practice_1.R

ARSENII

2024-03-07

```
# Part 1 Task1 ------------------------------------------------------------

x = 2
y = 4
x = x + y
y = x - y
x = x - y
print(x)
```

```
## [1] 4
```

```
print(y)
```

```
## [1] 2
```

```
# Part1 Task 2 ------------------------------------------------------------

x = 3.5
y = "2,6"
z = 1.78
h = TRUE

# 1)
class(x)
```

```
## [1] "numeric"
```

```
class(y)
```

```
## [1] "character"
```

```
class(z)
```

```
## [1] "numeric"
```

```
class(h)
```

```
## [1] "logical"
```

```
# 2)
h = as.integer(h)
class(h)
```

```
## [1] "integer"
```

```
# 3)
y = as.numeric(gsub(",", ".", y))
class(y)
```

```
## [1] "numeric"
```

```
# 4)
x = as.character(x)
class(x)
```

```
## [1] "character"
```

```
# Part 1 Task 3 ------------------------------------------------------------

dohod = 1573
dohod = log(dohod)
print(dohod)
```

```
## [1] 7.36074
```

```
# Part 1 Task 4 ------------------------------------------------------------

variant_number = 17
writeLines(as.character(variant_number), "variant.txt")
variant = as.numeric(readLines("variant.txt"))
result = 2 * variant - 1
print(result)
```

```
## [1] 33
```

```
# Part 2 Task 1 ------------------------------------------------------------

g = c(1, 0, 2, 3, 6, 8, 12, 15, 0, NA, NA, 9, 4, 16, 2, 0)

print(g[1])
```

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

```
print(g[length(g)])
```

```
## [1] 0
```

```
print(g[3:5])
```

```
## [1] 2 3 6
```

```
print(g[g == 2])
```

```
## [1]  2 NA NA  2
```

```
print(g[g > 4])
```

```
## [1]  6  8 12 15 NA NA  9 16
```

```
print(g[which(g %% 3 == 0 & !is.na(g))])
```

```
## [1]  0  3  6 12 15  0  9  0
```

```
print(g[g > 4 & g %% 3 == 0 & !is.na(g)])
```

```
## [1]  6 12 15  9
```

```
print(g[g < 1 | g > 5])
```

```
##  [1]  0  6  8 12 15  0 NA NA  9 16  0
```

```r
print(which(g == 0))
```

```
## [1]  2  9 16
```

```r
print(which(g >= 2 & g <= 8))
```

```
## [1]  3  4  5  6 13 15
```

```r
print(sort(g[g != 2], na.last = TRUE))
```

```
##  [1]  0  0  0  1  3  4  6  8  9 12 15 16 NA NA
```

```r
# Part 2 Task 2 ------------------------------------------------------------

vec = c(1, 2, 3, 4, 5)
vec[length(vec)] = NA
print(vec)
```

```
## [1]  1  2  3  4 NA
```

```r
# Part 2 Task 3 ------------------------------------------------------------

vec = c(1, NA, 3, NA, 5)
print(which(is.na(vec)))
```

```
## [1] 2 4
```

```r
# Part 2 Task 4 ------------------------------------------------------------

vec = c(1, NA, 3, NA, 5)
count_na = sum(is.na(vec))
print(count_na)
```

```
## [1] 2
```

```r
# Part 2 Task 5 ------------------------------------------------------------

respondent_ids = 1:100
print(respondent_ids)
```

```
##   [1]   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18
##  [19]  19  20  21  22  23  24  25  26  27  28  29  30  31  32  33  34  35  36
##  [37]  37  38  39  40  41  42  43  44  45  46  47  48  49  50  51  52  53  54
##  [55]  55  56  57  58  59  60  61  62  63  64  65  66  67  68  69  70  71  72
##  [73]  73  74  75  76  77  78  79  80  81  82  83  84  85  86  87  88  89  90
##  [91]  91  92  93  94  95  96  97  98  99 100
```

```r
# Part 2 Task 6 ------------------------------------------------------------

#???????

countries = c("France", "France", "France", "France", "France",
              "Italy", "Italy", "Italy", "Italy", "Italy",
              "Spain", "Spain", "Spain", "Spain", "Spain")
print(countries)
```

```
##  [1] "France" "France" "France" "France" "France" "Italy"  "Italy"  "Italy"
##  [9] "Italy"  "Italy"  "Spain"  "Spain"  "Spain"  "Spain"  "Spain"
```

```r
years = c(2019, 2020, 2020, 2018, 2017,
          2019, 2020, 2020, 2018, 2017,
          2019, 2020, 2020, 2018, 2017)
print(years)
```

```
##  [1] 2019 2020 2020 2018 2017 2019 2020 2020 2018 2017 2019 2020 2020 2018 2017
```

```r
# Part 2 Task 7 ------------------------------------------------------------

income = c(10000, 32000, 28000, 150000, 65000, 1573)

average_income = sum(income) / length(income)

income_class = ifelse(income < average_income, 0, 1)
print(income_class)
```

```
## [1] 0 0 0 1 1 0
```

```r
# Part 2 Task 8 ------------------------------------------------------------

N = 17
P = 1.74
x = runif(N)
write.table(x, file = "coords.txt")

norm_result = sum(abs(x)^P)^(1/P)
write.table(norm_result, file = "result.txt")



# Part 2 Task 9 ------------------------------------------------------------

N = 17
x = runif(N)
write(x, "coords.txt", ncolumns = 1)

x = as.numeric(readLines("coords.txt"))

diff1 = diff(x,differences = 1)
diff2 = diff(x,differences = 2)


write(c('diff1:',diff1,' ','diff2', diff2), "diff_vectors.txt", ncolumns = 1)
```