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Problem Set 1

경제분석을 위한 R 프로그래밍 01분반



코드 스크립트 ~p.2

출력결과 ~p.14

스크립트.txt

#과제풀이 중의 수정과정이 깃허브 히스토리에 있습니다.
#<https://github.com/MakeUsShamer/RexPS>

```
#-----
```

```
#Question 1
```

```
print('Answer for Question 1')
```

```
v1 <- 51:90 #벡터 생성
```

```
v1_length <- length(v1) #Length of v1
```

```
cat('\n\n')
```

```
#-----
```

```
print("1-(a)")
```

```
for(i in 1:v1_length){  
  if(v1[i]<60)print(v1[i])  
}
```

```
cat('\n\n')
```

```
#-----
```

```
print('1-(b)')
```

```
under70_cnt <- 0 #Counted number under 70
```

```
for(i in 1:v1_length){  
  if(v1[i]<70)under70_cnt<-under70_cnt+1  
}
```

```
print(under70_cnt)
```

```
cat('WnWn')
#-----
print('1-(c)')

sum_over65 <- 0 #Sum of numbers over 65

for(i in 1:v1_length){
  if(v1[i]>65)sum_over65<-sum_over65+v1[i]
}

print(sum_over65)
```

```
cat('WnWn')
#-----
print('1-(d)')

for(i in 1:v1_length){
  if((v1[i]<73)&(v1[i]>60))print(v1[i])
}
```

```
cat('WnWn')
#-----
print('1-(e)')

for(i in 1:v1_length){
  if((v1[i]<6)|(v1[i]>80))print(v1[i])
}
```

```
cat('\n\n')
#-----
print('1-(f)')

remainder <- 0 #remainder slot

for(i in 1:v1_length){
  remainder <- v1[i]%%7
  if(remainder==3)print(v1[i])
}
```

```
cat('\n\n')
#-----

print('1-(g)')

for(i in 1:v1_length){
  remainder <- v1[i]%%7
  if(remainder==0)v1[i]<-0
}

print(v1)
```

```
cat('\n\n')
#-----
print('1-(h)')

even_cnt <- 0

for(i in 1:v1_length){
  remainder <- v1[i]%%2
  if(remainder==0)even_cnt<-even_cnt+v1[i]
}
```

```
print(even_cnt)
```

```
cat('\n\n')
#-----
print('1-(i)')

for(i in 1:v1_length){
  remainder <- v1[i]%%2
  if((remainder==1)|(v1[i]>80))print(v1[i])
}
```

```
cat('\n\n')
#-----
print('1-(j)')

rem1 <- 0
rem2 <- 0

for(i in 1:v1_length){
  rem1 <- v1[i]%%3
  rem2 <- v1[i]%%5
  if((rem1==0)&(rem2==0)&(v1[i]>0))print(v1[i])
}
```

```
cat('\n\n')
#-----
print('1-(k)')

for(i in 1:v1_length){
  remainder <- v1[i]%%2
  if(remainder==0)v1[i] <- v1[i]*2
}

print(v1)
```

```
cat('\n\n')
#-----
print('1-(l)')
```

```
cnt7 <- 0
```

```
for(i in 1:v1_length){
  remainder <- v1[i]%%7
  if(remainder==0)cnt7 <- cnt7 + 1
}
```

```
cnt7
```

```
v2 <- 1:(v1_length-cnt7)
```

```
j <- 0
```

```
for(i in 1:v1_length){
  remainder <- v1[i]%%7
  if(remainder!=0){
    j <- j + 1
    v2[j] <- v1[i]
  }
}
```

```
}
```

```
v1 <- v2
```

```
print(v1)
```

```
cat('\n\n')
#-----
#Question 2
```

```
data2 <- swiss
```

스크립트.txt

```
cat('\n\n')
#-----
print('2-(a)')

print(summary(data2))
```

```
cat('\n\n')
#-----
print('2-(b)')

print(rownames(data2[which.max(data2$Agriculture),]))
```

```
cat('\n\n')
#-----
print('2-(c)')

print(data2[order(data2$Agriculture, decreasing = TRUE),])
```

```
cat('\n\n')
#-----
print('2-(d)')

for(i in 1:length(data2[,1])){
  if(data2[i,5]>=80)cat(rownames(data2[i,]),":",data2[i,2],'\n')
}
```

```
cat('\n\n')
```

