

HW-6-Basic-Processes

CS 503 Systems Basics

100 Points

The following exercises come from CSAPP3. (20 points each)

File csapp.h is in FILES/PROGRAMS. It is only relevant here because it contains functions Fork() and Wait(). The first letter is capitalized.

Problem 8.11

How many "hello" output lines does this program print?

```
#include "csapp.h"
int main()
{
    int i;
    for (i = 0; i < 2; i++)
        Fork();
    printf("hello\n");
    exit(0);
}
```

Problem 8.12

How many "hello" output lines does this program print?

```
#include "csapp.h"
void doit()
{
    Fork();
    Fork();
    printf("hello\n");
    return;
}

int main()
{
    doit();
    printf("hello\n");
    exit(0);
}
```

Problem 8.13

What is one possible output of the following program?

```
#include "csapp.h"
```

```

int main()
{
    int x = 3;

    if (Fork() != 0) printf("x=%d\n", ++x);

    printf("x=%d\n", --x);
    exit(0);
}

```

Problem 8.14

How many "hello" output lines does this program print?

```

#include "csapp.h"
void doit()
{
    if (Fork() == 0)
    {
        Fork();
        printf("hello\n");
        exit(0);
    }
    return;
}

int main()
{
    doit();
    printf("hello\n");
    exit(0);
}

```

Problem 8.16

What is the output of the following program?

```

#include "csapp.h"
int counter = 1;

int main()
{
    if (Fork() == 0)
    {
        counter--;
        exit(0);
    }
    else
    {

```

```
    Wait(NULL);  
    printf("counter = %d\n", ++counter);  
}  
exit(0);  
}
```