CPSC 213

Review Exercises

A. Material Covered Before Midterm

For exercises on the material covered before the midterm, look at the Midterm Practice Questions which have been posted on this site,

B. Material after the Midterm

Question 1

What is the output of the following program?

```
int main()
{
    int pid;
    printf( " I'm running! \n" );
    pid = fork();
    printf("Me too! \n");
    pid = fork();
    if (pid == 0)
        printf("I follow you! \n");
    exit(0);
}
```

Question 2

What is the major advantage and major disadvantage of using Direct Memory Access (DMA) to transfer data to/from peripheral devices (like disk, displays, etc.?

Question 3

Write down the steps the Unix file system has to take (and count the blocks it has to read) in order to read the **12th block** of the file

`./project/design.txt`

You may assume that the entry for the current directory and the inode map for all the inodes are in the main memory and that the `project` directory consist of one data block

Question 4

Consider the following program:

```
int main()
{
    int fd1, fd2;
    char *str1 = “Hello”;
    char *str2 = “World”;
    fd1 =  open(“greetings.txt”, O_WRONLY );
    fd2 =  open(“greetings.txt”, O_WRONLY );
    write(fd1, str1, 5);
    write(fd2, str2, 5);
    close(fd1);
    close(fd2);
    exit(0);
}
```

Assuming that `greetings.txt` exists, has the right permissions and is empty before this program runs, what would be the contents of `greetings.txt` after the execution of this program? If you think that he program won't run, you should explain why.

Question 5

Write a program that will take an optional command line argument which is the name of a text file, and count the lines in this file. If the argument is not present, it will accept input from the standard input. It will always write the line count on the standard output. The end of line character in C is `'\n'` and the descriptors of the standard files are: `STDIN_FILENO, STDOUT_FILENO, STDERR_FILENO`. Don't worry about efficiency, read one character at a time!

C. Exercises from the Textbook

Processes

Chapter: 8
Exercises: 8,2, 8.3, 8.9, 8.10, 8.11, 8.12

Disk Storage/Unix File System

Chapter: 6
Exercises: 6.2, 6.3

Unix I/O

Chapter: 11
Exercises: 11.1, 11.2, 11.3, 11.5

Process Communication / Networking

Study assignment 6

Threads/Synchronization

13.1, 13.2, 13.5, 13.13, 13.20