

# HW\_04

izd3

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

## Problem #01 - Chapter 16 Exercise #04

```
# Show your work here
string_a<-'a'
num_vec<-c(0,1)
xer<-rep(x=1,times=6)
mat_1 <- matrix(data = xer, nrow = 2, ncol = 3, byrow = FALSE)
na_vec<-rep(x=NA,times=10)
List004<-list(num_vec,xer,mat_1,as.character(na_vec))
str(List004)
```

```
## List of 4
## $ : num [1:2] 0 1
## $ : num [1:6] 1 1 1 1 1 1
## $ : num [1:2, 1:3] 1 1 1 1 1 1
## $ : chr [1:10] NA NA NA NA ...
```

**Problem #02 - Chapter 17 Exercise #03 (Display the structure of your results and not the actual result.)**

```
# Show your work here  
str(ModifyLists001[1])
```

```
## List of 1  
## $ : chr [1:500] "Dylan" "Clarence" "Kathryn" "Jessalyn" ...
```

```
str(ModifyLists002[length(ModifyLists002)-1:length(ModifyLists002)])
```

```
## List of 3  
## $ hats: chr [1:3] "a" "b" "c"  
## $ wild: chr [1:500] "804982" "912722" "558547" "679144" ...  
## $ papa: chr [1:500] "Gust" "Fitch" "al-Saidi" "Amarillas" ...
```

```
len<-length(ModifyLists003)  
vects<-seq(from=2,to=10,by=2)  
str(ModifyLists003[vects])
```

```
## List of 5  
## $ dell: chr [1:41] "234010" "942125" "403074" "344177" ...  
## $ feet: int [1:500] 772845 936017 967595 785182 946657 47915 602630 243790 879160 417650 ...  
## $      : chr [1:500] "Dylan" "Clarence" "Kathryn" "Jessalyn" ...  
## $      : int [1:3] 1 2 3  
## $      : chr "vnuzumxgvne zu znk gsgzkax oy xkixkgzout, zu znk vxulkyoutgr oz oy cuxq, gtj ngxj cux"
```

**Problem #03 - Chapter 17 Exercise #06 (Display the structure of your results and not the actual result.)**

```
# Show your work here
copy<-ModifyLists003
copy<-(copy[names(copy)!=''])
str(copy)
```

```
## List of 5
## $ rag      : chr [1:70] "Reda" "Vega Olguin" "al-Mahdavi" "el-Suleiman" ...
## $ dell     : chr [1:41] "234010" "942125" "403074" "344177" ...
## $ graflex: int [1:3] 1 2 3
## $ feet     : int [1:500] 772845 936017 967595 785182 946657 47915 602630 243790 879160 417650 ...
## $ cheese  : chr "vnuzumxgvne zu znk gsgzkax oy xkixkgzout, zu znk vxulkyoutgr oz oy cuxq, gtj ngxj"
```

## Problem #04 - Chapter 18 Exercise #02

```
# Show your work here
letter3<-rep(x=letters,each=3)
nums<-seq(from=78,to=1)
cl<-colors()
ini<-length(cl)-77
cl<-cl[ini:length(cl)]

dat<-data.frame(variable.1=letter3,variable.2=nums,variable.3=cl)
dat
```

##	variable.1	variable.2	variable.3
## 1	a	78	seashell1
## 2	a	77	seashell2
## 3	a	76	seashell3
## 4	b	75	seashell4
## 5	b	74	sienna
## 6	b	73	sienna1
## 7	c	72	sienna2
## 8	c	71	sienna3
## 9	c	70	sienna4
## 10	d	69	skyblue
## 11	d	68	skyblue1
## 12	d	67	skyblue2
## 13	e	66	skyblue3
## 14	e	65	skyblue4
## 15	e	64	slateblue
## 16	f	63	slateblue1
## 17	f	62	slateblue2
## 18	f	61	slateblue3
## 19	g	60	slateblue4
## 20	g	59	slategray
## 21	g	58	slategray1
## 22	h	57	slategray2
## 23	h	56	slategray3
## 24	h	55	slategray4
## 25	i	54	slategrey
## 26	i	53	snow
## 27	i	52	snow1
## 28	j	51	snow2
## 29	j	50	snow3
## 30	j	49	snow4
## 31	k	48	springgreen
## 32	k	47	springgreen1
## 33	k	46	springgreen2
## 34	l	45	springgreen3
## 35	l	44	springgreen4
## 36	l	43	steelblue
## 37	m	42	steelblue1
## 38	m	41	steelblue2
## 39	m	40	steelblue3
## 40	n	39	steelblue4

