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DEPARTMENT: Computer Engineering

MATRIC NO: 19/ENG02/077

COURSE TITLE: Structured Programming

COURSE CODE: ENG 224

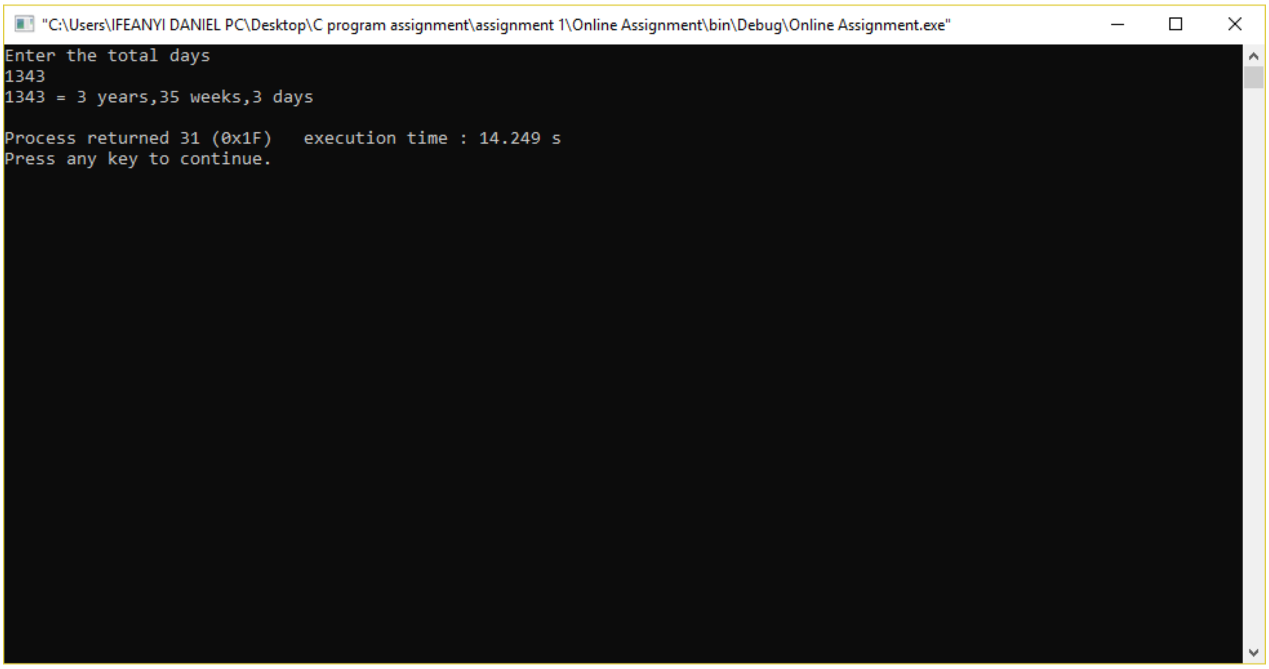
C PROGRAMMING ASSIGNMENT

1. Write a C program to convert 1343 days into years, weeks and days (Note: Ignore leap year).

Program Code:

```
#include<stdio.h>

void main()

{

int nodays,years, weeks,days;

printf("Enter the total days\n");

scanf("%d",&nodays);

years=nodays/365;

weeks=(nodays%365)/7;

days=(nodays%365)%7;

printf("%d = %d years,%d weeks,%d days\n",nodays,years,weeks,days);

}
```

Output:


"C:\Users\IFEANYI DANIEL PC\Desktop\C program assignment\assignment 1\Online Assignment\bin\Debug\Online Assignment.exe"

```
Enter the total days
1343
1343 = 3 years,35 weeks,3 days

Process returned 31 (0x1F)   execution time : 14.249 s
Press any key to continue.
```

