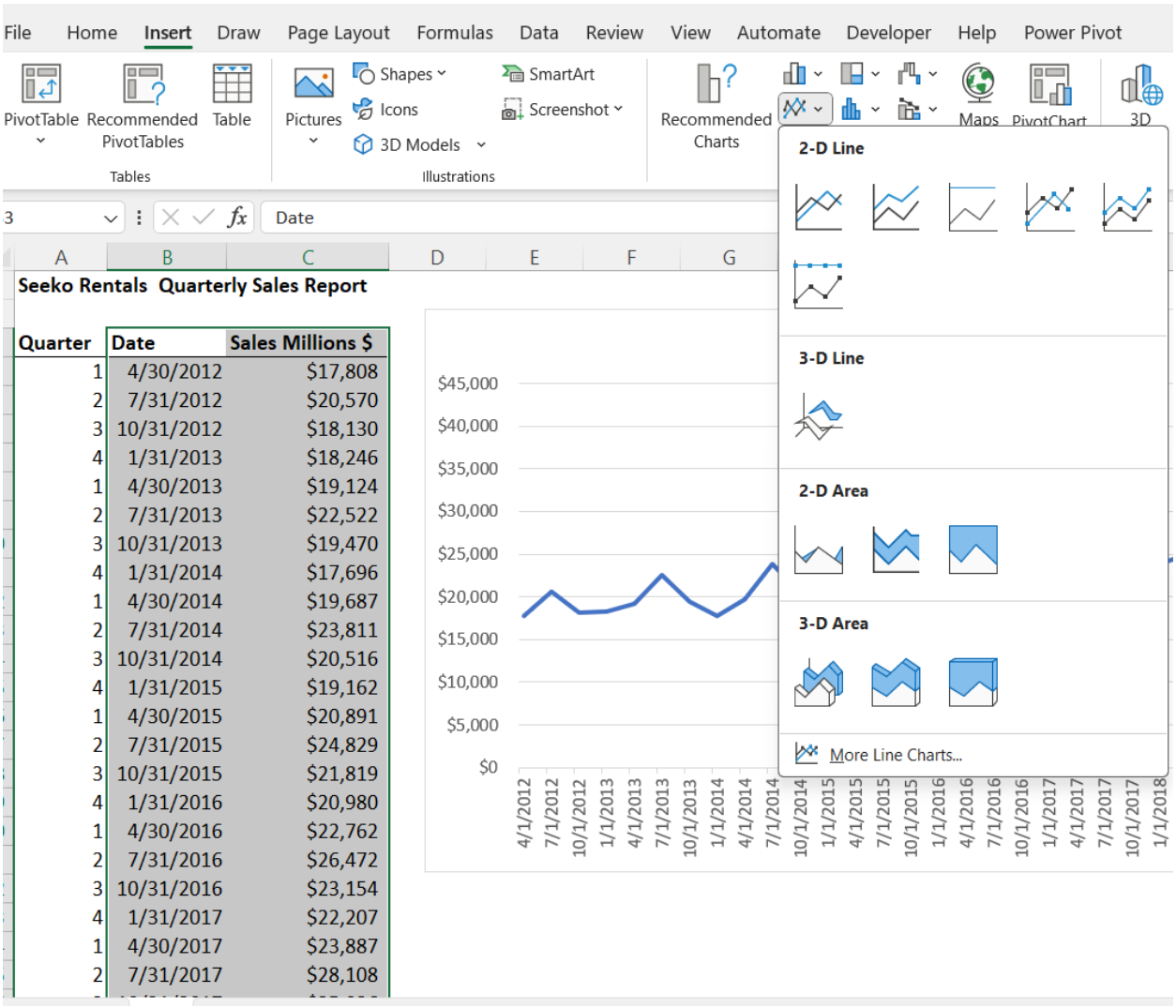
Project: Create a sales forecast for upcoming quarters based on historical Sales values using MS Excel These predictions could pertain to sales, manufacturing, quantities, or other KPIs

