Enrollment No: 120230060015084

Assignment – 2

OPERATING SYSTEM

1. Create two C files to print "**Hello World!**" in two different ways:

```
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ touch HelloWorld1.c HelloWorld2.c
```

a. Program containing normal statement terminator → HelloWorld1.c.

```
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ vi HelloWorld1.c
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ cc HelloWorld1.c
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ ./a.out
Hello World!
```

b. Program without any statement terminator → HelloWorld2.c.

```
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ vi HelloWorld2.c
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ cc HelloWorld2.c
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ ./a.out
Hello World!
```

2. Display the contents of the files.

```
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ cat HelloWorld1.c
#include<stdio.h>
int main(){
        printf("Hello World!\n");
        return 0;
}
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ cat HelloWorld2.c
#include<stdio.h>
int main(){
        if(printf("Hello World!\n"));
        return 0;
}
```

3. Concatenate the two files to a third file.

```
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ cat HelloWorld1.c HelloWorld2.c > Combine.txt
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ ls
Combine.txt  HelloWorld1.c  HelloWorld2.c  a.out
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ cat Combine.txt
#include<stdio.h>
int main(){
        printf("Hello World!\n");
        return 0;
}
#include<stdio.h>
int main(){
        if(printf("Hello World!\n"));
        return 0;
}
```

4. Show the above file types.

```
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ file HelloWorld1.c
HelloWorld1.c: C source, ASCII text
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ file HelloWorld2.c
HelloWorld2.c: C source, ASCII text
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ file Combine.txt
Combine.txt: C source, ASCII text
```

5. Copy all the files to the home directory in an interactive manner.

```
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ cp -i HelloWorld1.c HelloWorld2.c Combine.txt
cp: target 'Combine.txt' is not a directory
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ cp -i HelloWorld1.c HelloWorld2.c Combine.txt ~
pankaj@LAPTOP-18P9HFA4:~/MCA2024/Pankaj_Lab$ cd ~
pankaj@LAPTOP-18P9HFA4:~$ ls
A.txt  C_Programming  F1.txt  HelloWorld1.c  ID.c     MCA2024  N2.txt       OS_Lab
B.txt  Combine.txt    F2.txt  HelloWorld2.c  MCA2022  N1.txt   New_student  Shell_Programming
```

6. Create a copy of the C file in TestA-1

```
pankaj@LAPTOP-18P9HFA4:~$ cp HelloWorld1.c ~/MCA2022/Pankaj_B_20/Test/TestA-1/
pankaj@LAPTOP-18P9HFA4:~$ ls ~/MCA2022/Pankaj_B_20/Test/TestA-1/
HelloWorld1.c
```

7. Copy the file to the home directory in an interactive manner.

```
pankaj@LAPTOP-18P9HFA4:~$ cd ~/MCA2022/Pankaj_B_20/Test/TestA-1/
pankaj@LAPTOP-18P9HFA4:~/MCA2022/Pankaj_B_20/Test/TestA-1$ ls
HelloWorld1.c
pankaj@LAPTOP-18P9HFA4:~/MCA2022/Pankaj_B_20/Test/TestA-1$ cp -i HelloWorld1.c ~
cp: overwrite '/home/pankaj/HelloWorld1.c'? y
pankaj@LAPTOP-18P9HFA4:~/MCA2022/Pankaj_B_20/Test/TestA-1$ cd ~
pankaj@LAPTOP-18P9HFA4:~$ ls
A.txt  C_Programming  F1.txt  HelloWorld1.c  ID.c     MCA2024  N2.txt       OS_Lab
B.txt  Combine.txt    F2.txt  HelloWorld2.c  MCA2022  N1.txt   New_student  Shell_Programming
```

8. Remove the directories TestC & TestC-1.

```
pankaj@LAPTOP-18P9HFA4:~/MCA2022/Pankaj_B_20$ rm -rf TestC
pankaj@LAPTOP-18P9HFA4:~/MCA2022/Pankaj_B_20$ tree
.
├── Test
│   ├── TestA-1
│   │   └── HelloWorld1.c
│   └── TestA-2
├── TestB
│   ├── TestB-1
│   └── TestB-2
│       ├── TestB-2-i
│       └── TestB-3
└── Unix_File_System
```

9. Delete the file C file from TestA-1.

```
pankaj@LAPTOP-18P9HFA4:~/MCA2022/Pankaj_B_20$ cd Test/TestA-1
pankaj@LAPTOP-18P9HFA4:~/MCA2022/Pankaj_B_20/Test/TestA-1$ ls
HelloWorld1.c
pankaj@LAPTOP-18P9HFA4:~/MCA2022/Pankaj_B_20/Test/TestA-1$ rm HelloWorld1.c
pankaj@LAPTOP-18P9HFA4:~/MCA2022/Pankaj_B_20/Test/TestA-1$ ls
```

