HW_05

izd3

Use only commands & functions that are shown in the indicated chapter or prior chapters.

Problem #01 - Chapter 22 Exercise #04

```
# Show your work here
my_vector<-c(1:3)
for (i in 4:40) {
  my_vector[i] <- sum(my_vector[(i - 3):(i - 1)])
}
my_vector
```

```
##  [1]           1           2           3           6          11          20
##  [7]          37          68         125         230         423         778
## [13]        1431        2632        4841        8904       16377       30122
## [19]       55403      101902      187427      344732      634061     1166220
## [25]     2145013     3945294     7256527    13346834    24548655    45152016
## [31]    83047505   152748176   280947697   516743378   950439251  1748130326
## [37]  3215312955  5913882532 10877325813 20006521300
```

Problem #02 - Chapter 22 Exercise #05

```
# Show your work here
vector_22<- 1

for (i in 2:40) {
  vector_22[i] <- -2 * vector_22[i - 1]
}
vector_22
```

```
##  [1]             1            -2             4            -8            16
##  [6]           -32            64          -128           256          -512
## [11]          1024         -2048          4096         -8192         16384
## [16]        -32768         65536       -131072        262144       -524288
## [21]       1048576      -2097152       4194304      -8388608      16777216
## [26]     -33554432      67108864    -134217728     268435456    -536870912
## [31]    1073741824   -2147483648    4294967296   -8589934592   17179869184
## [36]  -34359738368   68719476736 -137438953472  274877906944 -549755813888
```

Problem #03 - Chapter 23 Exercise #07

```
# Show your work here
setdiff(Set001, Set002)
```

```
## [1] "O" "T" "C" "K" "E"
```

Problem #04 - Chapter 24 Exercise #9 (The result should be a single vector with 21 values. The function you want to use is vectorized.)

```
# Show your work here
chooser<-Vectorize(choose)
ans<-chooser(20,0:20)
ans
```

```
##  [1]      1     20    190   1140   4845  15504  38760  77520 125970 167960
## [11] 184756 167960 125970  77520  38760  15504   4845   1140    190     20
## [21]      1
```

Problem #05 - Chapter 24 Exercise #13

```
# Show your work here
min_values<-0
for (i in 1:1000) {
  values <- c(Math001[i], Math002[i], Math003[i], Math004[i])
  min_val <- min(values)
  min_values[i] <- min_val
}
min_values[1:20]
```

```
##  [1] -3.0000000 -2.0725489 -5.0000000 -0.1973501 -6.0000000 -4.0000000
##  [7] -0.4888130 -8.0000000 -9.0000000 -3.0000000 -8.0000000  0.0000000
## [13] -5.0000000 -1.5492571 -3.0000000 -1.5039964 -6.0000000  0.4924748
## [19] -3.0000000 -1.2253824
```

Problem #06 - Chapter 24 Exercise #14

```
# Show your work here
non_zero <- 0

# Loop through i from 1 to 1000
for (i in 1:1000) {
  values <- c(Math001[i], Math002[i], Math003[i], Math004[i])
  values <- values[!is.na(values)]
  min_val <- min(values)
  if (min_val >= 0) {
    non_zero <- non_zero + 1
  }
}
non_zero
```

```
## [1] 79
```

Problem #07 - Chapter 24 Exercise #15

```
# Show your work here
MathOrdered <- Math005[order(Math005$comp2), ]

head(MathOrdered, 10)
```

```
## # A tibble: 10 x 4
##    FirstName            comp1 comp2  comp4
##    <chr>                <int> <dbl>  <dbl>
##  1 Pierrie, Patrick         7 -2.80  0.410
##  2 L'Hirondelle, Samuel    -2 -2.79 -1.34
##  3 Banks, Colwyn            4 -2.79 -1.73
##  4 Askelson, Katelyn      -10 -2.78 -1.17
##  5 Milan, Eueal            -4 -2.78 -0.630
##  6 Castaldo, Jared          3 -2.77 -1.66
##  7 Poot, Mario             -1 -2.77  1.47
##  8 Ortega, Shaundra         0 -2.77  0.844
##  9 Bishara, Hannah         -5 -2.73 -1.59
## 10 Lee, Brenda             -6 -2.73  1.56
```

Problem #08 - Chapter 25 Exercise #07

```
# Show your work here
p_values<-LETTERS[1:10]
sample(x=p_values,size = 3,replace = T)
```

```
## [1] "A" "D" "H"
```