



# Advanced Excel charts



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## About the Tutorial

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Excel charts are an efficient means to visualize the data to convey the results. In addition to the chart types that are available in Excel, some application charts are popular and widely used. In this tutorial, you will learn about these advanced charts and how you can create them in Excel.

## Audience

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This guide targets people who want to use graphs or charts in presentations and help people understand data quickly. Whether you want to make a comparison, show a relationship, or highlight a trend, these charts help your audience “see” what you are talking about.

Among its many features, Microsoft Excel enables you to incorporate charts, providing a way to add visual appeal to your business reports.

## Prerequisites

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Before you proceed with this tutorial, we are assuming that you are already aware of the basics of Microsoft Excel charts. If you are not well aware of these concepts, then we will suggest you to go through our short tutorial on Excel charts.

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# 1. ADVANCED EXCEL CHARTS – INTRODUCTION

You are aware that charts are the efficient data visualization means to convey the results. In addition to the chart types that are available in Excel, some widely used application charts are popular. In this tutorial, you will learn about these advanced charts and how you can create them in Excel.

## **Types of Advanced Charts**

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Following are the advanced charts that you will learn in this tutorial-

- Waterfall Chart
- Band Chart
- Gantt Chart
- Thermometer Chart
- Gauge Chart
- Bullet Chart
- Funnel Chart
- Waffle Chart
- Heat Map
- Step Chart
- Box and Whisker Chart
- Histogram
- Pareto Chart
- Organization Chart

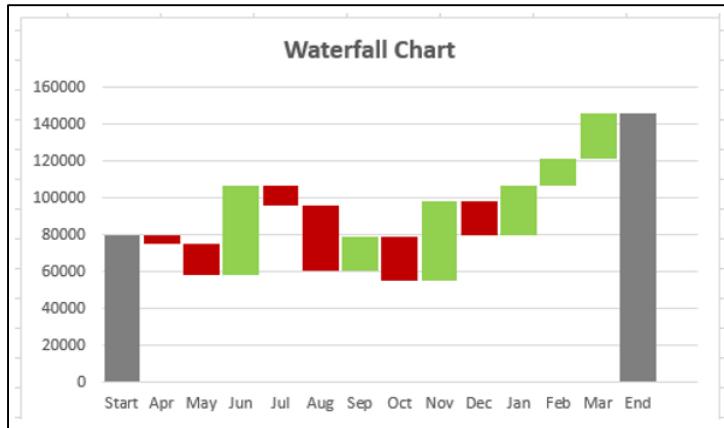
## **Advanced Charts in Brief**

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We will see all the advanced charts briefly.

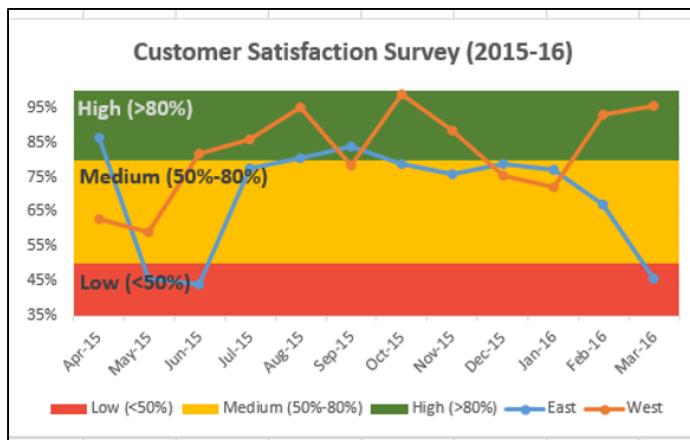
### **Waterfall Chart**

A Waterfall chart is a form of data visualization that helps in understanding the cumulative effect of sequentially introduced positive or negative values.



