Statistics 3080
Homework 2
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Problem 1a

```
> class_list <- list(Name="Gretchen Martinet", Department="Statistics",
+                    Courses=c(2559,3080,3220,4993), Enr2559=6, Enr3080=c(40,42),
+                    Enr3220=60, Enr4993=1, Day2559="Thursday",
+                    Day3080=c("Monday","Wednesday","Friday"),
+                    Day3220=c("Monday","Wednesday"), Day4993="Thursday")
> class_list

$Name
[1] "Gretchen Martinet"

$Department
[1] "Statistics"

$Courses
[1] 2559 3080 3220 4993

$Enr2559
[1] 6

$Enr3080
[1] 40 42

$Enr3220
[1] 60

$Enr4993
[1] 1

$Day2559
[1] "Thursday"

$Day3080
[1] "Monday"    "Wednesday" "Friday"

$Day3220
[1] "Monday"    "Wednesday"

$Day4993
[1] "Thursday"
```

Problem 1b

```
> class_list$Enr3080[2]

[1] 42
```

Problem 1c

```
> length(class_list$Day3220)

[1] 2
```

Problem 1d

```
> sum(class_list$Enr2559, class_list$Enr3080[1], class_list$Enr3080[2],
+     class_list$Enr3020, class_list$Enr4993)

[1] 89
```

Problem 1e

```
> class_total <- c(class_list$Day2559, class_list$Day3080, class_list$Day3080,
+                  class_list$Day3220, class_list$Day4993)
> sort(table(class_total), decreasing=TRUE)

class_total
   Monday Wednesday    Friday  Thursday
        3         3         2         2

> print("Monday and Wednesday have the most class meetings.")

[1] "Monday and Wednesday have the most class meetings."
```

Problem 2a

```
> name <- c("Mercury", "Venus", "Earth", "Mars", "Jupiter", "Saturn",
+           "Uranus", "Neptune")
> type <- c("Terrestrial", "Terrestrial", "Terrestrial", "Terrestrial",
+           "Gas", "Gas", "Gas", "Gas")
> diameter <- c(0.382, 0.949, 1, 0.532, 11.209, 9.449, 4.007, 3.883)
> rotation <- c(58.64, -243.02, 1, 1.03, 0.41, 0.43, -0.72, 0.67)
> rings <- c(FALSE, FALSE, FALSE, FALSE, TRUE, TRUE, TRUE, TRUE)
> moons <- c("None", "None", "One", "Many", "Many", "Many", "Many", "Many")
> planets <- data.frame(name=name, type=type, diameter=diameter, rotation=rotation,
+                       rings=rings, moons=moons)
> planets
```

```
     name        type diameter rotation rings moons
1 Mercury Terrestrial    0.382    58.64 FALSE  None
2   Venus Terrestrial    0.949  -243.02 FALSE  None
3   Earth Terrestrial    1.000     1.00 FALSE   One
4    Mars Terrestrial    0.532     1.03 FALSE  Many
5 Jupiter         Gas   11.209     0.41  TRUE  Many
6  Saturn         Gas    9.449     0.43  TRUE  Many
7  Uranus         Gas    4.007    -0.72  TRUE  Many
8 Neptune         Gas    3.883     0.67  TRUE  Many
```

Problem 2b

```
> planets[1:3,]

     name        type diameter rotation rings moons
1 Mercury Terrestrial    0.382    58.64 FALSE  None
2   Venus Terrestrial    0.949  -243.02 FALSE  None
3   Earth Terrestrial    1.000     1.00 FALSE   One
```

Problem 2c

```
> which(planets$diameter > 1)

[1] 5 6 7 8
```

Problem 2d

```
> planets[planets$diameter > 1, c("name","moons")]

     name moons
5 Jupiter  Many
6  Saturn  Many
7  Uranus  Many
8 Neptune  Many
```

Problem 2e

```
> planets[planets$rotation < 0, c("name","type","diameter")]

    name        type diameter
2  Venus Terrestrial    0.949
7 Uranus         Gas    4.007
```

Problem 2f

```
> as.character(planets[planets$moons == "Many", "type"])

[1] "Terrestrial" "Gas"         "Gas"         "Gas"         "Gas"
```

References:

- https://stackoverflow.com/questions/17374651/finding-the-most-common-elements-in-a-vector-in-r