R code for Data Science for Beginners

Day 1: Individual Exercise

Aric Jensen

2024-09-09

Task 1. Modify the author name above to your name

Task 2. Perform the following calculations by writing R commands

```
# 2-1: Multiply 4 by 30 plus 6, and then raise the answer to the power of 0.5
(4 * (30 +6)) ^ 0.5 # a sample answer is here
```

```
[1] 12
```

```
(4*(30+6))^.5
```

```
[1] 12
```

2-2: Multiply 4 by 30, then add 6 and then raise the answer to the power of 0.5

```
((4*30)+6)^.5
```

```
[1] 11.22497
```

Note that 2-1 and 2-2 should give you DIFFERENT answers, because these are different operations.

Task 3. Working with objects

3-1: Create an object called "X1" which is the number 73

```
x1=73
```

3-2: Create another object called "X2" which is the answer to the sum 99 + 38

```
x2=(99+38)
```

3-3: Multiply X1 and X2 together and store the answer as another object called "X3"

```
x3=(x1*x2)
```

3-4: Subtract 1 from X3, and then raise the answer to the power of 0.25

```
(x3-1)^.25
```

```
[1] 10
```

Note: the answer should be 10.

Task 4. Calculation using objects

Redo the calculation in 2-1 (Multiply 4 by 30 plus 6, and then raise the answer to the power of 0.5), but this time do so by creating objects. Take the following steps:

4-1: Create an object called part.1 that is equal to "30 plus 6"

```
part.1=(30+6)
```

4-2: Create an object called part.2 that is equal to 4 times part.1

```
part.2=(4*part.1)
```

4-3: Raise part.2 to the power of 0.5

```
(part.2^.5)
```

```
[1] 12
```

The numerical answer you get here should be the same as your answer for 2.1

Task 5. Detecting R data types

5-1 Create a character vector and show that it is character. It'd be nice if you can do it in one line of code

```
is.character(c("a","b","c","d","e"))
```

```
[1] TRUE
```

5-2 Create a numeric vector and coerce it to a factor vector. It'd be nice if you can do it in one line of code

```
x4=c(2,4,6,8)
```

Task 6. Testing NA

6-1 Create a numeric vector with NA

```
x5=c(3,6,9,NA)
```

6-2 Show me where the NA is located in the vector (using the which() function)

```
which(is.na(x5))
```

```
[1] 4
```

6-1 Create a numeric vector with NaN

```
x6=c(10,20,30,NaN)
```

6-2 Show me where the NaN is located in the vector (using the which() function)

```
which(is.nan(x6))
```

```
[1] 4
```

Finally, execute the entire file. Make sure that you don't get any error messages, such as `"Error: unexpected symbol in ..."` shown in Red. If you receive an error message, it's probably because you forgot to comment out some lines. Comment them out so you won't get any error message.