How to Create Weibull Distribution Plots in R

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In R, the Weibull distribution can be plotted using the function 'plot()'. This function takes in the parameters of the distribution (shape, scale, location) and can be used to plot the probability density function (pdf) and the cumulative density function (cdf). Additionally, the 'weibull()' function can be used to generate values from the distribution, which can be used to plot a histogram of the data.

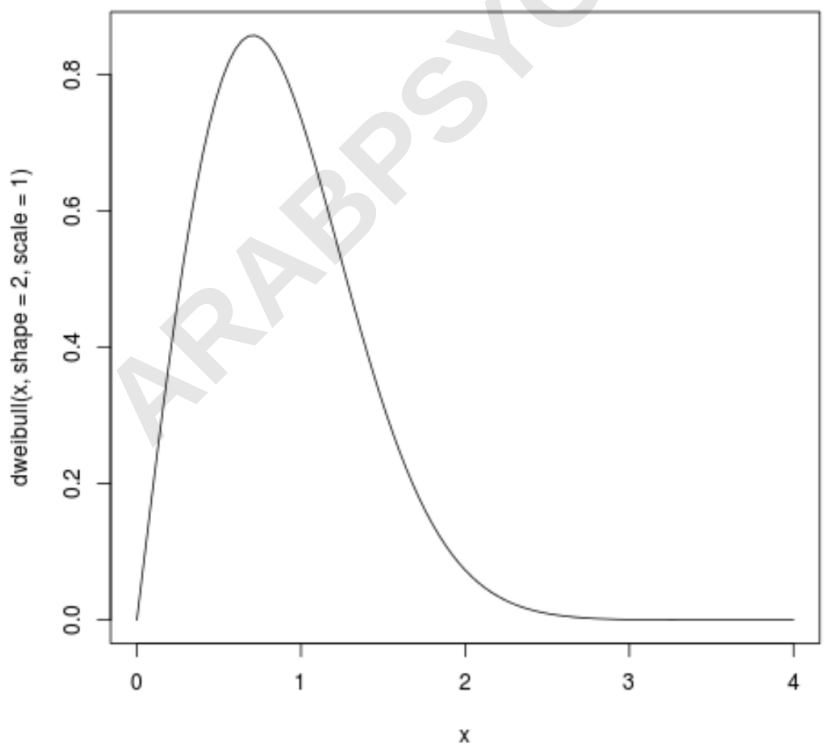
To plot the probability density function for a Weibull distribution in R, we can use the following functions:

dweibull(x, shape, scale = 1) to create the probability density function.
curve(function, from = NULL, to = NULL) to plot the probability density function.

To plot the probability density function, we need to specify the value for the **shape** and **scale** parameter in the **dweibull** function along with the **from** and **to** values in the **curve()** function.

For example, the following code illustrates how to plot a probability density function for a Weibull distribution with parameters shape = 2 and scale = 1 where the x-axis of the plot ranges from 0 to 4:

curve(dweibull(x, shape=2, scale = 1), from=0, to=4)



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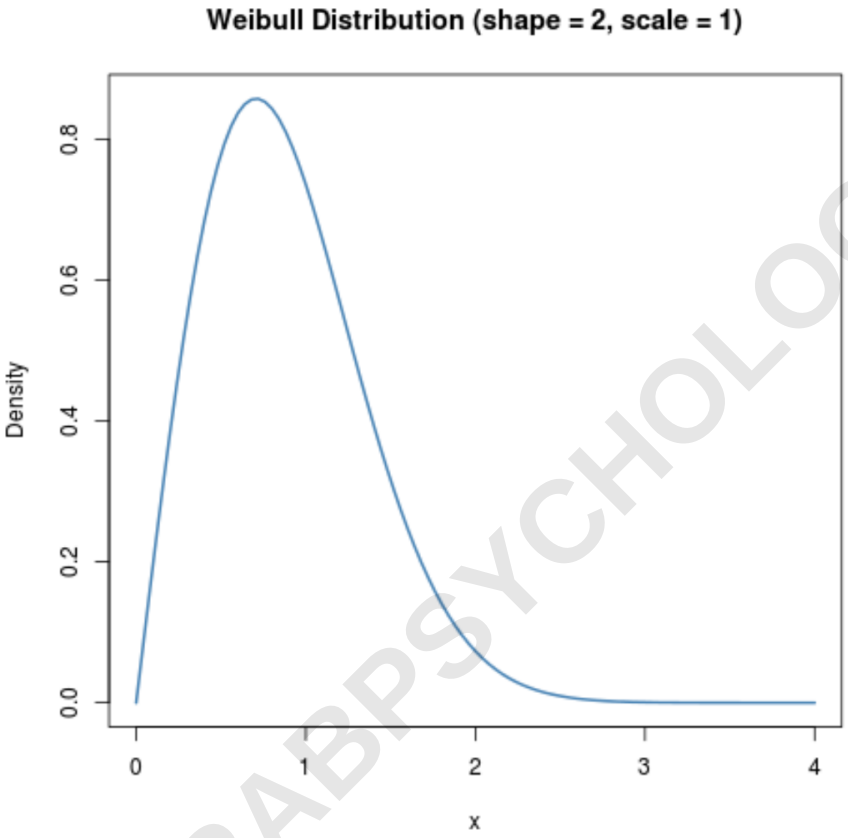
We can add a title, change the y-axis label, increase the line width, and even change the line color to make the plot more aesthetically pleasing:

```
curve(dweibull(x, shape=2, scale = 1), from=0, to=4,
main = 'Weibull Distribution (shape = 2, scale = 1)', #add title
ylab = 'Density', #change y-axis label
lwd = 2, #increase line width to 2
col = 'steelblue') #change line color to steelblue
```