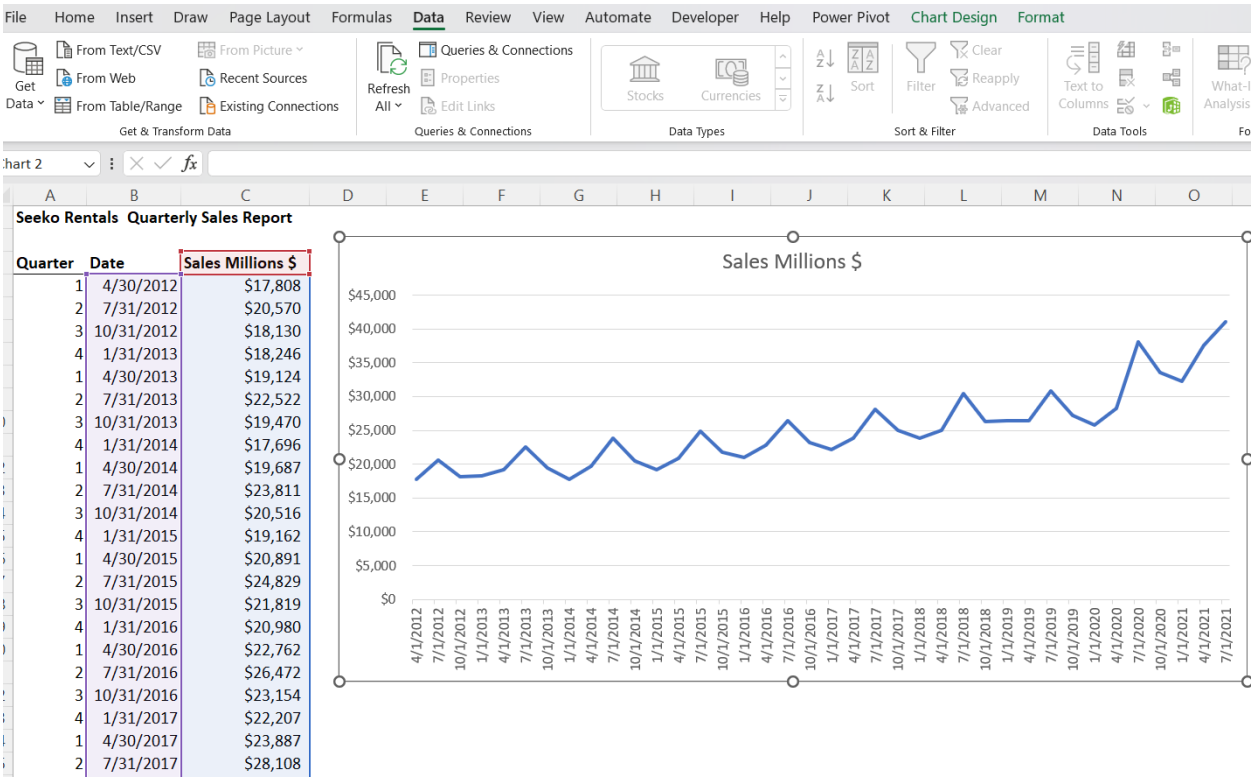
Source: I have used the last 10 years of quarterly sales for JoJo Rentals

Steps followed:

Step 1. Highlighted the dates and sales values, created a quick line chart by selecting **Insert(tab)->Charts(group)-> Line Chart**