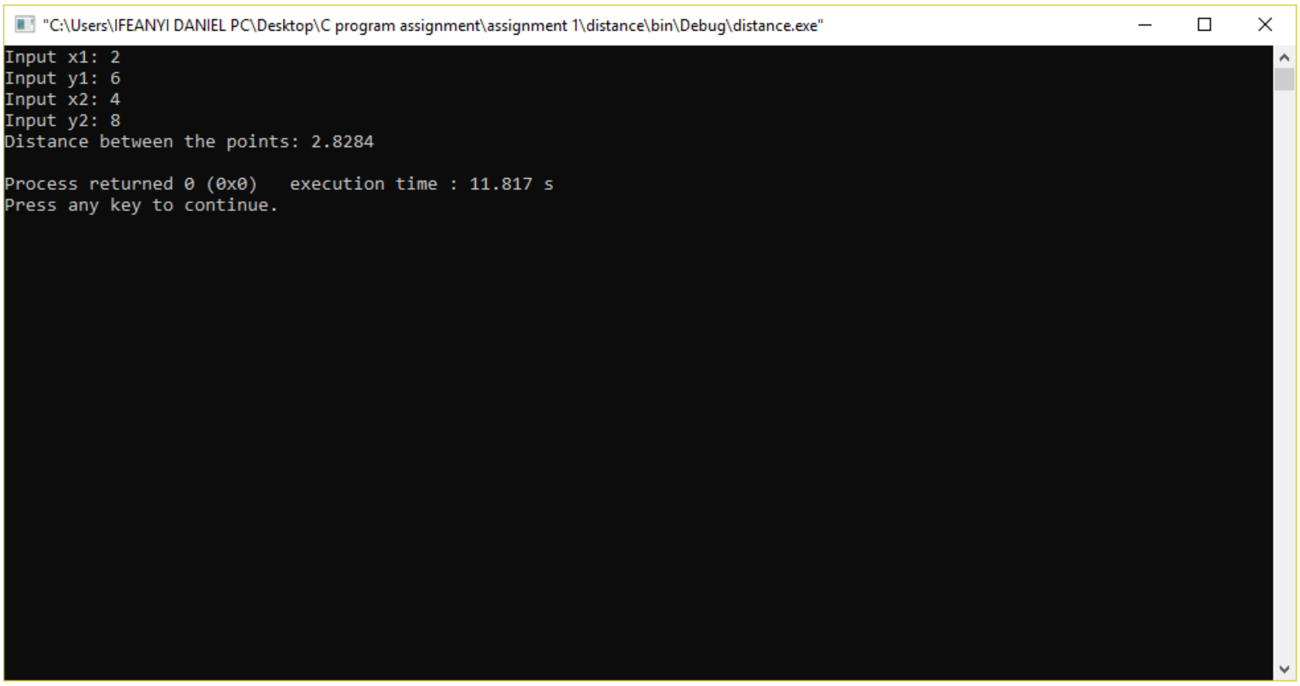
2. Write a C program to calculate the distance between the two points. Note: x1, y1, x2, y2 are all double values.

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Program Code:

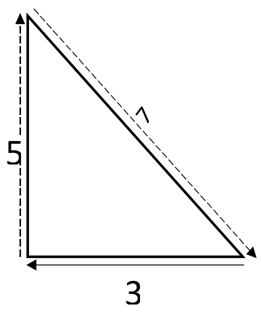
```
#include <stdio.h>
#include <math.h>


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

Output:


"C:\Users\IFEANYI DANIEL PC\Desktop\C program assignment\assignment 1\distance\bin\Debug\distance.exe"

```
Input x1: 2
Input y1: 6
Input x2: 4
Input y2: 8
Distance between the points: 2.8284