10. Rename the text file in the home directory.

```
pankaj@LAPTOP-18P9HFA4:~$ ls
A.txt  C_Programming  F1.txt  HelloWorld1.c  ID.c     MCA2024  N2.txt       OS_Lab            Student  aa.sequence.pl  hi.c
B.txt  Combine.txt    F2.txt  HelloWorld2.c  MCA2022  N1.txt   New_student  Shell_Programming  a.out    empty.txt       s.txt
pankaj@LAPTOP-18P9HFA4:~$ mv Combine.txt Program.txt
pankaj@LAPTOP-18P9HFA4:~$ ls
A.txt  C_Programming  F2.txt         HelloWorld2.c  MCA2022  N1.txt  New_student  Program.txt       Student  aa.sequence.pl  hi.c
B.txt  F1.txt         HelloWorld1.c  ID.c           MCA2024  N2.txt  OS_Lab       Shell_Programming  a.out    empty.txt       s.txt
```

11. Create a C file for a menu driven calculator.

```
pankaj@LAPTOP-18P9HFA4:~$ vi Calculator.c
pankaj@LAPTOP-18P9HFA4:~$ cc Calculator.c
pankaj@LAPTOP-18P9HFA4:~$ ./a.out

Menu :
1.Addition 2.Substraction 3.Multiplication 4.Division 5.Modulo 6.Exit
Enter your choice :
1
Enter number1 and number2 : 10 20
Addition : 30
Menu :
1.Addition 2.Substraction 3.Multiplication 4.Division 5.Modulo 6.Exit
Enter your choice :
3
Enter number1 and number2 : 7 8
Multiplication : 56
Menu :
1.Addition 2.Substraction 3.Multiplication 4.Division 5.Modulo 6.Exit
Enter your choice :
6
```

12. Show the C file in the paged manner using **more** and **less** commands.

```
pankaj@LAPTOP-18P9HFA4:~$ more Calculator.c
#include<stdio.h>
#include<stdlib.h>

int main(){
        int choice, num1, num2;
        while(1){
                printf("\nMenu : \n1.Addition 2.Substraction 3.Multiplication 4.Division 5.Modulo 6.Exit\n");
                printf("Enter your choice : \n");
                scanf("%d", &choice);
                switch(choice){
                        case 1: printf("Enter number1 and number2 : ");
                                scanf("%d %d", &num1, &num2);
                                printf("Addition : %d", num1+num2);
                                break;
                        case 2: printf("Enter number1 and number2 : ");
                                scanf("%d %d", &num1, &num2);
                                printf("Substraction : %d", num1-num2);
                                break;
                        case 3: printf("Enter number1 and number2 : ");
                                scanf("%d %d", &num1, &num2);
                                printf("Multiplication : %d", num1*num2);
                                break;
                        case 4: printf("Enter number1 and number2 : ");
                                scanf("%d %d", &num1, &num2);
                                printf("Division : %d", num1/num2);
                                break;
                        case 5: printf("Enter number1 and number2 : ");
                                scanf("%d %d", &num1, &num2);
                                printf("Modulo : %d", num1%num2);
                                break;
                        case 6:
                                exit(0);
                        default :
                                printf("Invalid choice.\n");
                                break;
                }
        }
        return 0;
}
```

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```
pankaj@LAPTOP-18P9HFA4:~$ less Calculator.c
```

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

int main(){
        int choice, num1, num2;
        while(1){
                printf("\nMenu : \n1.Addition 2.Substraction 3.Multiplication 4.Division 5.Modulo 6.Exit\n");
                printf("Enter your choice : \n");
                scanf("%d", &choice);
                switch(choice){
                        case 1: printf("Enter number1 and number2 : ");
                                scanf("%d %d", &num1, &num2);
                                printf("Addition : %d", num1+num2);
                                break;
                        case 2: printf("Enter number1 and number2 : ");
                                scanf("%d %d", &num1, &num2);
                                printf("Substraction : %d", num1-num2);
                                break;
                        case 3: printf("Enter number1 and number2 : ");
                                scanf("%d %d", &num1, &num2);
                                printf("Multiplication : %d", num1*num2);
                                break;
                        case 4: printf("Enter number1 and number2 : ");
                                scanf("%d %d", &num1, &num2);
                                printf("Division : %d", num1/num2);
                                break;
                        case 5: printf("Enter number1 and number2 : ");
                                scanf("%d %d", &num1, &num2);
                                printf("Modulo : %d", num1%num2);
                                break;
                        case 6:
                                exit(0);
                        default :
                                printf("Invalid choice.\n");
                                break;
                }
        }
        return 0;
}
Calculator.c (END)
```

13. Count the number of lines, words and characters separately.

```
pankaj@LAPTOP-18P9HFA4:~$ wc Calculator.c
  39  123 1050 Calculator.c
```

14. Compare the two C files.

```
pankaj@LAPTOP-18P9HFA4:~$ cmp HelloWorld1.c HelloWorld2.c
HelloWorld1.c HelloWorld2.c differ: byte 32, line 3
```

15. Find what is common in two C files.

```
pankaj@LAPTOP-18P9HFA4:~$ comm HelloWorld1.c HelloWorld2.c
                #include<stdio.h>
                int main(){
                if(printf("Hello World!\n"));
        printf("Hello World!\n");
                        return 0;
                }
```

16. Find the difference in two C files.

```
pankaj@LAPTOP-18P9HFA4:~$ diff HelloWorld1.c HelloWorld2.c
3c3
<       printf("Hello World!\n");
---
>       if(printf("Hello World!\n"));
```