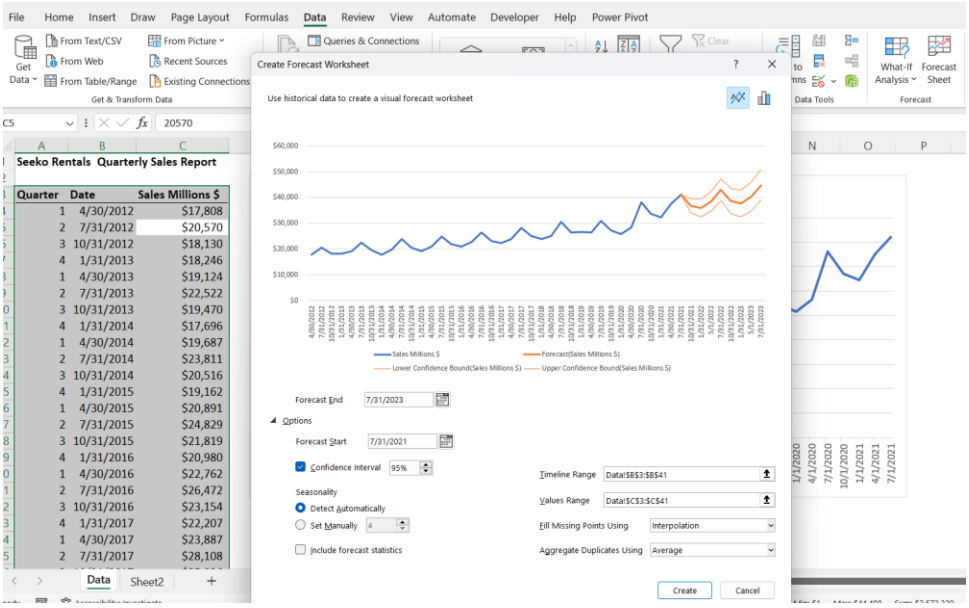
Results output



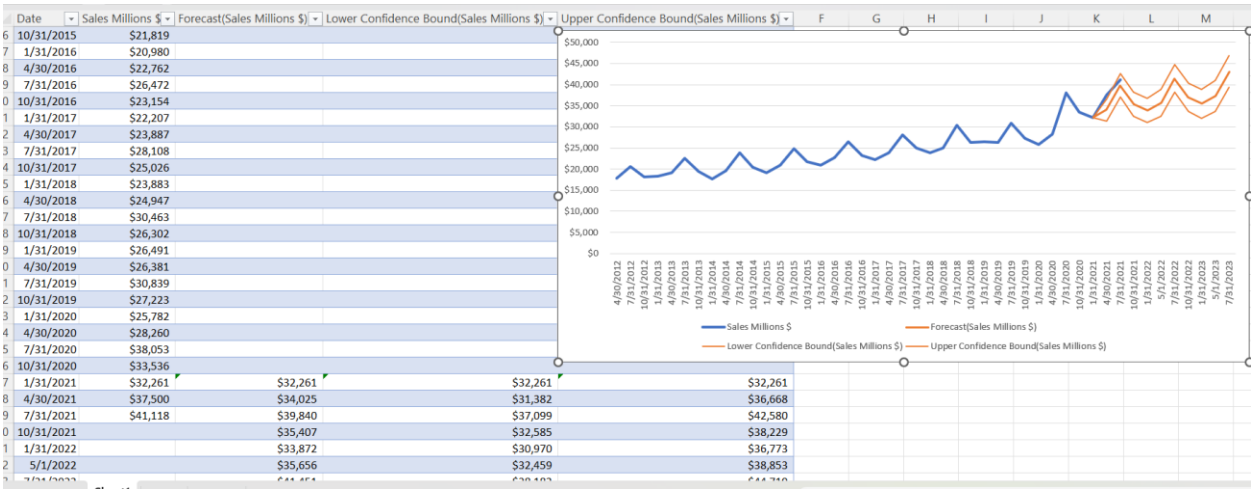
Quarter	Date	Sales Millions $
1	4/30/2012	$17,808
2	7/31/2012	$20,570
3	10/31/2012	$18,130
4	1/31/2013	$18,246
1	4/30/2013	$19,124
2	7/31/2013	$22,522
3	10/31/2013	$19,470
4	1/31/2014	$17,696
1	4/30/2014	$19,687
2	7/31/2014	$23,811
3	10/31/2014	$20,516
4	1/31/2015	$19,162
1	4/30/2015	$20,891
2	7/31/2015	$24,829
3	10/31/2015	$21,819
4	1/31/2016	$20,980
1	4/30/2016	$22,762
2	7/31/2016	$26,472
3	10/31/2016	$23,154
4	1/31/2017	$22,207
1	4/30/2017	$23,887
2	7/31/2017	$28,108

I Observed peaks and valleys, indicating seasonality, making Excel's forecasting tool a convenient option for predicting future sales at JoJo Rentals.

Step 2: To use the Forecast Sheet tool, in Excel, I selected the range of cells containing dates and historical sales data, and then clicked on the data tab and then the Forecast Sheet button. This generated a predicted chart for sales.



Result output



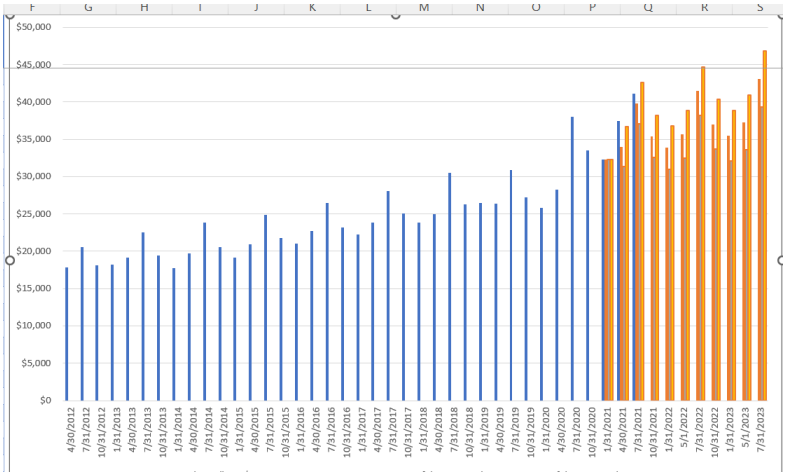
Date	Sales Millions $	Forecast(Sales Millions $)	Lower Confidence Bound(Sales Millions $)	Upper Confidence Bound(Sales Millions $)
10/31/2015	$21,819			
1/31/2016	$20,980			
4/30/2016	$22,762			
7/31/2016	$26,472			
10/31/2016	$23,154			
1/31/2017	$22,207			
4/30/2017	$23,887			
7/31/2017	$28,108			
10/31/2017	$25,026			
1/31/2018	$23,883			
4/30/2018	$24,947			
7/31/2018	$30,463			
10/31/2018	$26,302			
1/31/2019	$26,491			
4/30/2019	$26,381			
7/31/2019	$30,839			
10/31/2019	$27,223			
1/31/2020	$25,782			
4/30/2020	$28,260			
7/31/2020	$38,053			
10/31/2020	$33,536			
1/31/2021	$32,261	$32,261	$32,261	$32,261
4/30/2021	$37,500	$34,025	$31,382	$36,668
7/31/2021	$41,118	$39,840	$37,099	$42,580
10/31/2021		$35,407	$32,585	$38,229
1/31/2022		$33,872	$30,970	$36,773
5/1/2022		$35,656	$32,459	$38,853

