COMPUTER ARCHITECTURE MAIN ASSIGNMENT

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Group A

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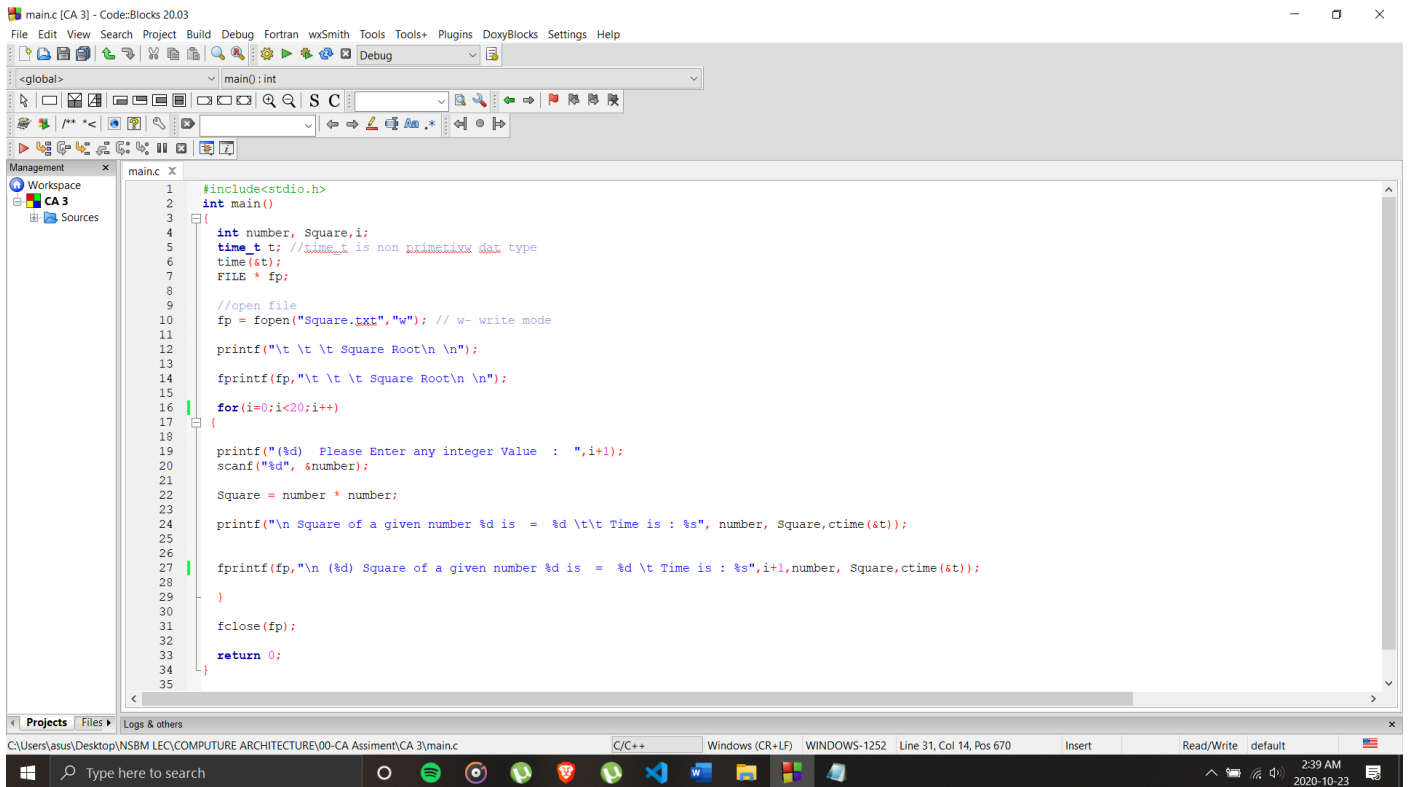
▪ __Introduction about the program__

- The platform that was used to develop the following codes for this assignment is Code Blocks.

- The first program was created and executed to output the square value of a number given by the user, then it was improved to input 20 numbers followed by one another within the same program to output the square value of each with the system time.

- Then the third program was improved to save the output into a text file (square.txt).

- The final program was modified to read or display the content of data that was written into the text file (square.txt in the third program) into the terminal with the current system time.

- **Different Technology and Codes use to develop above program.**

- There were different variables and functions used to generate the following codes. Special functions like **fprintf()** and **fopen/fclose** was used to write data into the text file using the terminal.

- The use of "**w**" mode to write data into the text file.

- The use of **while** and function **fgets()** to get the mac address into the text file.

▪ <u>Source Code</u>

Q1.

Q2.

Q3.

Code::Blocks - main.c [CA 3]
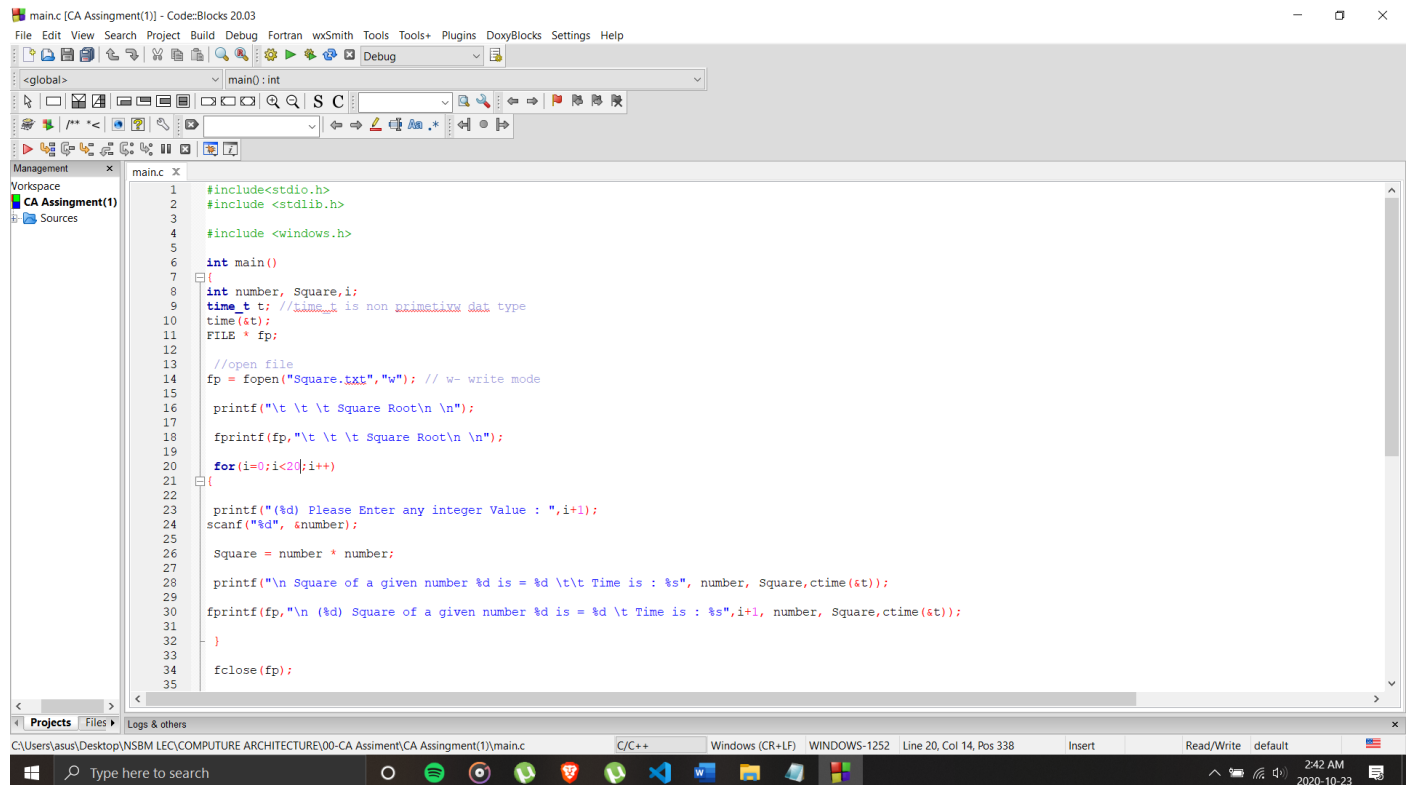
```c
#include<stdio.h>

int main()
{
    int number, Square,i;
    time_t t; //time_t is non primetivv dat type
    time(&t);
    FILE * fp;

    //open file
    fp = fopen("Square.txt","w"); // w- write mode

    printf("\t \t \t Square Root\n \n");

    fprintf(fp,"\t \t \t Square Root\n \n");

    for(i=0;i<20;i++)
    {

    printf("(%d)  Please Enter any integer Value  :  ",i+1);
    scanf("%d", &number);

    Square = number * number;

    printf("\n Square of a given number %d is  =  %d \t\t Time is : %s", number, Square,ctime(&t));


    fprintf(fp,"\n (%d) Square of a given number %d is  =  %d \t Time is : %s",i+1,number, Square,ctime(&t));

    }

    fclose(fp);

    return 0;
}
```

Q4.