스크립트.txt

```
#-----  
print('2-(e)')  
  
for(i in 1:length(data2[,1])){  
  if((data2[i,3]<20)&(data2[i,2]<=50))  
    cat(rownames(data2[i,]),"-> Examination :",data2[i,3]," Agriculture  
:",data2[i,2],'\\n')  
}
```

```
cat('\\n\\n')  
#-----  
#Question 3  
print('Answer for Question 3')  
  
data3 <- state.x77  
  
data3 <- data3[,-c(3,4,5,6,7)]  
  
data3 <- data3[-c(which(data3[,2]<5000)),]  
  
write.csv(data3, "rich state.csv")  
  
ds <- read.csv("rich state.csv")  
  
print(ds)
```

```
cat('\\n\\n')  
#-----  
#Question 4  
print('Answer for Question 4')  
  
prim_check <- FALSE  
  
k <- 0
```


스크립트.txt

```
for(i in 2:1000){
  if(i==2)print(i)
  else
    k <- i-1
  for(j in 2:k){
    rem3 <- i%%j
    if(rem3==0){
      prim_check <- TRUE
      break
    }
  }
  if(prim_check==FALSE){
    print(i)

  } else if(prim_check==TRUE) prim_check <- FALSE
}
```

```
cat('\n\n')
#-----
#Question 5
print('Answer for Question 5')
```

```
first <- 0
second <- 0
sum <- 0
```

```
for(i in 1:50){
  if(sum==0){
    cat('0 row :', sum, '\n')
    second <- 1
    sum <- first + second
    cat(i,'row :', sum, '\n')
  }else{
    sum <- first + second
    first <- second
    second <- sum
  }
}
```

```
cat(i,'row :', sum, 'Wn')
}
}
```

```
cat('WnWn')
#-----
#Question 6
print('Answer for Question 6')
```

```
cat('WnWn')
#-----
#6-a
print('6-(a)')
find_gcf <- function(x, y) {

  remx <- 0
  remy <- 0
  gcf <- 0

  if(y<x){
    slot <- x
    x <- y
    y <- slot
  }

  for(i in 1:x){
    remx <- x%%i
    remy <- y%%i
    if((remx==0)&(remy==0)) gcf<- i
  }

  return(gcf)
```

```
}
```

```
#어떤 숫자를 입력할지 물어본다.
```

```
print('First number? : ')
n1 <- scan()
print('Second number? : ')
n2 <- scan()
```

```
print('The answer is...')
print(find_gcf(n1,n2))
```

```
cat('\n\n')
#-----
#6-b
print('6-(b)')
find_mxmnmn <- function(v) {

  mm <- c(min(v),max(v))

  return(mm)
}
```

```
vct <- sample(x=1:100,size=10)
```

```
cat('min:',find_mxmnmn(vct)[1],' max:',find_mxmnmn(vct)[2], '\n')
```

```
cat('\n\n')
```

스크립트.txt

```
#-----  
#Question 7  
print('Answer for Question 7')  
weight <- c(69,50,55,71,89,64,59,70,71,80)  
cat('\n\n')  
#-----  
#7-a  
print('7-(a)')  
mx <- max(weight)  
  
for(i in 1:length(weight)){  
  if(weight[i]==mx)mx_point<-i  
}  
  
print(mx_point)
```

```
cat('\n\n')  
#-----  
#7-b  
print('7-(b)')  
mn <- min(weight)  
  
for(i in 1:length(weight)){  
  if(weight[i]==mn)mn_point<-i  
}  
  
print(mn_point)
```

```
cat('\n\n')  
#-----  
#7-c  
print('7-(c)')  
betlist <- c()
```

스크립트.txt

```
for(i in 1:length(weight)){  
  if((weight[i]>61)&(weight[i]<69))betlist <- c(betlist, i)  
}
```

```
print(betlist)
```

```
cat('WnWn')  
#-----  
#7-d  
print('7-(d)')
```

```
underlist <- c()
```

```
for(i in 1:length(weight)){  
  if(weight[i]<=60)underlist <- c(underlist, i)  
}
```

```
write.csv(underlist, "weight.s", row.names = FALSE)
```

```
print(read.csv("weight.s"))
```

출력결과.txt

R version 4.0.3 (2020-10-10) -- "Bunny-Wunnies Freak Out"
Copyright (C) 2020 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

R은 자유 소프트웨어이며, 어떠한 형태의 보증없이 배포됩니다.
또한, 일정한 조건하에서 이것을 재배포 할 수 있습니다.
배포와 관련된 상세한 내용은 'license()' 또는 'licence()'을 통하여 확인할 수 있습니다.

R은 많은 기여자들이 참여하는 공동프로젝트입니다.
'contributors()'라고 입력하시면 이에 대한 더 많은 정보를 확인하실 수 있습니다.
그리고, R 또는 R 패키지들을 출판물에 인용하는 방법에 대해서는 'citation()'을 통해 확인
하시길 부탁드립니다.

'demo()'를 입력하신다면 몇가지 데모를 보실 수 있으며, 'help()'를 입력하시면 온라인 도
움말을 이용하실 수 있습니다.
또한, 'help.start()'의 입력을 통하여 HTML 브라우저에 의한 도움말을 이용하실 수 있습니
다
R의 종료를 원하시면 'q()'을 입력해주세요.

[Workspace loaded from ~/GitHub/RexPS/.RData]

```
> source('C:/Users/abksa/Documents/GitHub/RexPS/Script_01.R')  
[1] "Answer for Question 1"
```

```
[1] "1-(a)"  
[1] 51  
[1] 52  
[1] 53  
[1] 54  
[1] 55  
[1] 56  
[1] 57  
[1] 58  
[1] 59
```

```
[1] "1-(b)"  
[1] 19
```

출력결과.txt

[1] "1-(c)"
[1] 1950

[1] "1-(d)"
[1] 61
[1] 62
[1] 63
[1] 64
[1] 65
[1] 66
[1] 67
[1] 68
[1] 69
[1] 70
[1] 71
[1] 72

[1] "1-(e)"
[1] 81
[1] 82
[1] 83
[1] 84
[1] 85
[1] 86
[1] 87
[1] 88
[1] 89
[1] 90

[1] "1-(f)"
[1] 52
[1] 59
[1] 66
[1] 73
[1] 80
[1] 87

출력결과.txt

[1] "1-(g)"

[1] 51 52 53 54 55 0 57 58 59 60 61 62 0 64 65 66 67 68 69 0 71 72 73 74 75 76
0 78 79 80 81 82 83

[34] 0 85 86 87 88 89 90

[1] "1-(h)"

[1] 1210

[1] "1-(i)"

[1] 51

[1] 53

[1] 55

[1] 57

[1] 59

[1] 61

[1] 65

[1] 67

[1] 69

[1] 71

[1] 73

[1] 75

[1] 79

[1] 81

[1] 82

[1] 83

[1] 85

[1] 86

[1] 87

[1] 88

[1] 89

[1] 90

[1] "1-(j)"

[1] 60

[1] 75

[1] 90

출력결과.txt

[1] "1-(k)"

[1] 51 104 53 108 55 0 57 116 59 120 61 124 0 128 65 132 67 136 69 0
71 144 73 148 75
[26] 152 0 156 79 160 81 164 83 0 85 172 87 176 89 180

[1] "1-(l)"

[1] 51 104 53 108 55 57 116 59 120 61 124 128 65 132 67 136 69 71 144 73
148 75 152 156 79
[26] 160 81 164 83 85 172 87 176 89 180

[1] "2-(a)"

Fertility	Agriculture	Examination	Education	Catholic	Infant.Mortality
Min. :35.00	Min. : 1.20	Min. : 3.00	Min. : 1.00	Min. : 2.150	Min. :10.80
1st Qu.:64.70	1st Qu.:35.90	1st Qu.:12.00	1st Qu.: 6.00	1st Qu.: 5.195	1st Qu.:18.15
Median :70.40	Median :54.10	Median :16.00	Median : 8.00	Median : 15.140	Median :20.00
Mean :70.14	Mean :50.66	Mean :16.49	Mean :10.98	Mean : 41.144	Mean :19.94
3rd Qu.:78.45	3rd Qu.:67.65	3rd Qu.:22.00	3rd Qu.:12.00	3rd Qu.: 93.125	3rd Qu.:21.70
Max. :92.50	Max. :89.70	Max. :37.00	Max. :53.00	Max. :100.000	Max. :26.60

[1] "2-(b)"

[1] "Herens"

[1] "2-(c)"

	Fertility	Agriculture	Examination	Education	Catholic	Infant.Mortality
Herens	77.3	89.7	5	2	100.00	18.3
Conthey	75.5	85.9	3	2	99.71	15.1
Entremont	69.3	84.9	7	6	99.68	19.8
Sierre	92.2	84.6	3	3	99.46	16.3

출력결과.txt

Martigwy	70.5	78.2	12	6	98.96	19.4
St Maurice	65.0	75.9	9	9	99.06	17.8
Lavaux	65.1	73.0	19	9	2.84	20.0
Echallens	68.3	72.6	18	2	24.20	21.2
Oron	72.5	71.2	12	1	2.40	21.0
Broye	83.8	70.2	16	7	92.85	23.6
Cossonay	61.7	69.3	22	5	2.82	18.7
Glane	92.4	67.8	14	8	97.16	24.9
Aubonne	66.9	67.5	14	7	2.27	19.1
Monthey	79.4	64.9	7	3	98.22	20.2
Veveyse	87.1	64.5	14	6	98.61	24.5
Paysd'enhaut	72.0	63.5	6	3	2.56	18.0
Sion	79.3	63.1	13	13	96.83	18.1
Aigle	64.1	62.0	21	12	8.52	16.5
Rolle	60.5	60.8	16	10	7.72	16.3
Avenches	68.9	60.7	19	12	4.43	22.7
Morges	65.5	59.8	22	10	5.23	18.0
Payerne	74.2	58.1	14	8	5.23	23.8
Moudon	65.0	55.1	14	3	4.52	22.4
Orbe	57.4	54.1	20	6	4.20	15.3
Gruyere	82.4	53.3	12	7	97.67	21.0
Nyone	56.6	50.9	22	12	15.14	16.7
Yverdon	65.4	49.5	15	8	6.10	22.5
Rive Droite	44.7	46.6	16	29	50.43	18.2
Sarine	82.9	45.2	16	13	91.38	24.4
Delemont	83.1	45.1	6	9	84.84	22.2
Neuveville	76.9	43.5	17	15	5.16	20.6
Franches-Mnt	92.5	39.7	5	5	93.40	20.2
Boudry	70.4	38.4	26	12	5.62	20.3
Val de Ruz	77.6	37.6	15	7	4.97	20.0
Moutier	85.8	36.5	12	7	33.77	20.3
Porrentruy	76.1	35.3	9	7	90.57	26.6
Grandson	71.7	34.0	17	8	3.30	20.0
Rive Gauche	42.8	27.7	22	29	58.33	19.3
Vevey	58.3	26.8	25	19	18.46	20.9
Lausanne	55.7	19.4	26	28	12.11	20.2
ValdeTravers	67.6	18.7	25	7	8.65	19.5
Neuchatel	64.4	17.6	35	32	16.92	23.0
Courtelary	80.2	17.0	15	12	9.96	22.2
Le Locle	72.7	16.7	22	13	11.22	18.9
La Vallee	54.3	15.2	31	20	2.15	10.8

출력결과.txt

La Chauxdfnd	65.7	7.7	29	11	13.79	20.5
V. De Geneve	35.0	1.2	37	53	42.34	18.0

[1] "2-(d)"

Delemont : 45.1

Franches-Mnt : 39.7

Porrentruy : 35.3

Broye : 70.2

Glane : 67.8

Gruyere : 53.3

Sarine : 45.2

Veveyse : 64.5

Conthey : 85.9

Entremont : 84.9

Herens : 89.7

Martigwy : 78.2

Monthey : 64.9

St Maurice : 75.9

Sierre : 84.6

Sion : 63.1

[1] "2-(e)"

Courtelay	->	Examination : 15	Agriculture : 17
Delemont	->	Examination : 6	Agriculture : 45.1
Franches-Mnt	->	Examination : 5	Agriculture : 39.7
Moutier	->	Examination : 12	Agriculture : 36.5
Neuveville	->	Examination : 17	Agriculture : 43.5
Porrentruy	->	Examination : 9	Agriculture : 35.3
Sarine	->	Examination : 16	Agriculture : 45.2
Grandson	->	Examination : 17	Agriculture : 34
Yverdon	->	Examination : 15	Agriculture : 49.5
Val de Ruz	->	Examination : 15	Agriculture : 37.6
Rive Droite	->	Examination : 16	Agriculture : 46.6

[1] "Answer for Question 3"

	X	Population	Income	Area
1	Alaska	365	6315	566432
2	California	21198	5114	156361

출력결과.txt

3	Connecticut	3100	5348	4862
4	Illinois	11197	5107	55748
5	Maryland	4122	5299	9891
6	Nevada	590	5149	109889
7	New Jersey	7333	5237	7521
8	North Dakota	637	5087	69273

