

Statistics 3080
Homework 2
Due: Wednesday, February 7

Complete the following problems in a R Markdown file and submit your compiled PDF.

Problem 1: Consider the list shown below.

```
$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"
```

- (a) Write code to reproduce and save the list.
- (b) Subset the list to isolate the number of students enrolled in the second section of STAT 3080.

- (c) Determine the number of days per week that STAT 3220 meets.
- (d) Determine the number of final project reports to be graded if every student in every class completes a final project.
- (e) Determine the day(s) of the week with the most class meetings (each section counts as a separate class meeting).

Problem 2: In your astronomy class you have been tasked to create a data set to record the major characteristics of the 8 planets in our solar system in their order from the sun – Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. The first major characteristic is the type of planet – the closest four are terrestrial and the furthest four are gas. The next major characteristic is the planet’s diameter relative to the diameter of Earth – 0.382, 0.949, 1, 0.532, 11.209, 9.449, 4.007, 3.883 – followed by the planet’s rotation across the sun relative to that of the Earth – 58.64, -243.02, 1, 1.03, 0.41, 0.43, -0.72, 0.67. The next characteristic is whether or not the planet has rings – the closest four do not and the furthest four do. The final characteristic is the number of moons – Mercury and Venus have none, Earth has one, and the remaining have more than one.

- (a) Create, save, and print the required data frame using the labels **name**, **type**, **diameter**, **rotation**, **rings**, and **moons** for the columns.
- (b) Subset to a data frame that contains only the three closest planets.
- (c) Determine the position of the planets (relative to the sun) that have a larger diameter than Earth.
- (d) Subset the data frame to show only the names and generalized number of moons of the planets that have a larger diameter than Earth.
- (e) Subset the data frame to show the names, type, and diameter relative to the Earth of the planets that have the opposite rotation across the sun of the Earth.
- (f) Subset the data frame to show only the type of planets that have more than one moon.