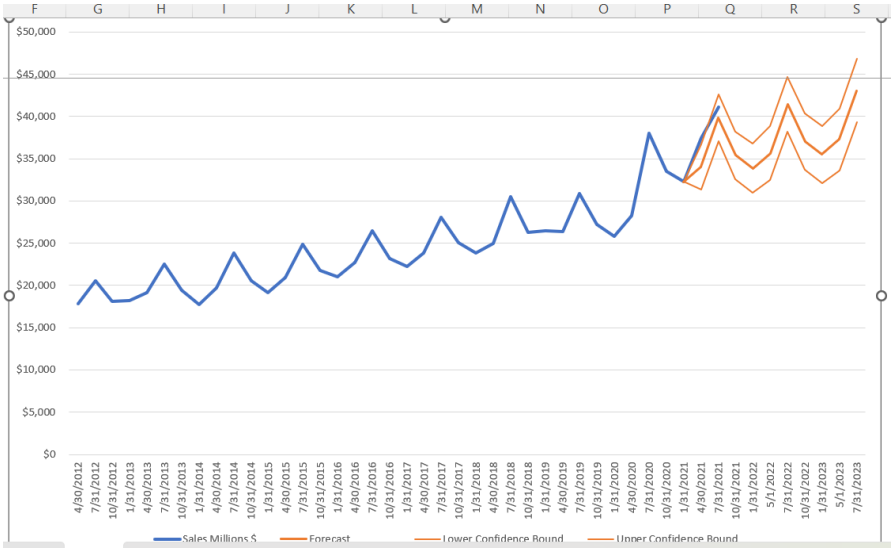
To assess the accuracy of the Excel algorithm, I changed the forecast start date to 1/31/2021 for which I already had the actual values. the comparison revealed that the predictions closely matched the actual values. (Actual values are displayed in blue, while predictions are in orange.)

Predicted Values for the upcoming quarters are as follows

1/31/2021	$32,261	$32,261	$32,261	$32,261
4/30/2021	$37,500	$34,025	$31,382	$36,668
7/31/2021	$41,118	$39,840	$37,099	$42,580
0/31/2021		$35,407	$32,585	$38,229
1/31/2022		$33,872	$30,970	$36,773
5/1/2022		$35,656	$32,459	$38,853
7/31/2022		$41,451	$38,182	$44,719
0/31/2022		$37,018	$33,679	$40,357
1/31/2023		$35,483	$32,074	$38,892
5/1/2023		$37,267	$33,599	$40,934
7/31/2023		$43,061	$39,330	$46,793

The results have been displayed using Line and column charts





Here are the descriptions for the commonly adjusted controls:

Forecast Start: I used the beginning date for my forecast analysis. It's useful to set this date just before the latest available data point to assess the tool's accuracy by comparing the forecast to actual results, However, be cautious not to set it too early in the data, as having fewer data points can reduce the tool's predictive accuracy. The more data you provide, the more accurate the tool becomes.

Confidence Interval: The confidence interval represents the range around each predicted value where 95% of future data points are expected to fall, assuming a normal distribution. This helps gauge the accuracy of the prediction. A higher percentage indicates more confidence in the specific point's prediction.

Seasonality: Seasonality indicates the number of data points that make up a seasonal pattern. For example, in a quarterly sales cycle with each point representing a month, the seasonality value is 4.

Timeline Range: This is the range of cells containing the date intervals.

Values Range: This is the range of cells containing the corresponding values.

Fill Missing Points Using: If there are gaps in the data, Excel uses interpolation to calculate missing points. This means that missing data points are estimated as the weighted average of neighboring points, provided that less than 30% of the data points are missing. If you prefer to treat missing data points as 0 (zero), you can select the "Zeroes" option.

Aggregate Duplicates Using: In cases where your data contains multiple values with the same timestamp, Excel provides options for aggregating these values. You can choose from various aggregation methods such as MEDIAN, COUNT, SUM, and more.