HW 6 - CS 220 Spring 2022

Due Friday April 8 by 9:20 AM.

1. [10 points]. Finish the definition of **sqrt.s** we started in class today.

2. [10 points] Consider the definition of $\mathbf{x^y}$ below.

$$x^y = \left\{ \left(x^{\,y/2}\right)^2 \; if\ y\ is\ even \right\}$$

$$x^y = \left\{ x \cdot x^{\,y-1} \;\; if\ y\ is\ odd \right\}$$

   Implement a function **pow** that takes two integers and recursively computes $\mathbf{x^y}$ using the definition above. Write the function in C first in a file named **pow.c**, then as an assembly language function in a file named **pow.s**.

3. Write a single **main.c** file for testing both functions. If there are two command line arguments then you should call the **pow** function. If there is only one command line argument then you should run **sqrt**. For example, if the executable is named **hw6** then

```
ehar@raspberrypi: hw6 2
1.414214
ehar@raspberrypi: hw6 2 10
1024
```

4. Create a directory **hw6** and place all of the header, assembly, and C files in it and push it to your repo. Your directory should contain the files **sqrt.s**, **sqrt.c**, **sqrt.h**, **pow.s**, **pow.c**, **pow.h**, and **main.c.**