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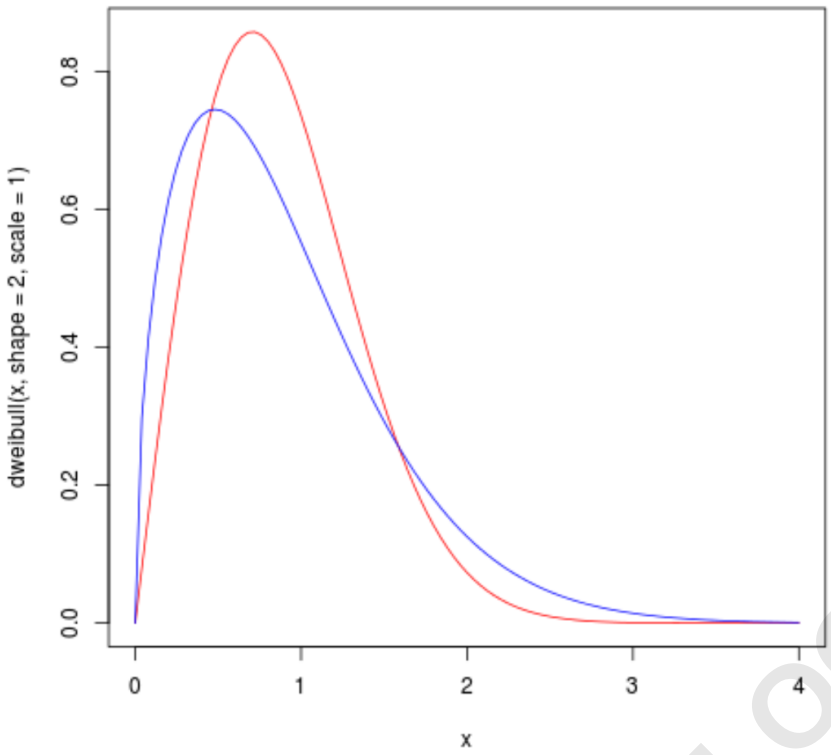
We can also add more than one curve to the graph to compare Weibull distributions with different shape and scale parameters:

```
curve(dweibull(x, shape=2, scale = 1), from=0, to=4, col='red')
curve(dweibull(x, shape=1.5, scale = 1), from=0, to=4, col='blue', add=TRUE)
```



We can add a legend to the plot by using the **legend()** function, which takes on the following syntax:

legend(x, y=NULL, legend, fill, col, bg, lty, cex)

where:

x, y: the x and y coordinates used to position the legend
legend: the text to go in the legend
fill: fill color inside the legend
col: the list of colors to be used for the lines inside the legend
bg: the background color for the legend
lty: line style
cex: text size in the legend

#create density plots
curve(dweibull(x, shape=2, scale = 1), from=0, to=4, col='red')
curve(dweibull(x, shape=1.5, scale = 1), from=0, to=4, col='blue', add=TRUE)

#add legend
legend(2, .7, legend=c("shape=2, scale=1", "shape=1.5, scale=1"),
col=c("red", "blue"), lty=1, cex=1.2)

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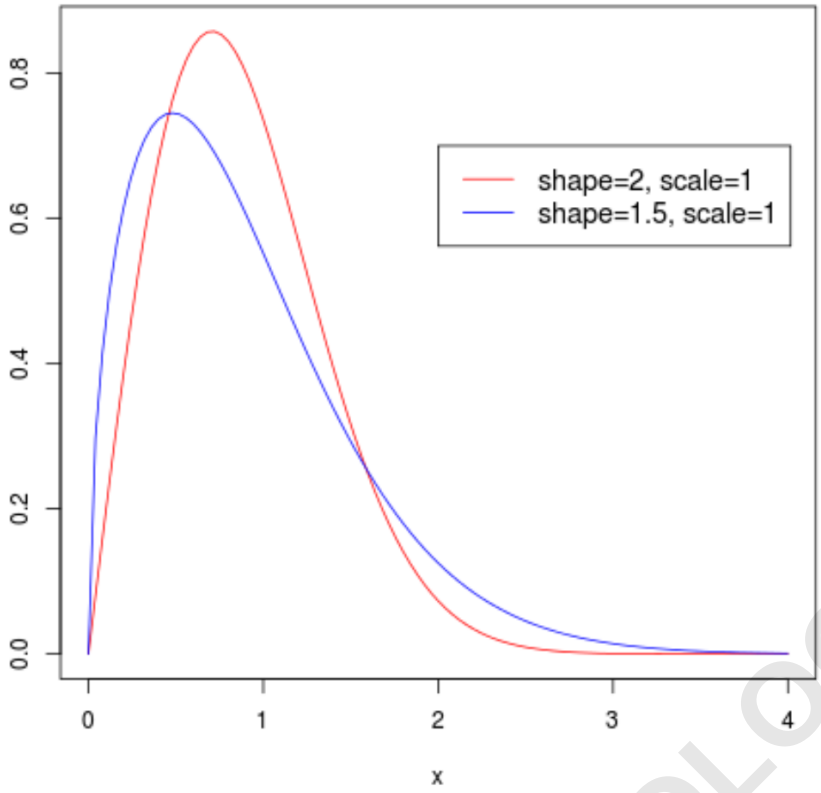

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