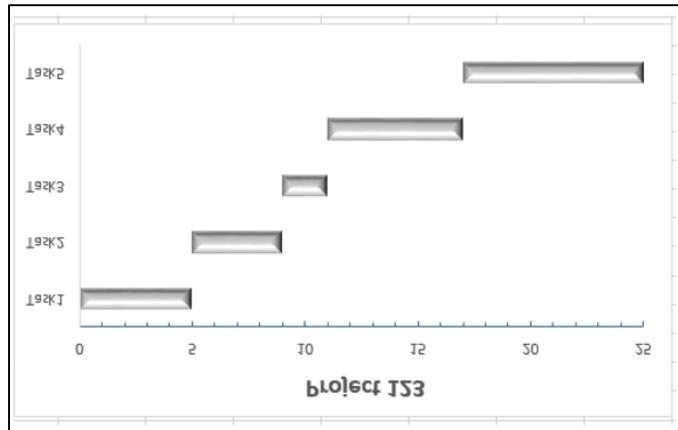
## Band Chart

A Band chart is a Line chart with added shaded areas to display the upper and lower boundaries of the defined data ranges.



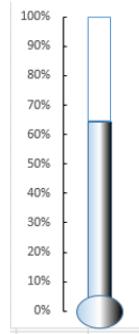
## Gantt Chart

A Gantt chart is a chart in which a series of horizontal lines depicting tasks, task duration and task hierarchy are used planning and tracking projects.



## Thermometer Chart

A Thermometer chart keeps track of a single task, for e.g. completion of work, representing the current status as compared to a Target. It displays the percentage of the task completed, taking Target as 100%.



## Gauge Chart

Gauge charts, also referred to as Dial charts or Speedometer charts, use a pointer or a needle to show information as a reading on a dial.



## Bullet Chart

Bullet charts support the comparison of a measure to one or more related measures with a linear design.



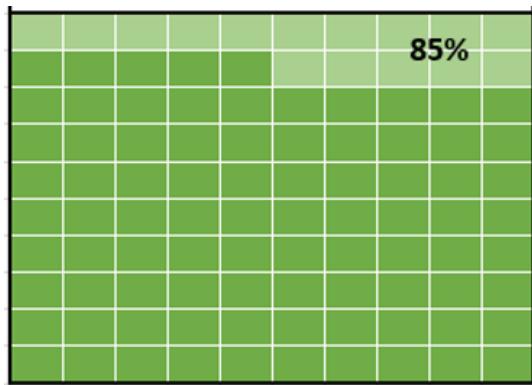
## Funnel Chart

Funnel chart is used to visualize the progressive reduction of data as it passes from one phase to another in a process.



## Waffle Chart

Waffle chart is a 10 X 10 cell grid with the cells colored as per conditional formatting to portray a percent value such % work complete.



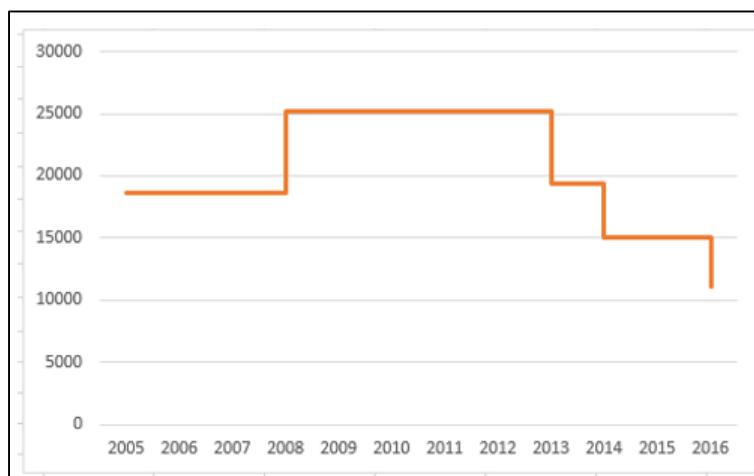
## Heat Map

A Heat Map is a visual representation of data in a Table to highlight the data points of significance.

