

How can a matrix be created from vectors in R? Can you provide examples?

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A matrix in R can be created by combining vectors of the same length either horizontally or vertically. This can be achieved using the "cbind" or "rbind" functions, respectively. For example, if we have two vectors named "x" and "y" with 5 elements each, we can create a matrix by using the command "matrix(cbind(x,y), ncol = 2)" which will result in a 5x2 matrix with "x" as the first column and "y" as the second column. Similarly, using the command "matrix(rbind(x,y), nrow = 2)" will result in a 2x5 matrix with "x" as the first row and "y" as the second row. In both cases, the vectors must be of the same length in order for the matrix to be created successfully.

Create a Matrix from Vectors in R (With Examples)

You can use one of the following two methods to quickly create a matrix from vectors in R:

Method 1: Use cbind() to bind vectors into matrix by columns

```
my_matrix <- cbind(vector1, vector2, vector3)
```

Method 2: Use rbind() to bind vectors into matrix by rows

```
my_matrix <- rbind(vector1, vector2, vector3)
```

The following examples show how to use each method in practice.

Method 1: Use cbind() to Bind Vectors into Matrix by Columns

The following code shows how to use cbind() to bind

together three vectors into a matrix by columns:

#define vectors

vector1 <- c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10)

vector2 <- c(2, 4, 6, 8, 10, 12, 14, 16, 18, 20)

vector3 <- c(3, 6, 9, 12, 15, 18, 21, 24, 27, 30)

#column-bind vectors together into matrix

my_matrix <- cbind(vector1, vector2, vector3)

#view resulting matrix

my_matrix

vector1 vector2 vector3

1 2 3

2 4 6

3 6 9

4 8 12

5 10 15

6 12 18

7 14 21

8 16 24

9 18 27

10 20 30

```
#view dimensions of matrix
```

```
dim(my_matrix)
```

```
10 3
```

We can see that the result is a matrix with 10 rows and 3 columns, with each of the three original vectors representing a unique column.

Method 2: Use `rbind()` to Bind Vectors into Matrix by Rows

The following code shows how to use `rbind()` to bind together three vectors into a matrix by columns:

```
#define vectors
```

```
vector1 <- c(1, 2, 3, 4, 5, 6, 7, 8, 9, 10)
```

```
vector2 <- c(2, 4, 6, 8, 10, 12, 14, 16, 18, 20)
```

```
vector3 <- c(3, 6, 9, 12, 15, 18, 21, 24, 27, 30)
```

```
#row-bind vectors together into matrix
```

```
my_matrix <- rbind(vector1, vector2, vector3)
```

```
#view resulting matrix
```

```
my_matrix
```

```
vector1 1 2 3 4 5 6 7 8 9 10
```

```
vector2 2 4 6 8 10 12 14 16 18 20  
vector3 3 6 9 12 15 18 21 24 27 30
```

```
#view dimensions of matrix  
dim(my_matrix)
```

```
3 10
```

We can see that the result is a matrix with 3 rows and 10 columns, with each of the three original vectors representing a unique row.

Note: In these examples, we chose to bind together three vectors into a matrix, but we can use this exact syntax to bind together any number of vectors we'd like into a matrix.

The following tutorials explain how to perform other common functions in R: