Homework 4 (10 points)

Due Monday March 8 by 1:30PM.

Write an ARM assembly function **`xtoy`** in a file named **`fastxtoy.s`** that implementes the recursive **`xtoy`** function below. Put your files in a directory named **`hw4`** and make sure it assembles (compiles) separately using the command **`gcc -c fastxtoy.s.`** Have a **`main.c`** file that takes two command line arguments as **x** and **y** and computes $\mathbf{x}^{\mathbf{y}}$. Make sure your function is properly recursive and manipulates (pushes and pops) the stack appropriately.

```
int xtoy(int x, int y) {
    if (y == 0)
        return 1;
    else if (y % 2 == 1)
        return x * xtoy(x, y - 1);
    else {
        int tmp = xtoy(x, y/2);
        return tmp * tmp;
    }
}
```