S. No.	Month	Refrigerator	Television	Washing Machine	Air Conditioner
1	April				
2	May				
3	June				
4	July				
5	August				
6	September				
7	October				
8	November				
9	December				
10	January				
11	February				
12	March				

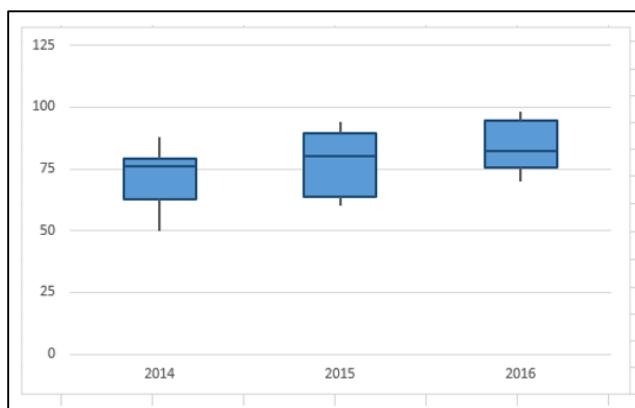
## Step Chart

A Step chart is a Line chart that uses vertical and horizontal lines to connect the data points in a series, forming a step-like progression.



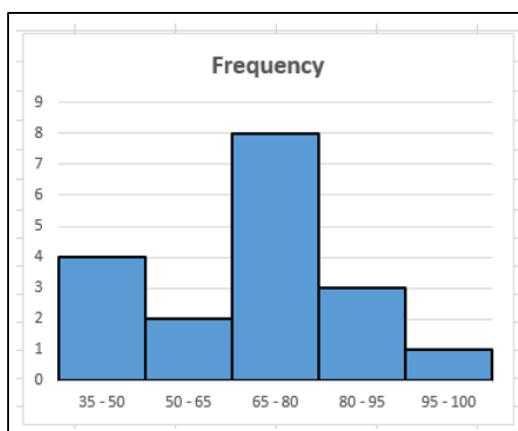
## Box and Whisker Chart

Box and Whisker charts, also referred to as Box Plots are commonly used in statistical analysis. In a Box and Whisker chart, numerical data is divided into quartiles and a box is drawn between the first and third quartiles, with an additional line drawn along the second quartile to mark the median. The minimums and maximums outside the first and third quartiles are depicted with lines, which are called whiskers. Whiskers indicate variability outside the upper and lower quartiles, and any point outside the whiskers is considered as an outlier.



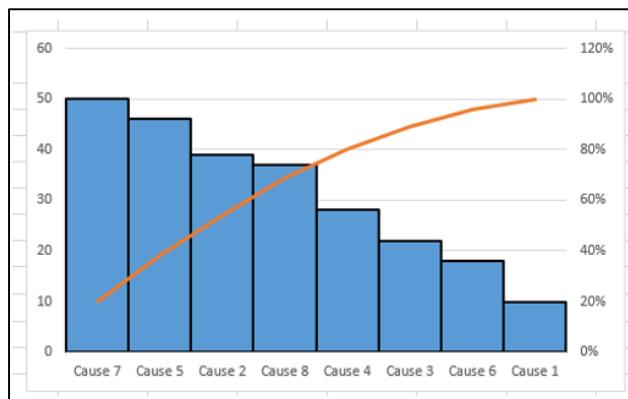
## Histogram

A Histogram is a graphical representation of the distribution of numerical data and is widely used in Statistical Analysis. A Histogram is represented by rectangles with lengths corresponding to the number of occurrences of a variable in successive numerical intervals.



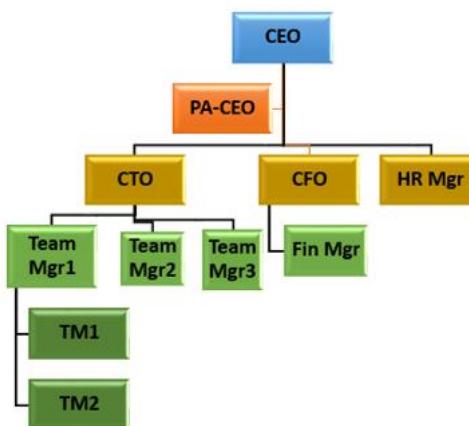
## Pareto Chart

Pareto chart is widely used in Statistical Analysis for decision-making. It represents the Pareto principle, also called 80/20 Rule, which states that 80% of the results are due to 20% of the causes.