Process returned 0 (0x0)   execution time : 11.817 s
Press any key to continue.
```

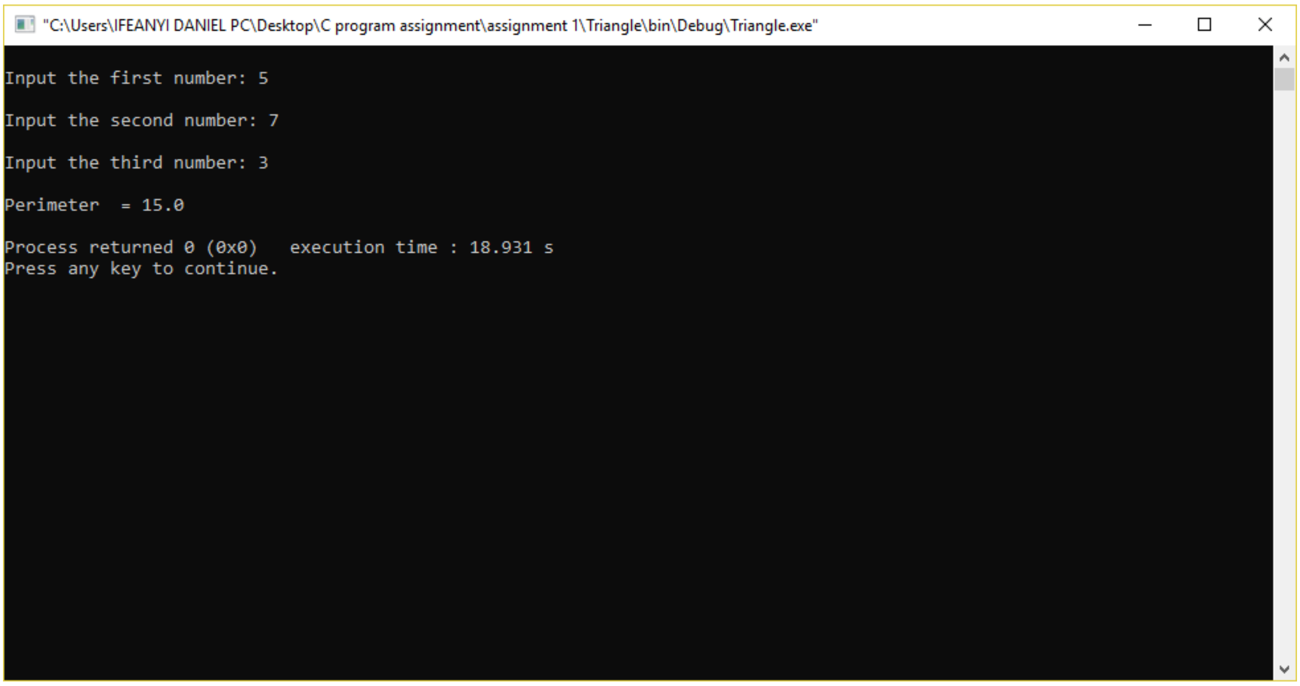
3. Write a C program that reads three floating values and check if it is possible to make a triangle with them. Also, calculate the perimeter of the triangle if the said values are valid.



Program Code:

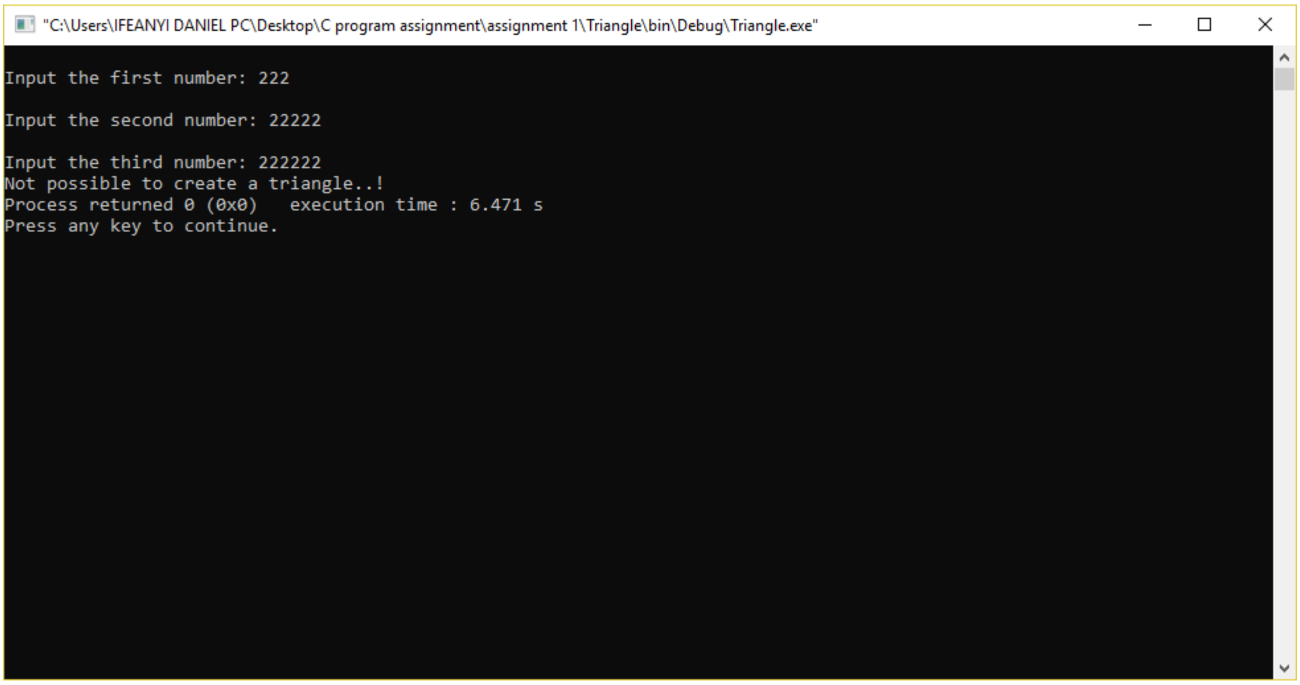
```
#include <stdio.h>
int main() {
float  x, y, z, P, A;
printf("\nInput the first number: ");
scanf("%f", &x);
printf("\nInput the second number: ");
scanf("%f", &y);
printf("\nInput the third number: ");
scanf("%f", &z);

