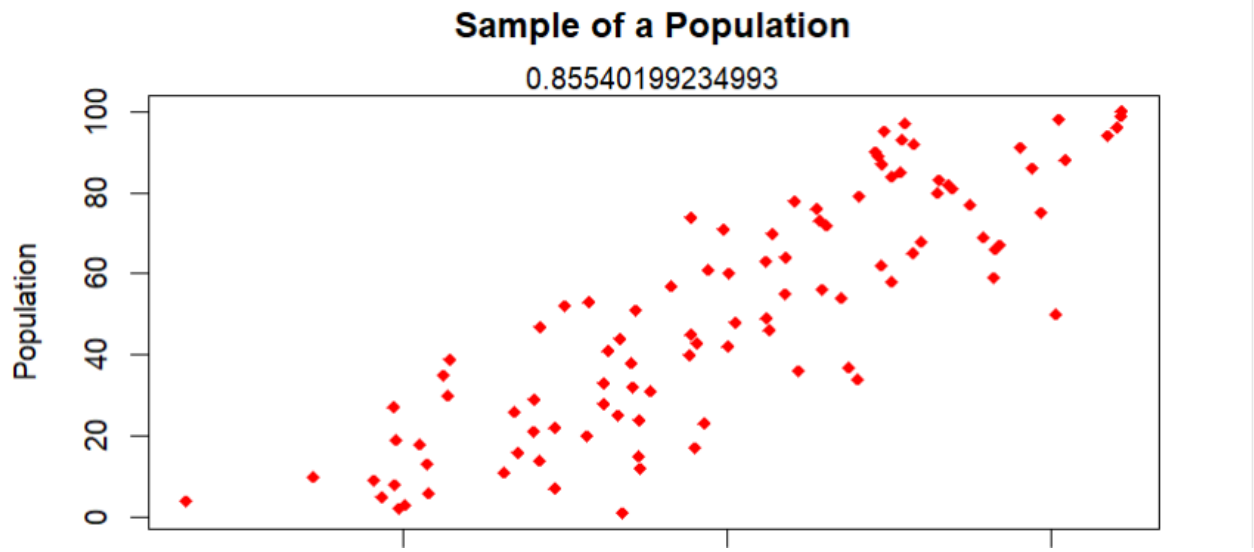
Extreme Plotting in R

A scatter plot was generated to analyze the relationship between vectors `x1` and `y1`. The chart was titled using the `main` argument, while the `xlab` and `ylab` arguments defined the axis labels. Data points were formatted with red color and diamond shapes (`pch = 18`). The Pearson correlation coefficient, quantifying the linear dependence between the variables, was calculated and displayed on the plot using the `mtext` and `paste` functions.