## Organization Chart

An Organization chart graphically represents the management structure of an organization.



Though some of these charts are included in Excel 2016, Excel 2013 and earlier versions do not have them as built-in charts. In this tutorial, you will learn how to create these charts from the built-in chart types in Excel.

## Methodology for Creating Advanced Excel Charts

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For each of the advanced charts mentioned above, you will learn how to create them in Excel with the following steps –

- **Prepare data for the chart:** Your input data might have to be put in a format that can be used to create the chart at hand. Hence, for each of the charts you will learn how to prepare the data.

- **Create the chart:** You will learn step by step how you can arrive at the chart, with illustrations.

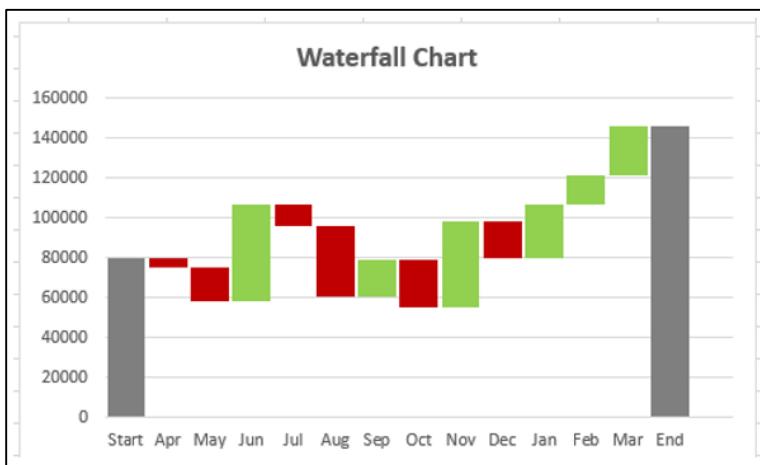
## 2. ADVANCED EXCEL CHARTS – WATERFALL CHART

Waterfall chart is one of the most popular visualization tools used in small and large businesses, especially in Finance. Waterfall charts are ideal for showing how you have arrived at a net value such as net income, by breaking down the cumulative effect of positive and negative contributions.

### What is a Waterfall Chart?

A Waterfall chart is a form of data visualization that helps in understanding the cumulative effect of sequentially introduced positive or negative values. A typical Waterfall chart is used to show how an initial value is increased and decreased by a series of intermediate values, leading to a final value.

In a Waterfall chart, the columns are color coded so that you can quickly tell positive from negative numbers. The initial and the final value columns start on the horizontal axis, while the intermediate values are floating columns.



Because of this look, Waterfall charts are also called Bridge charts, Flying Bricks charts or Cascade charts.

### Advantages of Waterfall Charts

A Waterfall chart has the following advantages–

- **Analytical purposes:** Used especially for understanding or explaining, the gradual transition in the quantitative value of an entity, which is subjected to increment or decrement.
-

- **Quantitative analysis:** Used in quantitative analysis ranging from inventory analysis to performance analysis.
- 
- 
- **Tracking contracts:** Starting with the number of contracts at hand at the beginning of the year, taking into account-
  - The new contracts that are added
  - The contracts that got cancelled
  - The contracts that are finished, and
  - Finally ending with the number of contracts at hand at the end of the year.
- Tracking performance of company over a given number of years.

In general, if you have an initial value, and changes (positive and negative) occur to that value over a period of time, then Waterfall chart can be used to depict the initial value, positive and negative changes in their order of occurrence and the final value.

## Preparation of Data

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You need to prepare the data from the given input data, so that it can be portrayed as a Waterfall chart.

