COSC 350 System Software: Mini-Test 1

1. Following shows student's information (ID, last name, age phone number) in the student.txt file. You need collect student data with string "Smith"

```
1234 Smith Chistine 27 410-980-2222
0235 Park Sangeon 35 410-230-1023
8989 Kim David 23 410-111-0009
7878 Smith Emily 34 410-898-0009
6756 Chab Jessie 24 410-786-0345
1345 Clark Joshua 27 410-897-2345
1243 Close James 22 410-887-2345
7845 Smith Jason 23 410-772-3678
3412 Davis Andrew 21 410-876-2347
4567 Figiel Charles 27 410-777-8877
1345 Smith John 26 410-666-8888
```
d
Write Command with pipe and output redirection to find all student data with "Smith" in the student.txt and sort them based on age, and save in a file named "Smith.txt"

2. What are the two conditions to make a shell script file executable?

    1)

    2)

3. There are two types of libraries: static library and shared library. Briefly explain differences between static and shared library.

    - Static Library:

    - Shared Library:

4. Briefly state what the following commands do?
Ls
man
find -name "*.jpg":
find /home/separk -name "*.cpp":
find -type d :
find -type f :
find -type l :
find $HOME :
file tux_small.png
more zipcodes.txt
grep 10001 zipcodes.txt :
">"

">>"
"|"
sort -k 4,4 hello.txt :

4.1. Since a directory itself is a file in linux system, each directory has its name. Write bash script which test each files in current working directory an displays subdirectory names.

```bash
#!/bin/bash
```

5. Write shell script to display triangle shapes based on base length of triangle. A base value must be requested by your program. A base value must be odd number greater than 3. no (())

eg. value base 7 *
                  ***
                 *****
                ****

```bash
#!/bin/bash
```

6. Write a syntax free shell script "evenSum.sh" that reads sequence of integers on the command line and calculate even value sum and display the result. Use For loop. No (()). Exit the program with an appropriate error message under the following error conditions: if there is no argument on the command line.

Ex. for ./evenSum.sh 12 13 23 113 112 34

      output: the sum of even arguments is 158

```bash
#!/bin/bash
```

COSC 350 System Software mini test #2

1. write a program to count the lines of a file using system calls.

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

2. Explain the difference between Buffered I/O and Unbuffered I/O.

3. Explain the following Implementations of a file system.

Contiguous Allocation -

Linked-List Allocation-

Linked-List allocation with file allocation table FAT -

Index-Node Allocation -

4. Write a c program to take integer arguments and find the even value sum and the odd value sum.
Write a st_to_int that takes a string argument and output the string as an integer.
eg. ./a.out 12 13 14 15 16 17
even value sum: 42
odd value sum: 45

```
#include <stdio.h>
#include <stdlib.h>
```

5. write a c program which creates a symmetric file so that each line of the file say: abcdefg
becomes abcdefg || gfedcba in a new file

```c
#include <unistd.h>
#include <fcntl.h>
#include <stdlib.h>
#include <stdio.h>
#include <syst/stat.h>
```