Problem 3: HMMM Power!

Favoris

Week 7: Assembly Language > Homework 7 > Problem 3: HMMM Power!

For this problem, you'll create a new HMMM program!

Your program for this problem should first ask for **two** nonnegative numbers from the user. Then, the program should compute the result obtained when you raise the first input to the power of the second input. Finally, it should print that result and then `halt`.

Use the factorial example we went over in class as a guide to how this power program could work. Here is that factorial example from that first HMMM lecture:

```
00 read r1       # get # from user to r1
01 setn r2 1     # put our result into r2
02 jeqzn r1 07   # jump to line 7 if r1 ==
0
03 mul r2 r2 r1  # make r2 = r2 * r1
04 addn r1 -1    # make r1 = r1-1
05 jumpn 02      # jump back to line 2
06 nop
07 write r2      # write out the result,
r2
08 halt
```

This is not a solution—remember that you'll need to edit this code!

Hints!

- Use the existing `read` statement to input the base.
- Add another `read` statement to input the power, say, into `r2`.
- *Keep 1 as your initial result value (aka "base case")!* Perhaps use `r3`.
- Then **test** to see if you're finished. You're probably finished when the power is 0!
- If you're not finished, you need to multiply once, reduce the remaining powers, and loop!

For this problem, you may assume that both inputs n will always be at least 0. 0 to the 0 power should result in 1. Here are a couple runs' worth of sample input and output:

```
Enter number: 2
Enter number: 5
32

Enter number:
42
Enter number: 1
42

Enter number:
42
Enter number: 0
1

Enter number: 0
Enter number: 0
1
```

Remember—you should have a comment of one line or more for every line of code that you write in order to explain what it is doing. Also, test your program carefully, including the "edge cases" when one or both inputs are zero.

Submit Homework 7, Problem 3

20.0/20.0 points (graded)

To submit your Homework 7, Problem 3 HMMM code, you'll need to copy it from the HMMM editor and paste it into the box below. After you've pasted your code below, click the "Check" button.

IMPORTANT: Make sure that there aren't spaces at the beginning of your code, and that you copied all of the characters. If there are extra spaces or you are missing spaces, our server won't be able to run your code and we won't be able to give you any of the points you deserve for your hard work.

1

```
# HMMM
POWER!
```

2

```
00 read r1        # get # from user to
r1
```

3

```
01 read r2        # get # from user to
r2
```

4

```
02 setn r3 1          # put 1 into r3
```

5

```
03 jeqzn r2 07        # jump to line 7 if r2 == 0
```

6

```
04 mul r3 r3 r1       # make r3 = r3 * r1
```

7

```
05 addn r2 -1         # make r2 = r2 - 1
```

8

```
06 jumpn 03           # jump back to line 3
```

9

```
07 write r3           # write out the result, r3
```

10

```
08 halt               # stop
```

Press ESC then TAB or click outside of the code editor to exit
correct

correct

Test results
CORRECT See full outputSee full output

You have used 1 of 3 attempts Some problems have options such as save, reset, hints, or show answer. These options follow the Submit button.