## 41	n	38	tan
## 42	n	37	tan1
## 43	o	36	tan2
## 44	o	35	tan3
## 45	o	34	tan4
## 46	p	33	thistle
## 47	p	32	thistle1
## 48	p	31	thistle2
## 49	q	30	thistle3
## 50	q	29	thistle4
## 51	q	28	tomato
## 52	r	27	tomato1
## 53	r	26	tomato2
## 54	r	25	tomato3
## 55	s	24	tomato4
## 56	s	23	turquoise
## 57	s	22	turquoise1
## 58	t	21	turquoise2
## 59	t	20	turquoise3
## 60	t	19	turquoise4
## 61	u	18	violet
## 62	u	17	violetred
## 63	u	16	violetred1
## 64	v	15	violetred2
## 65	v	14	violetred3
## 66	v	13	violetred4
## 67	w	12	wheat
## 68	w	11	wheat1
## 69	w	10	wheat2
## 70	x	9	wheat3
## 71	x	8	wheat4
## 72	x	7	whitesmoke
## 73	y	6	yellow
## 74	y	5	yellow1
## 75	y	4	yellow2
## 76	z	3	yellow3
## 77	z	2	yellow4
## 78	z	1	yellowgreen

**Problem #05 - Chapter 18 Exercise #06 (Display the structure of your results and not the actual result.)**

```
# Show your work here
```

```
str(subset(Loblolly,Loblolly$height>60))
```

```
## Classes 'nfnGroupedData', 'nfGroupedData', 'groupedData' and 'data.frame':  8 obs. of  3 variables:
## $ height: num  60.9 63.4 64.1 63 60.1 ...
## $ age : num  25 25 25 25 25 25 25 25
## $ Seed : Ord.factor w/ 14 levels "329"<"327"<"325"<...: 10 13 14 12 7 9 8 11
```

```
str(subset(Formaldehyde,Formaldehyde$carb>0.5))
```

```
## 'data.frame':  3 obs. of  2 variables:
## $ carb : num  0.6 0.7 0.9
## $ optden: num  0.538 0.626 0.782
```

```
str(subset(ChickWeight,ChickWeight$weight==0))
```

```
## Classes 'nfnGroupedData', 'nfGroupedData', 'groupedData' and 'data.frame':  0 obs. of  4 variables:
## $ weight: num
## $ Time : num
## $ Chick : Ord.factor w/ 50 levels "18"<"16"<"15"<...:
## $ Diet : Factor w/ 4 levels "1","2","3","4":
```

**Problem #06 - Chapter 19 Exercise #02 (Display the structure of your results and not the actual result.)**

```
# Show your work here  
library('tibble')
```

```
## Warning: package 'tibble' was built under R version 4.2.3
```

```
letter3<-rep(x=letters,each=3)  
nums<-seq(from=78,to=1)  
cl<-colors()  
ini<-length(cl)-77  
cl<-cl[ini:length(cl)]  
  
example.tibble2<-tibble(variable.1=letter3,variable.2=nums,variable.3=cl)  
str(example.tibble2)
```

```
## tibble [78 x 3] (S3: tbl_df/tbl/data.frame)  
## $ variable.1: chr [1:78] "a" "a" "a" "b" ...  
## $ variable.2: int [1:78] 78 77 76 75 74 73 72 71 70 69 ...  
## $ variable.3: chr [1:78] "seashell1" "seashell2" "seashell3" "seashell4" ...
```



