Homework 2

Functions

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## 1

calc\_log <- function(number){  
 if(number <= 0){  
 print("Number must be positive!")  
 }else{  
 log(number) + log10(number) + log2(number)   
 }  
}  
  
for(i in 1:5){  
 # The first five integers given i from 1 through 5 is same as i\*2  
 # Round up the decimal places to 6  
 print(paste("Log Calculation for ", i\*2, " = ", round(calc\_log(i\*2), 6)))  
}

## [1] "Log Calculation for 2 = 1.994177"  
## [1] "Log Calculation for 4 = 3.988354"  
## [1] "Log Calculation for 6 = 5.154873"  
## [1] "Log Calculation for 8 = 5.982532"  
## [1] "Log Calculation for 10 = 6.624513"

## 2

check\_value <- function(val){  
 if((val \*\* 2) >= 100){  
 print("This is a big number")  
 }  
 else{  
 print("This is not a big number")  
 }  
}  
  
# Verify the function works with examples.  
check\_value(5)

## [1] "This is not a big number"

check\_value(20)

## [1] "This is a big number"

## 3

# To get the program to output "Team A won", the number of goals scored was changed to be higher than team B  
  
team\_A <- 3  
team\_B <- 2  
  
if (team\_A > team\_B){  
 print ("Team A won")  
} else if (team\_A < team\_B){  
 print ("Team B won")  
} else {  
 print("Team A & B tied")  
}

## [1] "Team A won"

## 4

check\_divisible <- function(val){  
 if(val %% 3 == 0 & val %% 5 == 0){  
 print("divisible by three and five")  
 }  
 else if(val %% 3 == 0 & val %% 4 == 0){  
 print("divisible by three and four")  
 }  
 else{  
 print("neither")  
 }  
}  
  
# Check for 16, 45, and 24  
# For 16  
check\_divisible(16)

## [1] "neither"

# For 45  
check\_divisible(45)

## [1] "divisible by three and five"

# For 24  
check\_divisible(24)

## [1] "divisible by three and four"

## 5

mpg %>%   
 select(displ, cyl, cty, hwy) -> mpg.sel  
  
output.var <- vector("double", ncol(mpg.sel))  
for(i in seq\_along(mpg.sel)){  
 output.var[[i]] <- var(mpg.sel[[i]])  
}  
output.var

## [1] 1.669158 2.597043 18.113074 35.457779

## 6

for(i in c(11, 13, 17, 19, 23, 29)){  
 print(paste("Prime number",i, " = ", (i \*\* 3) - (i \*\* 2)))  
}

## [1] "Prime number 11 = 1210"  
## [1] "Prime number 13 = 2028"  
## [1] "Prime number 17 = 4624"  
## [1] "Prime number 19 = 6498"  
## [1] "Prime number 23 = 11638"  
## [1] "Prime number 29 = 23548"