Lab 9 Loops & Conditional Statement Exercises

2022-11-01

Tip: you can click on `visual` above this document to experience a friendlier interface.

For each of the tasks below, create code using `for` and `while`, as indicated.

1) For each day of the week, print a string that says "Today is: [day of the week]".

```
#one option
days<-c("Monday", "Tuesday","Wednesday","Thursday","Friday","Saturday","Sunday")

for(lasagna in days){
  print(paste0("Today is: ", lasagna, "."))
}
```

```
## [1] "Today is: Monday."
## [1] "Today is: Tuesday."
## [1] "Today is: Wednesday."
## [1] "Today is: Thursday."
## [1] "Today is: Friday."
## [1] "Today is: Saturday."
## [1] "Today is: Sunday."
```

```
#Another option
days<-c("Monday", "Tuesday","Wednesday","Thursday","Friday","Saturday","Sunday")

for(lasagna in days){
  cat("Today is:", lasagna, ".", "\n")
}
```

```
## Today is: Monday .
## Today is: Tuesday .
## Today is: Wednesday .
## Today is: Thursday .
## Today is: Friday .
## Today is: Saturday .
## Today is: Sunday .
```

2) Same as above but if it's Saturday or Friday, use CAPSLOCK and add an "!" instead of "." at the end of the sentence.

```
#one option
days<-c("Monday", "Tuesday","Wednesday","Thursday","Friday","Saturday","Sunday")

for(lasagna in days){
  if(lasagna == "Saturday" | lasagna == "Friday"){
  print(toupper(paste0("Today is: ", lasagna, "!")))
```

```
  }else{
  print(paste0("Today is: ", lasagna,"."))
  }
}
```

```
## [1] "Today is: Monday."
## [1] "Today is: Tuesday."
## [1] "Today is: Wednesday."
## [1] "Today is: Thursday."
## [1] "TODAY IS: FRIDAY!"
## [1] "TODAY IS: SATURDAY!"
## [1] "Today is: Sunday."
```

3) Update your Celsius-Fahrenheit function from Lab 8 to print:

- accept "C", "Celsius", or "celsius" as equivalent

- accept "F", "Fahrenheit", or "fahrenheit" as equivalent

- print an error and halt if the `unit` is neither Celsius nor Fahrenheit

- the function should not have default values

The function we created in Lab 8 is presented below. Edit it to fulfill the three criteria above:

```
temp_conv<-function(t=30, unit="C"){
  if(unit=="C"){
    t2<-(t * 1.8) + 32 # convert to Fahrenheit
  }else{
    t2<-(t-32)/1.8 # Convert to Celsius
  }
  return(t2)
}
```

- remember to always test your functions!

4) Challenge question: after completing the previous question, change your function so that it:

- also accepts temperature in Kelvin

- has an extra argument that determines the unit you wish to convert your temperature to

- print an error and halt if the `unit` is Kelvin and `t` is a negative number (zero Kelvin is absolute zero)