Consider the following data -

	A	B	C
1			
2		<b>Net Cash Flow</b>	
3		80000	<b>Start</b>
4		-5003	<b>Apr</b>
5		-16700	<b>May</b>
6		48802	<b>Jun</b>
7		-11198	<b>Jul</b>
8		-35260	<b>Aug</b>
9		18220	<b>Sep</b>
10		-23840	<b>Oct</b>
11		43250	<b>Nov</b>
12		-18280	<b>Dec</b>
13		26670	<b>Jan</b>
14		15000	<b>Feb</b>
15		24750	<b>Mar</b>

Prepare the data for the Waterfall chart as follows -

- Ensure the column Net Cash Flow is to the left of the Months Column (This is because you will not include Net Cash Flow column while creating the chart).
- Add two columns- Increase and Decrease for positive and negative cash flows respectively.
- Add a column Start- the first column in the chart with the start value in the Net Cash Flow.
- Add a column End- the last column in the chart with the end value in the Net Cash Flow.
- Add a column Float- that supports the intermediate columns.
- Insert formulas to compute the values in these columns as given in the table below.

A	B	C	D	E	F	G	H
1	Net Cash Flow		Float	Positive	Negative	Start	End
2			50000				
3	80000	Start				=B4	
4	-5003	Apr	=SUM(G4,E5)-F5	=MAX(B5,0)	=-MIN(B5,0)		
5	-16700	May	=SUM(D5,E5)-F6	=MAX(B6,0)	=-MIN(B6,0)		
6	48802	Jun	=SUM(D6,E6)-F7	=MAX(B7,0)	=-MIN(B7,0)		
7	-11198	Jul	=SUM(D7,E7)-F8	=MAX(B8,0)	=-MIN(B8,0)		
8	-35260	Aug	=SUM(D8,E8)-F9	=MAX(B9,0)	=-MIN(B9,0)		
9	18220	Sep	=SUM(D9,E9)-F10	=MAX(B10,0)	=-MIN(B10,0)		
10	-23840	Oct	=SUM(D10,E10)-F11	=MAX(B11,0)	=-MIN(B11,0)		
11	43250	Nov	=SUM(D11,E11)-F12	=MAX(B12,0)	=-MIN(B12,0)		
12	-18280	Dec	=SUM(D12,E12)-F13	=MAX(B13,0)	=-MIN(B13,0)		
13	26670	Jan	=SUM(D13,E13)-F14	=MAX(B14,0)	=-MIN(B14,0)		
14	15000	Feb	=SUM(D14,E14)-F15	=MAX(B15,0)	=-MIN(B15,0)		
15	24750	Mar	=SUM(D15,E15)-F16	=MAX(B16,0)	=-MIN(B16,0)		
16							=SUM(D16,E16)-F17
17			50000				
18							

In the Float column, insert a row in the beginning and at the end. Place an arbitrary value 50000. This is just to have some space to the left and right sides of the chart.

The data will look as given in the following table-

A	B	C	D	E	F	G	H
1	Net Cash Flow		Float	Positive	Negative	Start	End
2			50000				
3	80000	Start				80000	
4	-5003	Apr	74997	0	5003		
5	-16700	May	58297	0	16700		
6	48802	Jun	58297	48802	0		
7	-11198	Jul	95901	0	11198		
8	-35260	Aug	60641	0	35260		
9	18220	Sep	60641	18220	0		
10	-23840	Oct	55021	0	23840		
11	43250	Nov	55021	43250	0		
12	-18280	Dec	79991	0	18280		
13	26670	Jan	79991	26670	0		
14	15000	Feb	106661	15000	0		
15	24750	Mar	121661	24750	0		
16			50000				146411
17							
18							

The data is ready to create a Waterfall chart.