if(x < (y+z) && y < (x+z) && z < (y+x))
{
P = x+y+z;
printf("\nPerimeter  = %.1f\n", P);

}
else
{
printf("Not possible to create a triangle..!");
}
}
```

Output:



"C:\Users\IFEANYI DANIEL PC\Desktop\C program assignment\assignment 1\Triangle\bin\Debug\Triangle.exe"

```
Input the first number: 5

Input the second number: 7

Input the third number: 3

Perimeter  = 15.0

Process returned 0 (0x0)   execution time : 18.931 s
Press any key to continue.
```


"C:\Users\IFEANYI DANIEL PC\Desktop\C program assignment\assignment 1\Triangle\bin\Debug\Triangle.exe"

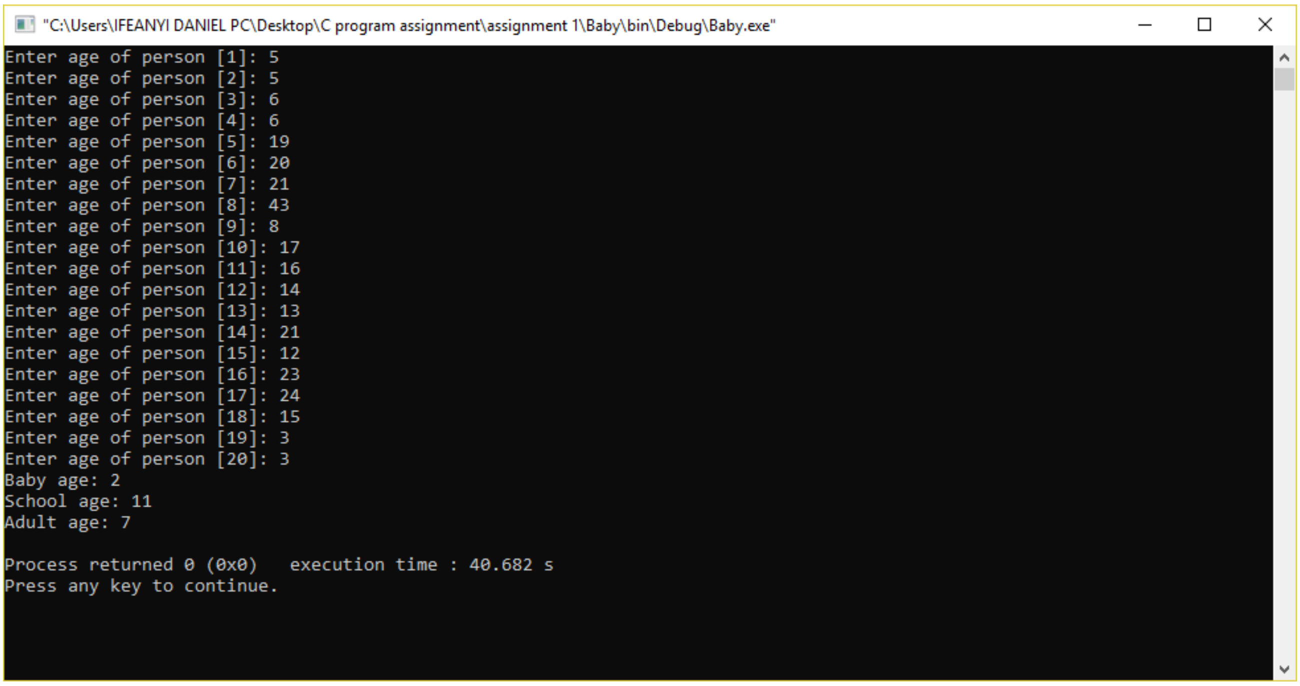
```
Input the first number: 222

