

Homework 9

Problem 1

How many lines of “Hello” will be printed by the following function? The answer should be given as a function of n .

```
void foo(int n) {
    int i;

    for (i = 0; i != n; i++)
        Fork();
    printf("Hello\n");
    exit(0);
}
```

Problem 2

Implement a self-defined `Fgets` function, called `Tfgets`. `Tfgets` is similar to `Fgets` but will timeout in 5 seconds. If the user does not type an input line within 5 seconds, `tfgets` will return `NULL`, else it will return a pointer to the input line.

(Hint: `Alarm()` and non-local jumps may be useful, and original `Fgets` can be invoked in `Tfgets`)

Problem 3

The disk file `foobar.txt` consists of six ASCII characters “foobar”. What is the output of the following program?

```
#include "csapp.h"

int main()
{
    int fd;
    char c;

    fd = Open("foobar.txt", O_RDONLY, 0);
    if (Fork() == 0) {
```

```

        fd = Open("foobar.txt", O_RDONLY, 0);
        Read(fd, &c, 1);
        exit(0);
    }
    Wait(NULL);
    Read(fd, &c, 1);
    printf("c = %c\n", c);
    exit(0);
}

```

Problem 4

What is the output of the following program? Suppose no other file descriptor is occupied except stdout, stdin and stderr.

```

# include "csapp.h"

int main()
{
    int fd1, fd2;

    fd1 = Open("foo.txt", O_RDONLY, 0);
    fd2 = Open("bar.txt", O_RDONLY, 0);
    Close(fd2);
    fd2 = Open("baz.txt", O_RDONLY, 0);
    printf("fd2 = %d\n", fd2);
    exit(0);
}

```