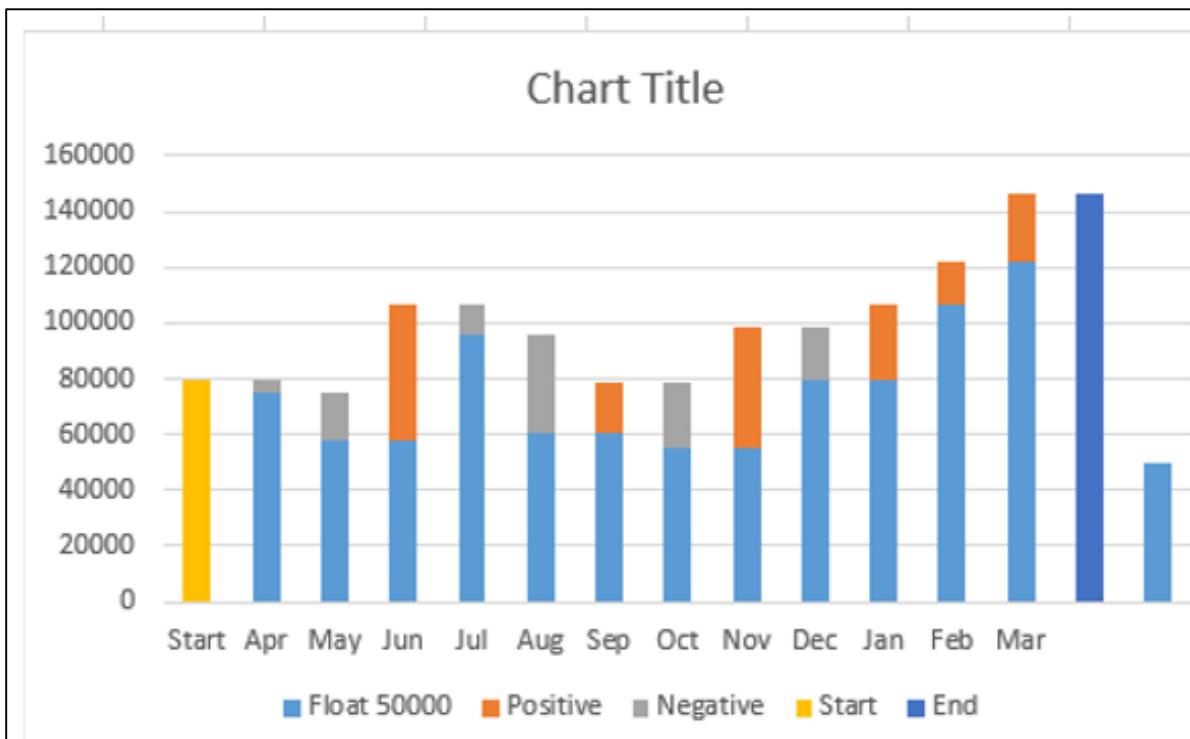
## Creating a Waterfall Chart

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You can create a Waterfall chart customizing Stacked Column chart as follows –

**Step 1:** Select the cells C2:H18 (i.e. excluding the Net Cash Flow column).

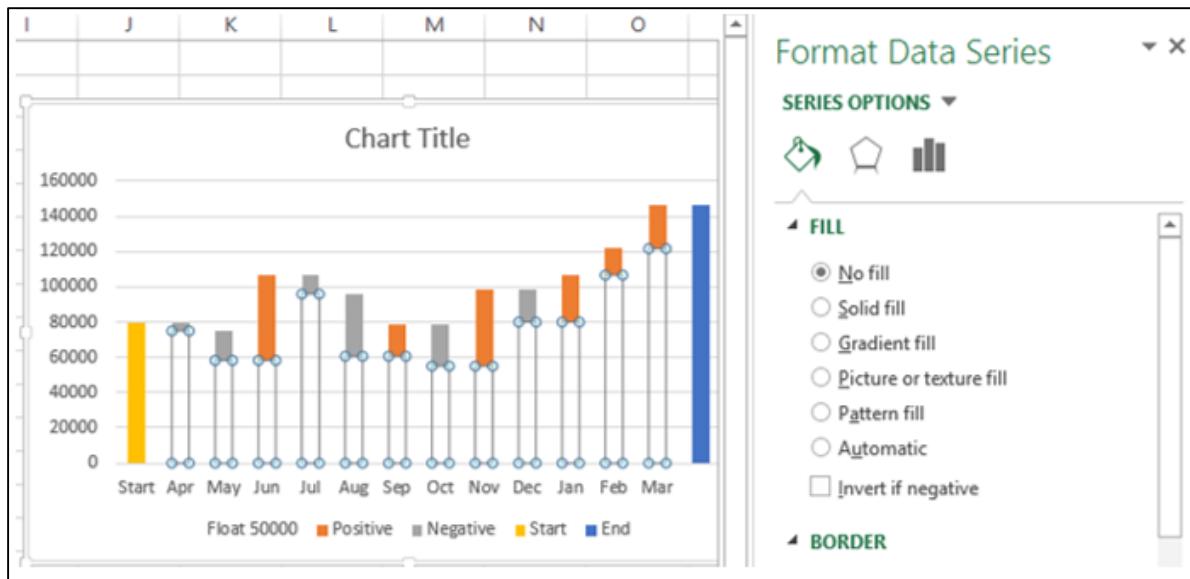
**Step 2:** Insert Stacked Column chart.



