COSC 350 System Software Midterm #1-2

03/05/2021

Name: _____

4. (30 pt.) Write a compliable C program. You need send as a separate file with name **task4.c**. Your program will accept five file names from command line: one input file name and four output file names. ex) **input**, **alpha**, **num**, **other** and **copy**. (output file mode: rw-rw-rw) The **input** file is an ASCII file. Your program read character by character from the **input** file and write to proper output file. Alphabetic character writes to the file **alpha**, numerical character writes to the file **num** and other characters goes to the file **other**. The file **copy** is copy of input file which is created by reading data from three created files. (You should not create the file **copy** from input file!) To create the **copy** file, you need consider empty space and space which is used for different type of character.

Your program needs create files from one input file.

Ex)

input

```
(this ) # is 6 o3 n 9
* && > 8 $ abc
```

alpha

```
 this    is   o  n
              abc
```

num

```
          6  3   9
       8
```

other

```
(     ) #
* && >   $
```

copy

```
(this ) # is 6 o3 n 9
* && > 8 $ abc
```

5. (5 pt.) Explain what following program does?

```
#include <stdio.h>
#include <unistd.h>
#include <fcntl.h>

int main()
{
    int fd = open("my.txt", O_WRONLY|O_CREAT, S_IRUSR|S_IWUSR);

    if (fd < 0)
         return 1;
    printf("How are you?\n");
    if(dup2(fd,1) < 0)
         return 1;
    printf("I am fine Thank you. How about yourself?\n");
    close(fd);

    return 0;
}
```

6. (5 pt) What will be the permission for files **foo** and **bar** with following program?

```
#include <unistd.h>
#include <fcntl.h>
#include <ctype.h>

int main ()
{
   umask(0200);
   if (creat("foo",S_IRUSR |S_IWUSR|S_IRGRP|S_IWGRP|S_IROTH|S_IWOTH) <0)
     return 1;
   umask(0440);
   if (creat ("bar",S_IRUSR |S_IWUSR|S_IRGRP|S_IWGRP|S_IROTH|S_IWOTH) <0)
     return 1;
   return 0;
}
```

- foo:
- bar:

7. (5 pt.)There are four components in C System environment: Text editor, preprocessor, compiler and Linker. Briefly describe roles of each component.

   - Text editor-
   - Preprocessor –
   - Compiler
   - Linker –

8. (5 pt.) What will be displayed for each of the following sequences of shell commands?

   a.
   ```
   you=Michael
   x=you
   y=x
   z=\$$y
   echo $z
   ```

   b.
   ```
   you=Michael
   x=you
   y=x
   eval z=\$$y
   echo $z
   ```

How to submit

- Submit two files:
  - task4.c – error free compliable c program for problem 4
  - answer5678.docx - answer for problem 5, 6, 7, 8
- Submit by e-mail to cosc350@gmail.com