Code::Blocks - main.c [CA Assingment(1)]

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

#include <windows.h>

int main()
{
int number, Square,i;
time_t t; //time_t is non primetivv dat type
time(&t);
FILE * fp;

 //open file
fp = fopen("Square.txt","w"); // w- write mode

 printf("\t \t \t Square Root\n \n");

 fprintf(fp,"\t \t \t Square Root\n \n");

 for(i=0;i<20;i++)
{

 printf("(%d) Please Enter any integer Value : ",i+1);
scanf("%d", &number);

 Square = number * number;

 printf("\n Square of a given number %d is = %d \t\t Time is : %s", number, Square,ctime(&t));

 fprintf(fp,"\n (%d) Square of a given number %d is = %d \t Time is : %s",i+1, number, Square,ctime(&t));

 }

 fclose(fp);
```

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help

`<global>`   main() : int

main.c

```c
30        fprintf(fp,"\n (%d) Square of a given number %d is = %d \t Time is : %s",i+1, number, Square,ctime(&t));
31
32        }
33
34        fclose(fp);
35
36        system("getmac");
37
38
39
40
41        char str[MAXCHAR];
42
43        char* filename = "Square.txt";
44
45    fp = fopen(filename, "r");
46
47        if (fp == NULL)
48    {
49
50        printf("Could not open file %s",filename);
51
52        return 1;
53
54        }
55
56        while (fgets(str, MAXCHAR, fp) != NULL)
57
58        printf("%s", str);
59
60        fclose(fp);
61
62        }
63
```

Projects Files   Logs & others

C:\Users\asus\Desktop\NSBM LEC\COMPUTURE ARCHITECTURE\00-CA Assiment\CA Assingment(1)\main.c   C/C++   Windows (CR+LF)   WINDOWS-1252   Line 20, Col 14, Pos 338   Insert   Read/Write   default

▪ <u>Output of each program on the Screen</u>

Q1.

Q2.

Q3.

Q4.

Square Root

(1) Square of a given number 1 is = 1   Time is : Fri Oct 23 02:43:01 2020

(2) Square of a given number 2 is = 4   Time is : Fri Oct 23 02:43:01 2020

(3) Square of a given number 3 is = 9   Time is : Fri Oct 23 02:43:01 2020

(4) Square of a given number 4 is = 16   Time is : Fri Oct 23 02:43:01 2020

(5) Square of a given number 5 is = 25   Time is : Fri Oct 23 02:43:01 2020

(6) Square of a given number 6 is = 36   Time is : Fri Oct 23 02:43:01 2020

(7) Square of a given number 7 is = 49   Time is : Fri Oct 23 02:43:01 2020

(8) Square of a given number 8 is = 64   Time is : Fri Oct 23 02:43:01 2020

(9) Square of a given number 9 is = 81   Time is : Fri Oct 23 02:43:01 2020

(10) Square of a given number 10 is = 100   Time is : Fri Oct 23 02:43:01 2020

