Assignment: printf()

Let's be honest, we take printf() for granted. We use this function every day. It looks so simple on the surface. Hand it some text and variables and it prints them out. Easy! But how much work does it really take to "printf"? What did the authors go through when writing this one beautiful function?

Your job, implement printf. But not the whole thing. You are only responsible for:

- `%s` prints a string
- `%c` prints a characters
- `%%` prints a literally percent sign (%)

And there's a catch: You're ONLY allowed to use system calls to print data. No print_char, no print_string, etc.

Example Code:

```
segment .data
     str1       db   "Hello world",10,0
     str2       db   "str3 is '%s', isn't that cool?",10,0
     str3       db   "woot woot",0
     str4       db   "%c is a char, but so is %%, %s again!",10,0

segment .text
global asm_main

asm_main:

     push str1
     call printf
     add  esp, 4

     push str3
     push str2
     call printf
     add  esp, 8

     push str3
     push 'A'
     push str4
     call printf
     add  esp, 12
```

Example Output:

```
Hello world
str3 is 'woot woot', isn't that cool?
A is a char, but so is %, woot woot again!
```

Hint:

Rather than trying to reconstruct the string and print it all at once, print it character-by-character. When you see a %s, skip over it and print the next argument. Then go back and continue printing from the first string. This is not the most efficient method, as it involves lots of system calls, but it's easier to implement.

Deliverables:

- Your assembly code, as a plaintext (.txt) file.
- A screenshot of your code running, proving it works, or showing how far you got.
- The path on the server where it can be found. (run `pwd` to get this)

Extra Credit (if you're up to it):

Implement "%d". This will involve converting an integer to its multi-character representation. Not a simple task, but doable.

Hint: recall that for any number > 10

- N % 10 = The last digit of N. For instance: 247 % 10 = 7
- N / 10 = The upper portion of N, without the last digit. For instance: 247 / 10 = 24