Input the second number: 22222

Input the third number: 222222
Not possible to create a triangle..!
Process returned 0 (0x0)   execution time : 6.471 s
Press any key to continue.
```

4. Write a C program to read age of 20 people and count total baby age, school age and adult age.
   Hint:
   a) Still a baby- age 0 to 4
   b) Attending school - age 5 to 17
   c) Adult life-age 18 & over
   [Using while loop]

Program Code:

```
#include <stdio.h>
int main()
{
int age;
int cnt_baby=0,cnt_school=0,cnt_adult=0;
int count=0;


while(count<15)
{
printf("Enter age of person [%d]: ",count+1);
scanf("%d",&age);


if(age>=0 && age<=5)
cnt_baby++;
else if(age>=6 && age<=17)
cnt_school++;
else
cnt_adult++;


//increase counter
count++;
}
printf("Baby age: %d\n",cnt_baby);
printf("School age: %d\n",cnt_school);
printf("Adult age: %d\n",cnt_adult);


return 0;
}
```

Output:


"C:\Users\IFEANYI DANIEL PC\Desktop\C program assignment\assignment 1\Baby\bin\Debug\Baby.exe"

```
Enter age of person [1]: 5
Enter age of person [2]: 5
Enter age of person [3]: 6
Enter age of person [4]: 6
Enter age of person [5]: 19
Enter age of person [6]: 20
Enter age of person [7]: 21
Enter age of person [8]: 43
Enter age of person [9]: 8
Enter age of person [10]: 17
Enter age of person [11]: 16
Enter age of person [12]: 14
Enter age of person [13]: 13
Enter age of person [14]: 21
Enter age of person [15]: 12
Enter age of person [16]: 23
Enter age of person [17]: 24
Enter age of person [18]: 15
Enter age of person [19]: 3
Enter age of person [20]: 3
Baby age: 2
School age: 11
Adult age: 7