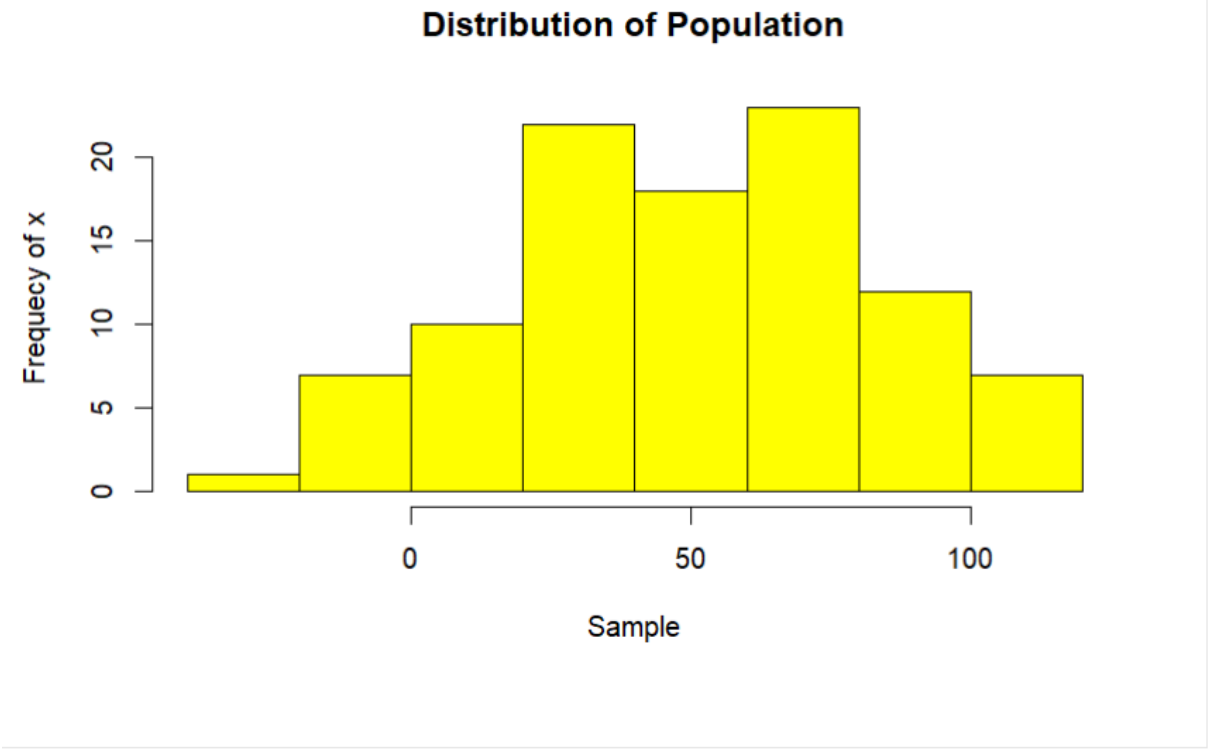
```r
{r}
set.seed(1001)
x1=1:100+rnorm(100,mean=0,sd=15)
y1=1:100
```

```r
{r}
plot(x1, y1, main = "Sample of a Population", xlab = "Sample mean",
     ylab = "Population", col = "red", pch = 18, mtext(side=3,text=paste(cor(x1, y1
))))
```

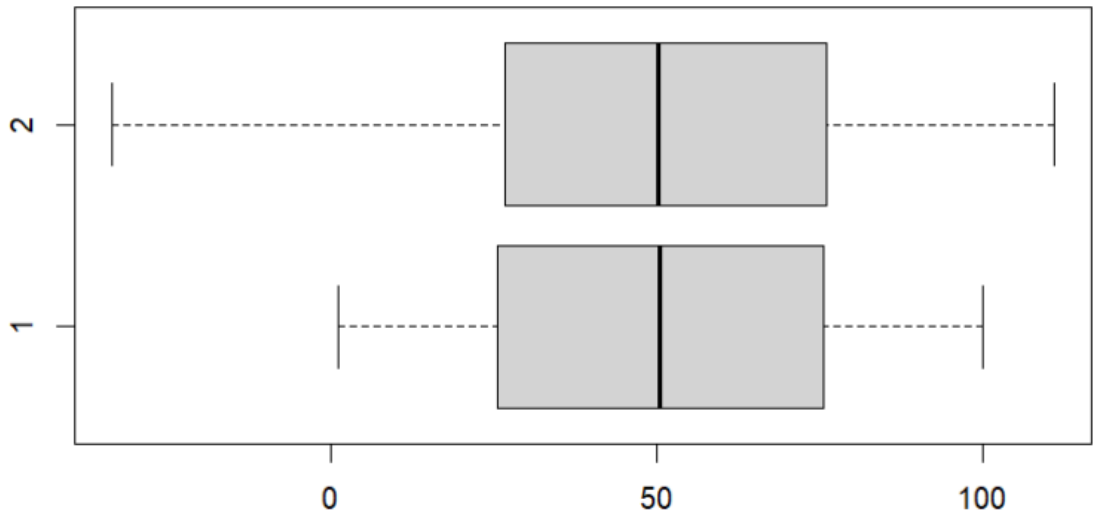


Using R's `hist()` function, I created a histogram to display the distribution of values in the `x1` vector. The chart was formatted with yellow bars and includes a title for context, an x-axis label describing the data variable, and a y-axis label (typically "Frequency" or "Density").

```r
hist(x1, col = "yellow", xlab = "Sample", ylab = "Frequecy of x", main =
"Distribution of Population")
```