**Step 3:** Right click on the Float series.

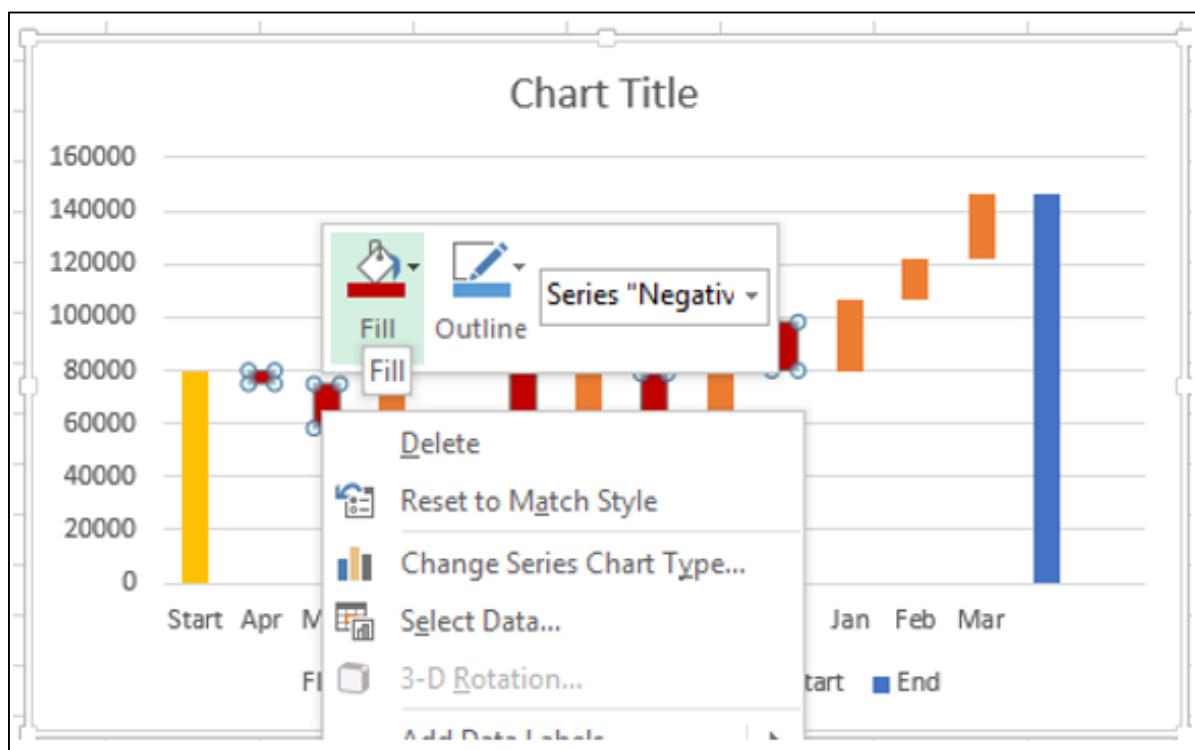
**Step 4:** Click Format Data Series in the dropdown list.