Process returned 0 (0x0)   execution time : 40.682 s
Press any key to continue.
```

5. Write a C-program to read a random number and then ask user to guess it (from 0 to 100).

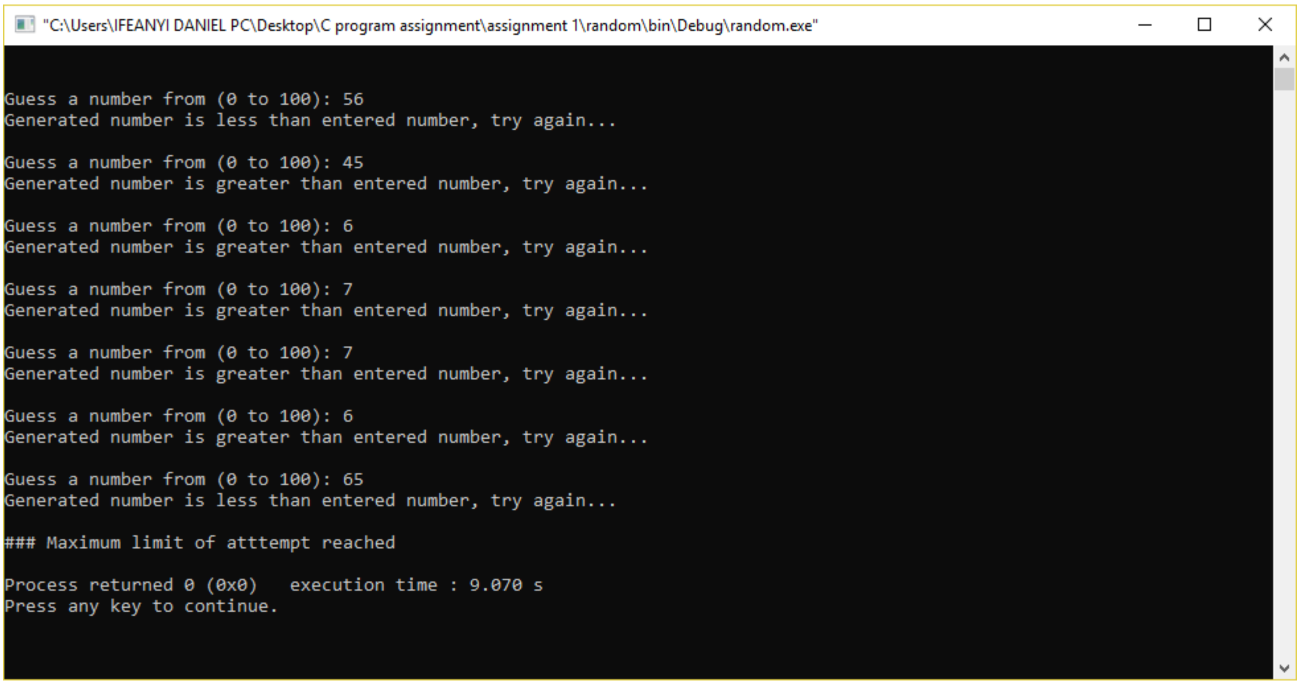
Hint:

User guess correct number, which is to be generated randomly. The program will give 7 attempts to the user. On each attempt, program will inform the user that entered number is less than or greater than the random generated number.

Program Code:

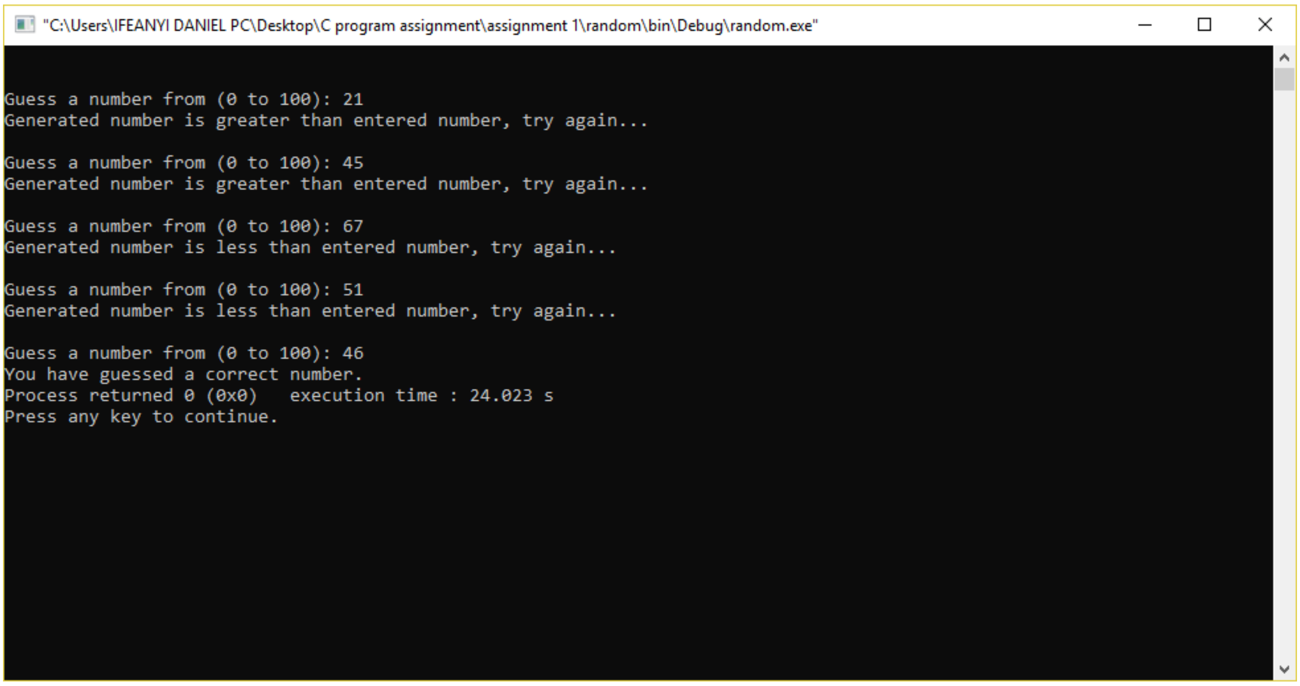
```
#include <stdio.h>
#include <stdlib.h>
#include <time.h>