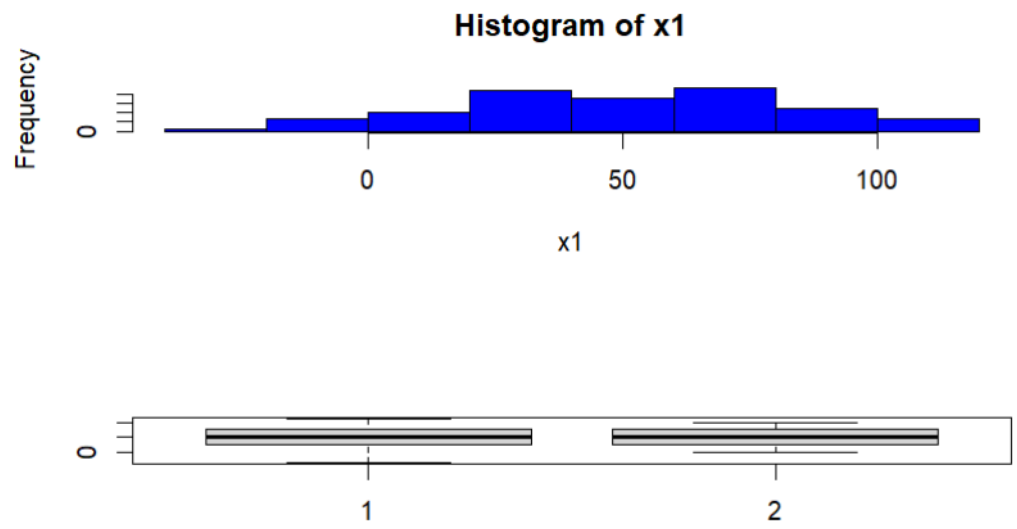


```r
boxplot(y1, x1, horizontal = TRUE)
```

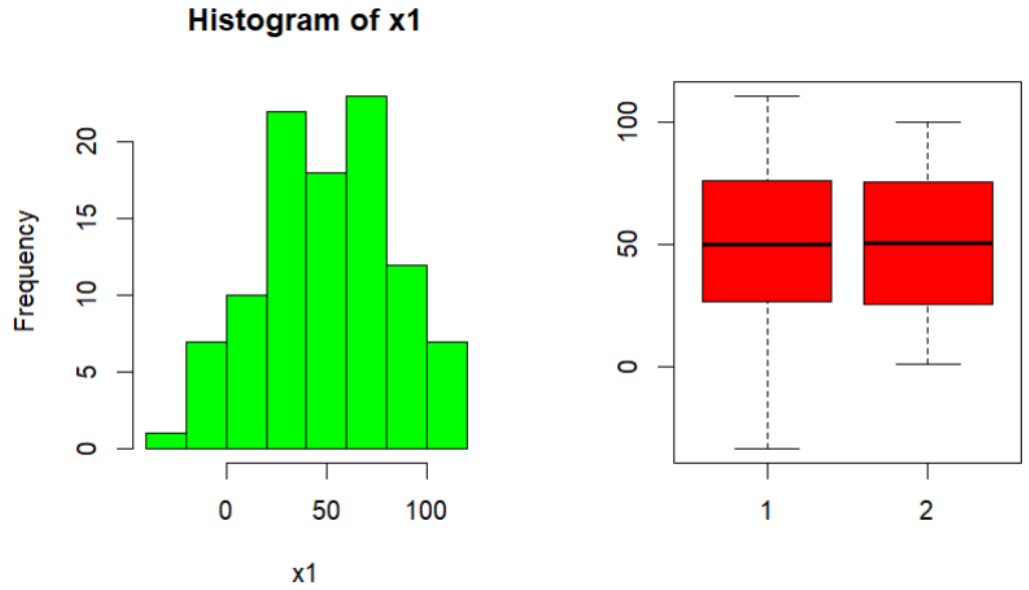


The distributions of variables `x1` and `y1` were compared by plotting them as horizontal boxplots arranged on the same figure. This side-by-side arrangement allows for direct visual comparison of their medians, quartiles, and potential outliers.

```r
par(mfrow=c(2,1))
hist(x1, col = "blue")
boxplot(x1, y1)
```




```r
par(mfrow=c(1,2))
hist(x1, col = "green")
boxplot(x1, y1, col = "red")
```



The data distribution was visualized using a combined panel of plots. The `par(mfrow = c(1, 2))and par(mfrow = c(2, 1))` function was used to create a multi-frame layout respectively, displaying a boxplot and a histogram side-by-side for comparative analysis.