**Step 5:** Select No fill for FILL in the SERIES OPTIONS in the Format Data Series pane.



**Step 6:** Right click on the Negative series.

**Step 7:** Select Fill color as red.



**Step 8:** Right click on the Positive series.

**Step 9:** Select Fill color as green.



**Step 10:** Right click on the Start series.

**Step 11:** Select Fill color as gray.

**Step 12:** Right click on the End series.

**Step 13:** Select Fill color as gray.

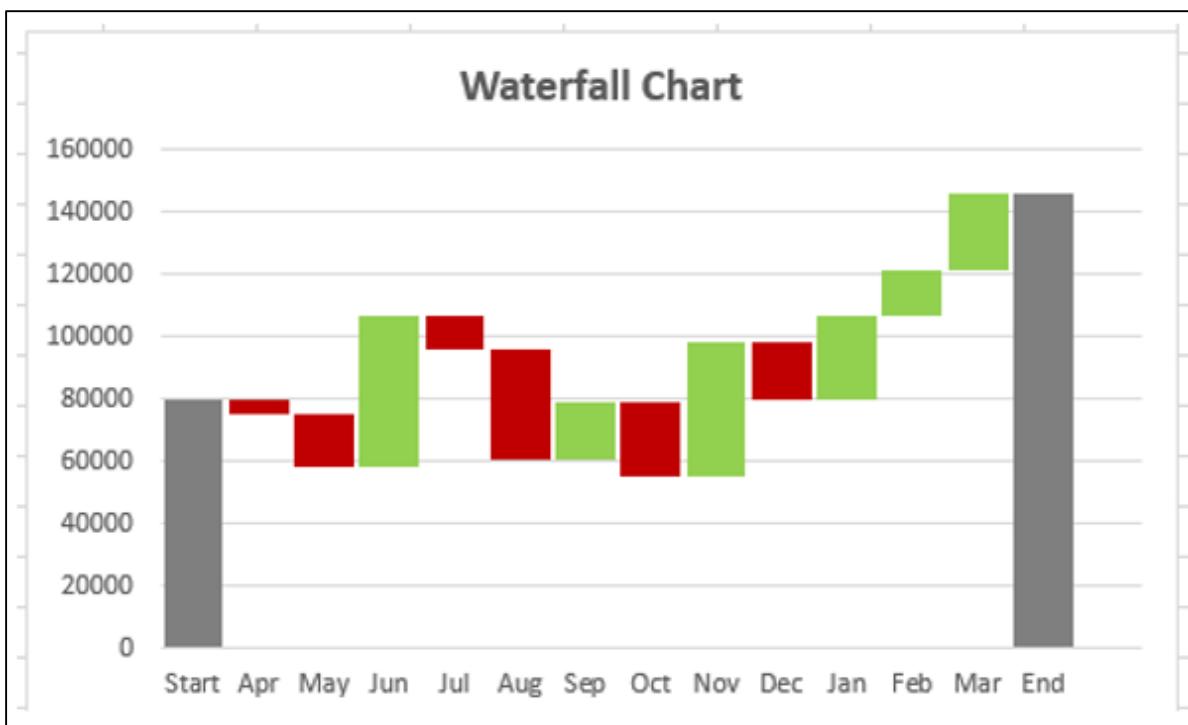


**Step 14:** Right click on any of the series.

**Step 15:** Select Gap Width as 10% under SERIES OPTIONS in the Format Data Series pane.

The screenshot shows the 'Format Data Series' pane open in Excel. The pane includes settings for 'Plot Series On' (Primary Axis selected), 'Series Overlap' (100%), and 'Gap Width' (10%). The 'Gap Width' setting is highlighted with a green border. The background displays a candlestick chart with data points corresponding to the monthly price movements shown in the first figure.

**Step 16:** Give a name to the chart.



Your Waterfall chart is ready.

End of ebook preview  
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