int main()
{
int random_genNo=0,count=0,num;
int stime;
long ltime;
//initialise srand with current time, to get random number on every run
ltime = time(NULL);
stime = (unsigned) ltime/2;
srand(stime);


//generate random number
random_genNo=rand()%100;


//run infinite loop
while(1)
{
//increase counter
count+=1;


//read number from user
printf("\n\nGuess a number from (0 to 100): ");
scanf("%d",&num);


//compare entered number with generated number


if(random_genNo==num){
printf("You have guessed a correct number.");
break;
}
else if(random_genNo<num){
printf("Generated number is less than entered number, try again...");
}
else if(random_genNo>num){
printf("Generated number is greater than entered number, try again...");
}


if(count==7){
printf("\n\n### Maximum limit of attempt reached\n");
break;
}
}


return 0;
}
```

Output:



"C:\Users\IFEANYI DANIEL PC\Desktop\C program assignment\assignment 1\random\bin\Debug\random.exe"

```
Guess a number from (0 to 100): 56
Generated number is less than entered number, try again...

Guess a number from (0 to 100): 45
Generated number is greater than entered number, try again...

Guess a number from (0 to 100): 6
Generated number is greater than entered number, try again...

Guess a number from (0 to 100): 7
Generated number is greater than entered number, try again...

Guess a number from (0 to 100): 7
Generated number is greater than entered number, try again...

Guess a number from (0 to 100): 6
Generated number is greater than entered number, try again...

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

### Maximum limit of atttempt reached

Process returned 0 (0x0)   execution time : 9.070 s
Press any key to continue.
```



"C:\Users\IFEANYI DANIEL PC\Desktop\C program assignment\assignment 1\random\bin\Debug\random.exe"

```
Guess a number from (0 to 100): 21
Generated number is greater than entered number, try again...

Guess a number from (0 to 100): 45
Generated number is greater than entered number, try again...

Guess a number from (0 to 100): 67
Generated number is less than entered number, try again...

Guess a number from (0 to 100): 51
Generated number is less than entered number, try again...

Guess a number from (0 to 100): 46
You have guessed a correct number.
Process returned 0 (0x0)   execution time : 24.023 s
Press any key to continue.
```