

## Data Science Programming in R

1. Say True or False

- a. Prescriptive Analytics is used to predict the future outcomes? **FALSE**
- b. Base R packages are installed automatically? **TRUE**

2. What is Recycling of Elements in a vector?

Recycling of elements is when R automatically repeats elements of a shorter vector when performing an operation that requires vectors of the same length. R repeats the shorter vector so that it matches the length of the longer vector.

3. Give an example of recycling of elements.

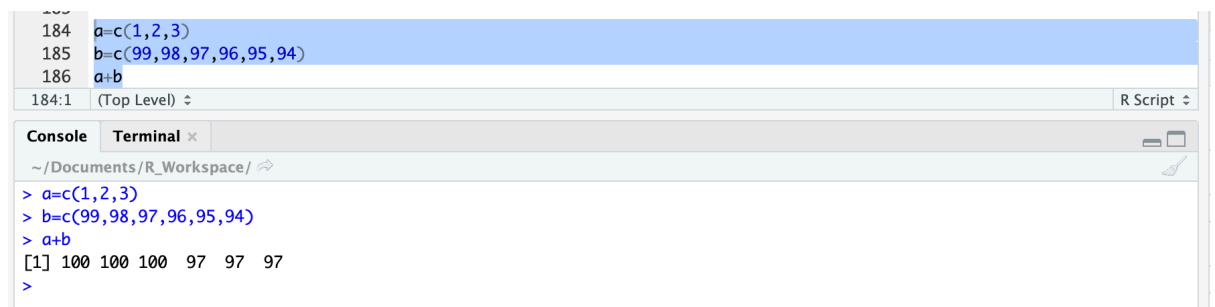
```
a=c(1,2,3)
```

```
b=c(99,98,97,96,95,94)
```

In `a+b`: R will automatically repeat `a` so that it matches the length of `b`. `a` logically becomes `a'=c(1,2,3,1,2,3)` so that the arithmetic becomes:

```
c(1,2,3,1,2,3) + c(99,98,97,96,95,94)
```

```
[1] 100,100,100,97,97,97
```



The screenshot shows an R script editor with three lines of code: `a=c(1,2,3)`, `b=c(99,98,97,96,95,94)`, and `a+b`. Below the editor is a console window showing the output of these commands. The first two commands are executed without output, and the third command `a+b` produces the output `[1] 100 100 100 97 97 97`.

```
184 a=c(1,2,3)
185 b=c(99,98,97,96,95,94)
186 a+b
```

184:1 (Top Level) ↕ R Script ↕

Console Terminal x

~/Documents/R\_Workspace/ ↗

```
> a=c(1,2,3)
> b=c(99,98,97,96,95,94)
> a+b
[1] 100 100 100 97 97 97
>
```