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18/ENG05/040

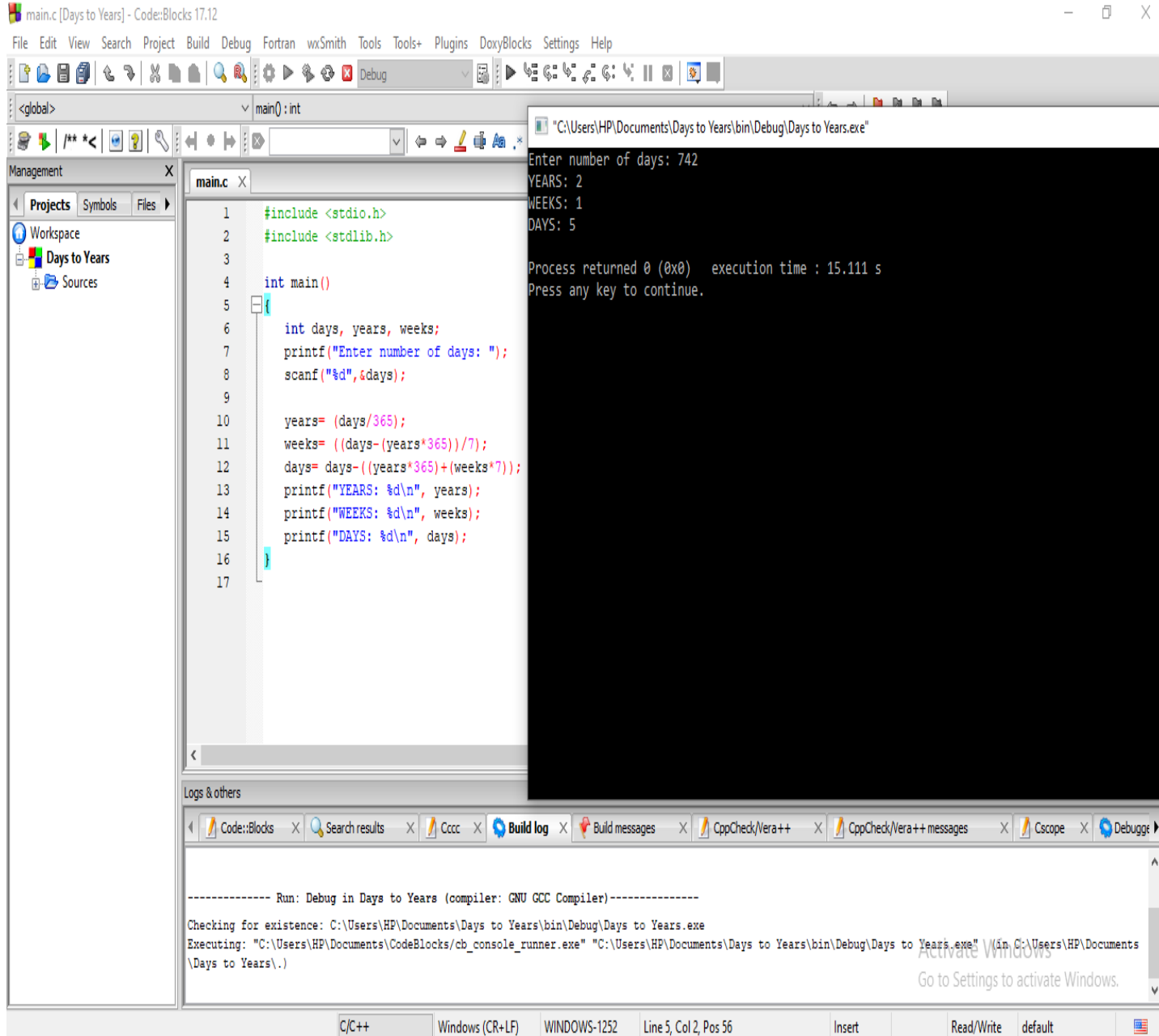
MECHATRONICS ENGINEERING

STRUCTURED PROGRAMMING ASSIGNMENT2

C- PROGRAMMING

QUESTION 1.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
    int days, years, weeks;
    printf("Enter number of days: ");
    scanf("%d",&days);
    years= (days/365);
    weeks= ((days-(years*365))/7);
    days= days-((years*365)+(weeks*7));
    printf("YEARS: %d\n", years);
    printf("WEEKS: %d\n", weeks);
    printf("DAYS: %d\n", days);
}
```



QUESTION 2.