(11) Square of a given number 11 is = 121   Time is : Fri Oct 23 02:43:01 2020

(12) Square of a given number 12 is = 144   Time is : Fri Oct 23 02:43:01 2020

(13) Square of a given number 13 is = 169   Time is : Fri Oct 23 02:43:01 2020

(14) Square of a given number 14 is = 196   Time is : Fri Oct 23 02:43:01 2020

(15) Square of a given number 15 is = 225   Time is : Fri Oct 23 02:43:01 2020

(16) Square of a given number 16 is = 256   Time is : Fri Oct 23 02:43:01 2020

(17) Square of a given number 17 is = 289   Time is : Fri Oct 23 02:43:01 2020

(18) Square of a given number 18 is = 324   Time is : Fri Oct 23 02:43:01 2020

(19) Square of a given number 19 is = 361   Time is : Fri Oct 23 02:43:01 2020

(20) Square of a given number 20 is = 400   Time is : Fri Oct 23 02:43:01 2020

Process returned 1248352 (0x130C60)   execution time : 27.940 s
Press any key to continue.

Square.txt - Notepad
File Edit Format View Help

Square Root

(1) Square of a given number 1 is = 1   Time is : Fri Oct 23 02:43:01 2020

(2) Square of a given number 2 is = 4   Time is : Fri Oct 23 02:43:01 2020

(3) Square of a given number 3 is = 9   Time is : Fri Oct 23 02:43:01 2020

(4) Square of a given number 4 is = 16   Time is : Fri Oct 23 02:43:01 2020

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(19) Square of a given number 19 is = 361   Time is : Fri Oct 23 02:43:01 2020

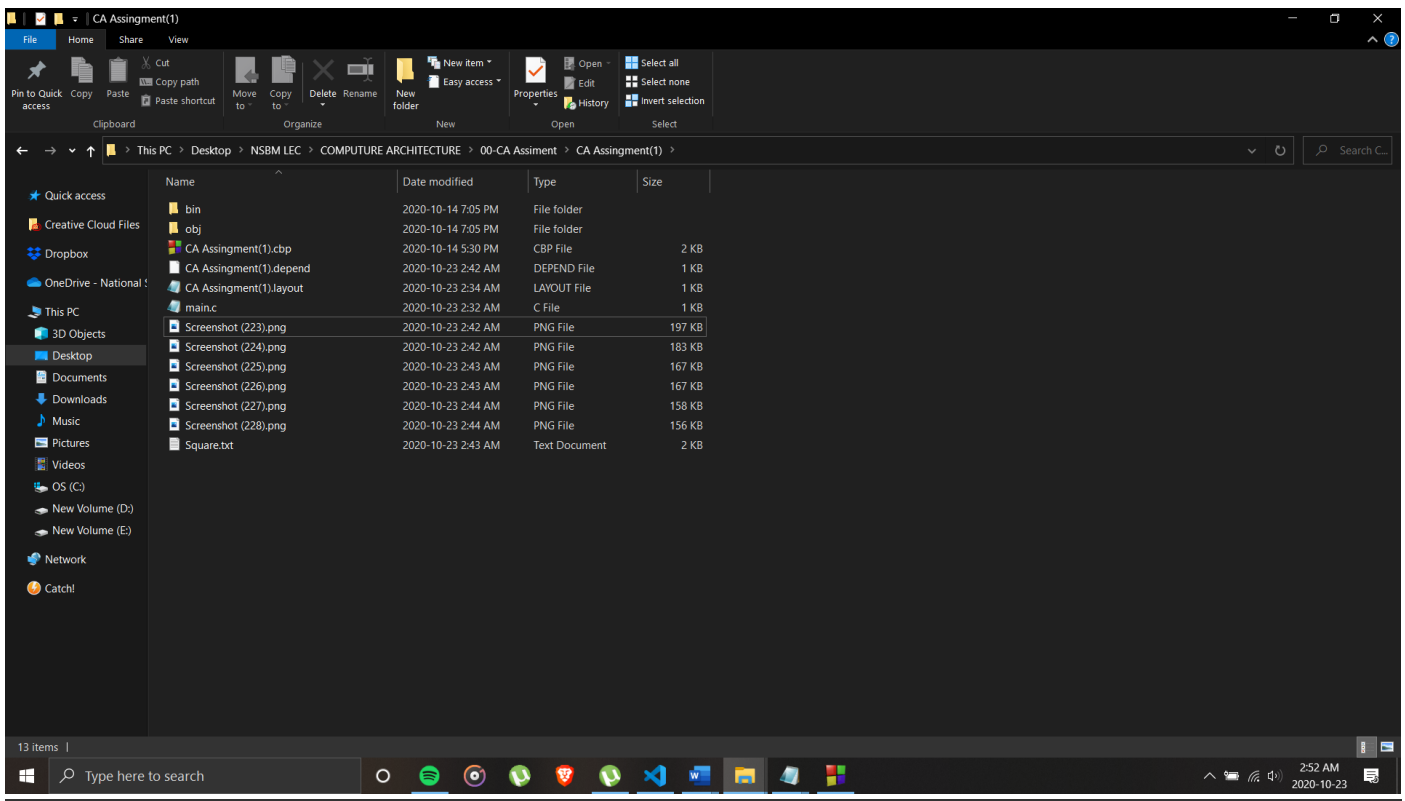(20) Square of a given number 20 is = 400   Time is : Fri Oct 23 02:43:01 2020

Ln 43, Col 1   100%   Windows (CRLF)   UTF-8

- ## <u>Saved text files</u>

▪ <u>Discussion and knowledge that you have achieved</u>

- This assignment was very useful to me in acquiring knowledge about implementing new functions into the programs to write and read data from a text file that is stored inside a hard disk using the program itself. This assignment also enhanced my skills in finding new ways of coding and better way of solutions. This also helped me in finding out the way to access your computer's mac address and the system time to be displayed within the program, into the text file and the terminal.

- By doing this assignment, I was able to gain knowledge about certain functions and variables by contrasting their differences (ie:printf and fprintf) when used accordingly. It also provided me a new experience in working with the terminal environment directly with the computers inner architecture rather than using the GUI.

Thank You!