

How can we create relative frequency tables in R?

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To create a relative frequency table in R, we can use the "table" function which will count the frequency of each category in a dataset. Then, we can divide the frequency of each category by the total number of observations to get the relative frequency. This can be represented in a table format using the "prop.table" function. Additionally, we can use the "addmargins" function to add a column and row showing the marginal totals. This will provide a concise and organized way to display the relative frequencies of different categories in a dataset.

Create Relative Frequency Tables in R

A relative frequency table tells you how often certain values in a dataset occur *relative* to the total number of values in the dataset.

You can use the following basic syntax to create a frequency table in R:

```
table(data)/length(data)
```

The table() function calculates the frequency of each individual data value and the length() function calculates the total number of values in the dataset.

Thus, dividing each individual frequency by the length of the dataset gives us the relative frequency of each value in the dataset.

The following examples show how to use this syntax in practice.

Example 1: Relative Frequency Table for One Vector

The following code shows how to create a relative frequency table for a single vector in R:

```
#define data
data <- c('A', 'A', 'B', 'B', 'B', 'C', 'C', 'C', 'C', 'C')

#create relative frequency table
table(data)/length(data)
```

```
A B C
0.2 0.3 0.5
```

Here's how to interpret the table:

20% of all values in the dataset are the letter A
30% of all values in the dataset are the letter B
50% of all values in the dataset are the letter C

Example 2: Relative Frequency Table for One Data Frame Column

The following code shows how to create a relative frequency table for one column of a data frame in R:

```
#define data frame
df <- data.frame(team=c('A', 'A', 'A', 'A', 'A', 'B', 'B', 'C'),
```

```
wins=c(2, 9, 11, 12, 15, 17, 18, 19),  
points=c(1, 2, 2, 2, 3, 3, 3, 3))
```

```
#view first few rows of data frame  
head(df)
```

```
team wins points
```

```
1 A 2 1  
2 A 9 2  
3 A 11 2  
4 A 12 2  
5 A 15 3  
6 B 17 3
```

```
#calculate relative frequency table for 'team' column  
table(df$team)/length(df$team)
```

```
A B C  
0.625 0.250 0.125
```

Example 3: Relative Frequency Table for All Data Frame Columns

The following code shows how to create a relative frequency table for every column of a data frame in R:

```
#define data frame
```

```
df <- data.frame(team=c('A', 'A', 'A', 'A', 'A', 'B', 'B', 'C'),  
wins=c(2, 9, 11, 12, 15, 17, 18, 19),  
points=c(1, 2, 2, 2, 3, 3, 3, 3))
```

```
#calculate relative frequency table for each column  
apply(df, function(x) table(x)/nrow(df))
```

```
$team
```

```
x
```

```
A B C
```

```
0.625 0.250 0.125
```

```
$wins
```

```
x
```

```
2 9 11 12 15 17 18 19
```

```
0.125 0.125 0.125 0.125 0.125 0.125 0.125 0.125
```

```
$points
```

```
x
```

```
1 2 3
```

```
0.125 0.375 0.500
```