```
#include <stdio.h>
#include <stdlib.h>
int main() {
    float x1, y1, x2, y2, distance;
    printf("Input x1: ");
    scanf("%f", &x1);
    printf("Input y1: ");
    scanf("%f", &y1);
    printf("Input x2: ");
    scanf("%f", &x2);
    printf("Input y2: ");
    scanf("%f", &y2);
    distance = ((x2-x1)*(x2-x1))+((y2-y1)*(y2-y1));
    printf("Distance between the said points: %.4f", sqrt(distance));
    printf("\n");
    return 0;
}
```

main.c - Code::Blocks 17.12

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

<global> main():int

Management

Projects Symbols Files

Workspace

```
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main() {
5     float x1, y1, x2, y2, distance;
6     printf("Input x1: ");
7     scanf("%f", &x1);
8     printf("Input y1: ");
9     scanf("%f", &y1);
10    printf("Input x2: ");
11    scanf("%f", &x2);
12    printf("Input y2: ");
13    scanf("%f", &y2);
14    distance = ((x2-x1)*(x2-x1))+((y2-y1)*(y2-y1));
15    printf("Distance between the said points: %.2f\n", distance);
16    printf("\n");
17    return 0;
18 }
19
```

"C:\Users\HP\Documents\Distance Between Two Points\main.exe"

```
Input x1: 2
Input y1: 3
Input x2: 7
Input y2: 9
Distance between the said points: 7.8102

Process returned 0 (0x0)   execution time : 14.670 s
Press any key to continue.
```

Logs & others

Search results Cccc Build log Build messages

```
Process terminated with status 0 (0 minute(s), 1 second(s))
0 error(s), 2 warning(s) (0 minute(s), 1 second(s))

Checking for existence: C:\Users\HP\Documents\Distance Between Two Points\main.exe
Executing: "C:\Users\HP\Documents\CodeBlocks\cb_console_runner.exe" "C:\Users\HP\Documents\Distance Between Two Points\main.exe" (in 'C:\Users\HP\Documents\Distance Between Two Points')
```

Activate Windows
Go to Settings to activate Windows.

C/C++ Windows (CR+LF) WINDOWS-1252 Line 13, Col 22, Pos 278 Insert Read/Write default

QUESTION 3.

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
    float a,b,c,perimeter;
    printf("Enter first side:");
    scanf("%f",&a);
    printf("Enter second side:");
    scanf("%f",&b);
    printf("Enter third side:");
    scanf("%f",&c);
    if((a+b)>c && (a+c)>b && (b+c)>a){
        printf("A triangle can be formed");
        perimeter = a+b+c;
        printf("Perimeter is %0.2f", perimeter);
    }else
        printf("triangle cannot be formed");
}
```



Management

Projects Symbols Files

Workspace

```
main.c x Start here x main.c x main.c x
1 #include <stdio.h>
2 #include <stdlib.h>
3
4 int main()
5 {
6     float a,b,c,perimeter;
7     printf("Enter first side:");
8     scanf("%f",&a);
9     printf("Enter second side:");
10    scanf("%f",&b);
11    printf("Enter third side:");
12    scanf("%f",&c);
13
14    if((a+b)>c && (a+c)>b && (b+c)>a){
15        printf("A triangle can be formed");
16        perimeter = a+b+c;
17        printf("Perimeter is %0.2f", perimeter);
18    }else
19        printf("triangle cannot be formed");
20    }
21
```

C:\Users\HP\Documents\Perimeter\main.exe

Enter first side:4
Enter second side:3
Enter third side:5
A triangle can be formedPerimeter is 12.00
Process returned 0 (0x0) execution time : 5.401 s
Press any key to continue.

Logs & others

Search results x Cccc x Build log x Build messages x Cppcheck\ver++ x Cppcheck\ver++\messages x Cscope x Debugger x

File	Line	Message
		=== Build file: "no target" in "no project" (compiler: unknown) ===
		=== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 3 second(s)) ===

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QUESTION 4.

```
#include <stdio.h>

int main()
{
    int age;

    int cnt_baby=0,cnt_school=0,cnt_adult=0;

    int count=0;

    while(count<20)
    {
        printf("Enter age of person [%d]: ",count+1);

        scanf("%d",&age);

        if(age>=0 && age<=4)

            cnt_baby++;

        else if(age>=5 && age<=17)

            cnt_school++;

        else

            cnt_adult++;

            count++;

    }

    printf("Baby age: %d\n",cnt_baby);

    printf("School age: %d\n",cnt_school);

    printf("Adult age: %d\n",cnt_adult);

    return 0;

}
```

The screenshot shows a C++ IDE with a project named 'Age Classification'. The main.c file contains the following code:

```

9
10
11     printf("Enter age of person [1]: ");
12     scanf("%d",&age);
13
14     if(age>=0 && age<=10)
15         cnt_baby++;
16     else if(age>=11 && age<=20)
17         cnt_school++;
18     else
19         cnt_adult++;
20
21     //increase count of person
22     count++;
23 }
24
25 printf("Baby age: %d\n",cnt_baby);
26 printf("School age: %d\n",cnt_school);
27 printf("Adult age: %d\n",cnt_adult);
28
29
30 return 0;
31

```

The execution output shows the following sequence of events:

```

Enter age of person [1]: 3
Enter age of person [2]: 15
Enter age of person [3]: 17
Enter age of person [4]: 3
Enter age of person [5]: 65
Enter age of person [6]: 24
Enter age of person [7]: 13
Enter age of person [8]: 90
Enter age of person [9]: 67
Enter age of person [10]: 4
Enter age of person [11]: 3
Enter age of person [12]: 56
Enter age of person [13]: 73
Enter age of person [14]: 23
Enter age of person [15]: 12
Enter age of person [16]: 3
Enter age of person [17]: 56
Enter age of person [18]: 32
Enter age of person [19]: 45
Enter age of person [20]: 76
Baby age: 5
School age: 4
Adult age: 11
Process returned 0 (0x0)   execution time : 36.581 s
Press any key to continue.

