How do I create a vector in R and access it?

Authored by

stats writer

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Creating a vector in R is a simple process that involves using the "c()" function to combine individual elements into a single vector. This can include numbers, strings, or even other vectors. Once the vector is created, it can be accessed using square brackets "" and specifying the index or range of indices of the desired elements. Additionally, the "length()" function can be used to determine the number of elements in the vector. By understanding these basic steps, users can easily create and access vectors in R for efficient data manipulation and analysis.

You can create a Vector in R using `c()` primitive function. In R programming, the Vector contains elements of the same type and the types can be logical, integer, double, character, complex or raw. Besides c() you can also create a vector using vector(), character() functions.

The following ways of creating vectors in R are covered in this article.

Create Vector in R using c() FunctionCreate Named VectorCreate Vector From ListVector of ZerosVector of Specified LengthNumeric Vector with 0 to 10 ValuesUsing vector()

1. Create a Vector in R using c() Function

You can create the Vector in R with one or more elements by using the `c()` function (which stands for "combine" or "concatenate"). A Vector is a fundamental data structure that is used to store elements of the same data type. and the types can be logical, integer, double, character, complex, or raw. Let's see the syntax of this function and how to create a vector.

1.1. Syntax of c()

Following is a syntax of the c() function that is used to create a Vector in R.

```
# Syntax of c() function
c(...)
```

1.2. Create a Vector Example

Using c() function is the most used and common way to create a vector in R. Actually c() is a combined function that is used to combine elements into a vector or list. The following example creates a Numeric Vector, Character Vector, and Date Vector with variable names `id`, `name`, and `dob` respectively.

```
# Create Vectors
id <- c(10,11,12,13)
```

```
name <- c('sai','ram','deepika','sahithi')
dob <- as.Date(c('1990-10-02','1981-3-24','1987-6-14','1985-8-16'))
```

Here variables

`id` - Numeric Vector which stores the numeric values.`name` - Character Vector which stores the character values.`dob` - Date Vector which stores the date values.

The above example creates 3 Vectors, now let's display the type of these vector variables by using `typeof()` function. you can get the size of the vector using length().

```
# Types of Vectors
> typeof(id)
# "double"
```

> typeof(name)
"character"

> typeof(dob)
"double"

2. Create Named Vector

You can also assign names to values while creating a vector, if you have names it is referred to as a named vector. The following example creates a vector with the names `C1`, `C2`, and `C3`.

```
# Create Named Vector
x <- c(C1='A',C2='B',C3='C')
print(x)
```

Output
C1 C2 C3
#"A" "B" "C"

3. Create a Vector from the List

If you have a list, you can easily create a vector from a list in R by using `unlist()` function. This function takes the list as an argument and convert it to vector. By using `is.vector()` check if the converted vector is of type vector.

```
# Create Vector from List
li <- list('A','B','C')
v <- unlist(li)
print(v)
print(typeof(v))
print(is.vector(v))
```

Output
"A" "B" "C"
"character"
TRUE

4. Vector of Zeros

To create a vector of zeros use the `integer()` function, this function takes syntax `integer(length)` where the `length` param specifies the number of zeros you want to have on the vector.

```
# Create Vector of Zeros
v <- integer(6)
print(v)
```

Output
0 0 0 0 0 0

5. Vector of Length N

Let's say you wanted to create a vector in R of a specified length N with the default values. The above example creates a numeric vector with the value 0 and the specified length. Similarly, to create a character vector with the specified empty spaces use the `character(N)`.

```
# Create Vector of Specified length
v <- character(5)
print(v)
```

Output
"" "" "" "" ""

6. Vector of 1 to 10

If you want a vector with 1 to 10 sequence numbers use either `seq(1,10)` function or use `1:10`.

```
# Create Numeric Vector with 0 to 10 Values
v <- 1:10
v <- seq(1, 10)
print(v)
```

Output
1 2 3 4 5 6 7 8 9 10

7. Using Vector()

The `vector()` function is used to create a vector of any type. It takes the parameter `mode` and length. mode is used to specify the type and length is used to specify the length of the vector with default values. The following example creates a logical vector with 5 elements.

```
# Create Vector using vector()
x <- vector(mode='logical',length=5)
print(x)
print(is.vector(x))
print(typeof(x))
```

Output
FALSE FALSE FALSE FALSE FALSE
TRUE
"logical"

8. Complete Example of Create Vector

Following is a complete example of different ways to create a vector in R. You can find the complete example from this article at Github R Programming Examples Project.

```
# Create Vector using c()
id <- c(10,11,12,13)
name <- c('sai','ram','deepika','sahithi')
dob <- as.Date(c('1990-10-02','1981-3-24','1987-6-14','1985-8-16'))
```

```
# Create Named Vector
x <- c(C1='A',C2='B',C3='C')

# Create Vector using vector()
x <- vector(mode='logical',length=5)

# Create Character Vector
x <- character(5)

# Create Vector From List
li <- list('A','B','C')
v <- unlist(li)

# Create Vector of Zeros
v <- integer(6)

# Create Vector of Specified length
v <- character(5)

# Create Numeric Vector with 0 to 10 Values
v <- seq(1, 10)
v <- 1:10

# Create Vector using vector()
x <- vector(mode='logical',length=5)
```


9. Conclusion

In this article, you have learned what is a vector and how to create it by using R primitive c(), vector(), and character() functions and also learned the data types of these created Vectors. You can find the complete example from this article at Github R Programming Examples Project.

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References

https://www.rdocumentation.org/packages/base/versions/3.6.2/topics/data.frame