[1] "Answer for Question 4"

[1] 2

[1] 3

[1] 5

[1] 7

[1] 11

[1] 13

[1] 17

[1] 19

[1] 23

[1] 29

[1] 31

[1] 37

[1] 41

[1] 43

[1] 47

[1] 53

[1] 59

[1] 61

[1] 67

[1] 71

[1] 73

[1] 79

[1] 83

[1] 89

[1] 97

[1] 101

[1] 103

[1] 107

[1] 109

[1] 113

[1] 127

[1] 131

출력결과.txt

[1] 137
[1] 139
[1] 149
[1] 151
[1] 157
[1] 163
[1] 167
[1] 173
[1] 179
[1] 181
[1] 191
[1] 193
[1] 197
[1] 199
[1] 211
[1] 223
[1] 227
[1] 229
[1] 233
[1] 239
[1] 241
[1] 251
[1] 257
[1] 263
[1] 269
[1] 271
[1] 277
[1] 281
[1] 283
[1] 293
[1] 307
[1] 311
[1] 313
[1] 317
[1] 331
[1] 337
[1] 347
[1] 349
[1] 353
[1] 359
[1] 367

출력결과.txt

[1] 373
[1] 379
[1] 383
[1] 389
[1] 397
[1] 401
[1] 409
[1] 419
[1] 421
[1] 431
[1] 433
[1] 439
[1] 443
[1] 449
[1] 457
[1] 461
[1] 463
[1] 467
[1] 479
[1] 487
[1] 491
[1] 499
[1] 503
[1] 509
[1] 521
[1] 523
[1] 541
[1] 547
[1] 557
[1] 563
[1] 569
[1] 571
[1] 577
[1] 587
[1] 593
[1] 599
[1] 601
[1] 607
[1] 613
[1] 617
[1] 619

출력결과.txt

[1] 631
[1] 641
[1] 643
[1] 647
[1] 653
[1] 659
[1] 661
[1] 673
[1] 677
[1] 683
[1] 691
[1] 701
[1] 709
[1] 719
[1] 727
[1] 733
[1] 739
[1] 743
[1] 751
[1] 757
[1] 761
[1] 769
[1] 773
[1] 787
[1] 797
[1] 809
[1] 811
[1] 821
[1] 823
[1] 827
[1] 829
[1] 839
[1] 853
[1] 857
[1] 859
[1] 863
[1] 877
[1] 881
[1] 883
[1] 887
[1] 907

출력결과.txt

[1] 911
[1] 919
[1] 929
[1] 937
[1] 941
[1] 947
[1] 953
[1] 967
[1] 971
[1] 977
[1] 983
[1] 991
[1] 997

[1] "Answer for Question 5"

0 row : 0
1 row : 1
2 row : 1
3 row : 2
4 row : 3
5 row : 5
6 row : 8
7 row : 13
8 row : 21
9 row : 34
10 row : 55
11 row : 89
12 row : 144
13 row : 233
14 row : 377
15 row : 610
16 row : 987
17 row : 1597
18 row : 2584
19 row : 4181
20 row : 6765
21 row : 10946
22 row : 17711
23 row : 28657
24 row : 46368

출력결과.txt

25 row : 75025
26 row : 121393
27 row : 196418
28 row : 317811
29 row : 514229
30 row : 832040
31 row : 1346269
32 row : 2178309
33 row : 3524578
34 row : 5702887
35 row : 9227465
36 row : 14930352
37 row : 24157817
38 row : 39088169
39 row : 63245986
40 row : 102334155
41 row : 165580141
42 row : 267914296
43 row : 433494437
44 row : 701408733
45 row : 1134903170
46 row : 1836311903
47 row : 2971215073
48 row : 4807526976
49 row : 7778742049
50 row : 12586269025

[1] "Answer for Question 6"

[1] "6-(a)"

[1] "First number? : "

1: 8

2:

Read 1 item

[1] "Second number? : "

1: 12

2:

Read 1 item

[1] "The answer is..."

[1] 4

[1] "6-(b)"

min: 14 max: 100

[1] "Answer for Question 7"

[1] "7-(a)"

[1] 5

[1] "7-(b)"

[1] 2

[1] "7-(c)"

[1] 6

[1] "7-(d)"

x

1 2

2 3

3 7