## Problem #07 - Chapter 19 Exercise #05

*# Show your work here*

```
str(subset(Loblolly.tib,Loblolly$height>60))
```

```
## tibble [8 x 3] (S3: tbl_df/tbl/data.frame)
##  $ height: num [1:8] 60.9 63.4 64.1 63 60.1 ...
##  $ age    : num [1:8] 25 25 25 25 25 25 25 25
##  $ Seed   : Ord.factor w/ 14 levels "329"<"327"<"325"<...: 10 13 14 12 7 9 8 11
##  - attr(*, "formula")=Class 'formula' language height ~ age | Seed
##  .. ..- attr(*, ".Environment")=<environment: R_EmptyEnv>
##  - attr(*, "labels")=List of 2
##  ..$ x: chr "Age of tree"
##  ..$ y: chr "Height of tree"
##  - attr(*, "units")=List of 2
##  ..$ x: chr "(yr)"
##  ..$ y: chr "(ft)"
```

```
str(subset(Formaldehyde.tib,Formaldehyde.tib$carb>0.5))
```

```
## tibble [3 x 2] (S3: tbl_df/tbl/data.frame)
##  $ carb : num [1:3] 0.6 0.7 0.9
##  $ optden: num [1:3] 0.538 0.626 0.782
```

```
str(subset(ChickWeight.tib,ChickWeight.tib$weight==0))
```

```
## tibble [0 x 4] (S3: tbl_df/tbl/data.frame)
##  $ weight: num(0)
##  $ Time  : num(0)
##  $ Chick : Ord.factor w/ 50 levels "18"<"16"<"15"<...:
##  $ Diet   : Factor w/ 4 levels "1","2","3","4":
##  - attr(*, "formula")=Class 'formula' language weight ~ Time | Chick
##  .. ..- attr(*, ".Environment")=<environment: R_EmptyEnv>
##  - attr(*, "outer")=Class 'formula' language ~Diet
##  .. ..- attr(*, ".Environment")=<environment: R_EmptyEnv>
##  - attr(*, "labels")=List of 2
##  ..$ x: chr "Time"
##  ..$ y: chr "Body weight"
##  - attr(*, "units")=List of 2
##  ..$ x: chr "(days)"
##  ..$ y: chr "(gm)"
```

## Problem #08 - Chapter 20 Exercise #02 ( You will need to look up the formula)

```
# Show your work here
FtoC <- function(Fahrenheit) {
  Celsius <- (Fahrenheit - 32) * 5/9
  return(Celsius)
}
```

Problem #09 - Chapter 20 Exercise #08 ( You will need to look up the formula)

```
# Show your work here
ten0<-rep(x=0,times=10)

totalOfTen <- function(x = ten0) {
  total <- sum(x)
  return(total)
}
```

## Problem #10 - Chapter 21 Exercise #07 ( You will need to look up the formulas)

```
# Show your work here
LifeCycleSavingsUpdate$age.ratio <- LifeCycleSavingsUpdate$pop15 /
  LifeCycleSavingsUpdate$pop75

LifeCycleSavingsUpdate$broken.up <- ifelse(LifeCycleSavingsUpdate$age.ratio < 10
&LifeCycleSavingsUpdate$ddpi < 3,"DOWN"

,ifelse(LifeCycleSavingsUpdate$age.ratio > 20 & LifeCycleSavingsUpdate$ddpi > 4,
  "UP","OVER"))

head(LifeCycleSavingsUpdate)
```

```
##          sr pop15 pop75      dpi ddpi age.ratio broken.up
## Australia 11.43 29.35  2.87 2329.68 2.87 10.226481      OVER
## Austria   12.07 23.32  4.41 1507.99 3.93  5.287982      OVER
## Belgium   13.17 23.80  4.43 2108.47 3.82  5.372460      OVER
## Bolivia    5.75 41.89  1.67  189.13 0.22 25.083832      OVER
## Brazil    12.88 42.19  0.83  728.47 4.56 50.831325        UP
## Canada     8.79 31.72  2.85 2982.88 2.43 11.129825      OVER
```