

In the last few posts I have written about [generating random numbers](#) and using them to simulate a [coin flip](#) or a [1-d random walk](#).

In this post I will show you how to generate a random number in a given range.

CODE:

```

/*****
****GENERATE RANDOM NUMBERS IN A GIVEN RANGE****
*****/
#include<stdio.h>
#include<math.h>
/**Function that generates a random number.
Parameters:
r0: initial (first) seed
a: scale factor , so that a*r0 give the first random number
m: gives the max. value of random numbers that can be generated (m-1)
c: additional displacement(offset) factor
**/
int rand(int r0, int a, int m, int c){
    int r1=(a*r0+c)%m;
    return r1;
}
/**Function that generates random numbers in a given range: [min,max], given a seed r0,
and stores them in an array that is passed as an argument.
Parameters:
r0: initial (first) seed
a: scale factor , so that a*r0 give the first random number
m: gives the max. value of random numbers that can be generated (m-1)
c: additional displacement factor
n: no. of random numbers to be generated
x[n]: array that will store the random numbers
min: lower limit for random nos.
max: upper limit for random nos.
**/
void randomNos(int r0, int a, int m, int c, int n, int x[n], int min, int max){
    int r1=rand(r0,a,m,c);
    int r2=min+((max-min+1)*r1)/m;
    int i;
    for(i=0;i<n;i++){
        x[i]=r2;
        r1=rand(r1,a,m,c);
        r2=min+((max-min+1)*r1)/m;
    }
}
main(){
    int min, max, n, a=1093, m=86436, c=18257, r0=43;
    printf("Enter the lower limit:\n");
    scanf("%d",&min);
    printf("Enter the higher limit:\n");
    scanf("%d",&max);
    printf("Enter the no. of random numbers required:\n");

```

```

scanf("%d",&n);
int random[n];
randomNos(r0, a, m, c, n, random, min, max);
int i;
printf("The random numbers between %d and %d are:\n",min, max);
for(i=0;i<n;i++){
    printf("%d\n",random[i]);
}
}

```

OUTPUT:

```

Enter the lower limit:
1
Enter the higher limit:
10
Enter the no. of random numbers required:
20
The random numbers between 1 and 10 are:
8
4
2
4
5
4
6
2
3
10
7
1
6
1
6
10
7
1
5
8

```

Sample run 1



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I'm a physicist specializing in computational material science with a PhD in Physics from Friedrich-Schiller University Jena, Germany. I write efficient codes for simulating light-matter interactions at atomic scales. I like to develop Physics, DFT, and Machine Learning related apps and software from time to time. Can code in most of the popular languages. I like to share my knowledge in Physics and applications using this Blog and a YouTube channel.

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