Statistics 3080
Homework 2
Due: Wednesday, September 20

Complete the following problems in a commented R file. Include any output requested as a comment following your code.

Problem 1 (20 points): The data file *nym2002.txt* contains the finishing time and some demographics for select finishers of the 2002 New York City Marathon.

(a) Read in the file and save the data in a data frame called `nym2002`.

(b) Determine the number of finishers' times that are contained in this data set.

(c) Determine the fastest and slowest finishing times given in the data.

(d) Rewrite the times determined in part (c) in the folowing form: XX hours and XX minutes.

(e) Determine the number of men in the data who finished after the slowest woman in the data.

(f) Determine the home state or country of the fastest finisher in the data.

(g) Determine the age of the slowest male finisher in the data.

(h) Determine the finishing position of the fastest finisher in the data.

(i) Determine number of finishers in the data whose home country is not the U.S. (include U.S. territories as the U.S.)

Problem 2 (15 points): 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 characeteristic 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 final characteristic is whether or not the planet has rings – the closest four do not and the furthest four do.

(a) Create, save, and print the required data frame using the labels `type`, `diameter`, `rotation`, and `rings` for the columns.

(b) Create a data frame that contains only the three closest planets.

(c) Determine which planets have a larger diameter than Earth.

(d) Determine which planets have a longer rotation across the sun than Earth in absolute time.

Problem 3 (30 points): 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 day(s) of the week with the most class meetings (each section counts as a separate class meeting).