```

The IDE also shows a 'Logs & others' window with the following text:

```

----- Run: Debug in Age Classification (compiler: GNU GCC Compiler)-----
Checking for existence: C:\Users\HP\Documents\Age Classification\bin\Debug\Age Classification.exe
Executing: "C:\Users\HP\Documents\CodeBlocks\cb_console_runner.exe" "C:\Users\HP\Documents\Age Classification\bin\Debug\Age Classification.exe" (in C:\Users\HP\Documents\Age Classification\.)

```

QUESTION 5.

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

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

```
#include <time.h>
```

```
int main()
```

```
{
```

```
    int random_genNo=0,count=0,num;
```

```
    int stime;
```

```
    long ltime;
```

```
    ltime = time(NULL);
```

```
    stime = (unsigned) ltime/2;
```



```
srand(stime);
random_genNo=rand()%100;
while(1)
{
    count+=1;
    printf("\n\nGuess a number from (0 to 100): ");
    scanf("%d",&num);
    if(random_genNo==num){
        printf("Congratulations, you have guessed a correct number.");
        break;
    }
    else if(random_genNo<num){
        printf("Generated number is less than entered number, try your luck again...");
    }
    else if(random_genNo>num){
        printf("Generated number is greater than entered number, try your luck again...");
    }
    if(count==7){
        printf("\n\n GENERATED NUMBER IS %d\n", random_genNo);
        printf("\n\n Maximum limit of attempt finished, BAD LUCK !!!\n");
        break;
    }
}
return 0;
}
```



Management

Projects Symbols Files

Workspace

```

1  /*C program to guess a random number.*/
2
3  #include <stdio.h>
4  #include <stdlib.h>
5  #include <time.h>
6
7
8  int main()
9  {
10     int random_genNo=0,count=0,num;
11     int stime;
12     long ltime;
13
14
15     ltime = time(NULL);
16     stime = (unsigned) ltime/2;
17     srand(stime);
18
19     //generate random number
20     random_genNo=rand()%100;
21
22     //run infinite loop
23     while(1)
24

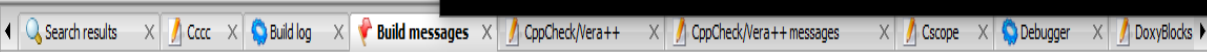
```

```

"C:\Users\HP\Documents\Guessing A Random Number\main.exe"
Guess a number from (0 to 100): 50
Generated number is less than entered number, try your luck again...
Guess a number from (0 to 100): 30
Generated number is greater than entered number, try your luck again...
Guess a number from (0 to 100): 40
Generated number is less than entered number, try your luck again...
Guess a number from (0 to 100): 35
Generated number is less than entered number, try your luck again...
Guess a number from (0 to 100): 33
Generated number is greater than entered number, try your luck again...
Guess a number from (0 to 100): 34
Congratulations, you have guessed a correct number.
Process returned 0 (0x0)   execution time : 35.070 s
Press any key to continue.

```

Logs & others



File	Line	Message
		=== Build file: "no target" in "no project" (compiler: unknown) ===
		=== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s)) ===

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<global> main():int



Management

Projects Symbols Files

Workspace

```

1  /*C program to guess a random number.*/
2
3  #include <stdio.h>
4  #include <stdlib.h>
5  #include <time.h>
6
7
8  int main()
9  {
10     int random_genNo=0,count=0,num;
11     int stime;
12     long ltime;
13
14
15     ltime = time(NULL);
16     stime = (unsigned) ltime/2;
17     srand(stime);
18
19     //generate random number
20     random_genNo=rand()%100;
21
22     //run infinite loop
23     while(1)
24     {

```

"C:\Users\HP\Documents\Guessing A Random Number\main.exe"

```

Guess a number from (0 to 100): 34
Generated number is greater than entered number, try your luck again...

Guess a number from (0 to 100): 43
Generated number is greater than entered number, try your luck again...

Guess a number from (0 to 100): 54
Generated number is greater than entered number, try your luck again...

Guess a number from (0 to 100): 65
Generated number is greater than entered number, try your luck again...

Guess a number from (0 to 100): 77
Generated number is greater than entered number, try your luck again...

Guess a number from (0 to 100): 87
Generated number is less than entered number, try your luck again...

Guess a number from (0 to 100): 80
Generated number is greater than entered number, try your luck again...

GENERATED NUMBER IS 81

Maximum limit of attempt finished, BAD LUCK !!!

Process returned 0 (0x0)   execution time : 18.455 s
Press any key to continue.

```

Logs & others

Search results Cccc Build log Build messa

File	Line	Message
		=== Build file: "no target" in "no project" (compiler: unknown) ===
		=== Build finished: 0 error(s), 0 warning(s) (0 minute(s), 0 second(s)) ===

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