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1. Analysis of Factorial of a number

Initially, I gave the value of n till 12 and it ran within a second. But I had defined all the variables using the ‘int’ type initially. So, when the number of inputs, n entered by the user is greater than 12, the value of the number to be printed exceeds the limit of int datatype. Hence the output becomes an undesired one and prints wrong positive numbers and for very large inputs that is input greater than 33, the output becomes 0. Also the time taken to run the program is under a second. The clock speed of my PC 2.4 GHz.

Now:

I changed the datatype of all the variables in int to ‘unsigned long’. Doing so allows a larger range of values to be used. However, for inputs above 20 the outputs were wrong . Only long long int seems to work for inputs till 16. Also the time is a constant here with it not taking more than a second for inputs until 16. Unable to process beyond that number with the given datatype

2. Analysis of Factorial of a number using Recursion

Initially

Initially, I gave the value of n till 12 and it ran within a second. But I had defined all the variables using the ‘int’ type initially. So, when the number of inputs, n entered by the user is greater than 12, the value of the number to be printed exceeds the limit of int datatype. Hence the output becomes an undesired one and prints wrong positive numbers and for very large inputs that is input greater than 33, the output becomes 0. Also the time taken to run the program is under a second. The clock speed of my PC 2.4 GHz.

Now:

I changed the datatype of all the variables in int to ‘unsigned long’. Doing so allows a larger range of values to be used. However, for inputs above 20 the outputs were wrong . Only long long int seems to work for inputs till 16. Also the time is a constant here with it not taking more than a second for inputs until 16. Unable to process beyond that number with the given datatype

3. Analysis of Fibonacci series without recursion

Initially:

Initially, I gave the value of n till 47 and it ran within a second. But I had defined all the variables using the ‘int’ type initially. So, when the number of inputs, n entered by the user is greater than 47, the value of the number to be printed exceeds the limit of int datatype. Hence the output becomes an undesired one and prints wrong positive numbers and for very large inputs that is input greater than 47, the output becomes 0. Also the time taken to run the program is under a second. The clock speed of my PC 2.4 GHz.

Now:

I changed the datatype of all the variables in int to ‘unsigned long’. Doing so allows a larger range of values to be used. Hence the problem was solved.

4. Analysis of Fibonacci series with recursion

Initially:

Initially, I gave the value of n till 47 and it ran within a second. But I had defined all the variables using the ‘int’ type initially. So, when the number of inputs, n entered by the user is greater than 47, the value of the number to be printed exceeds the limit of int datatype. Hence the output becomes an undesired one and prints wrong positive numbers and for very large inputs that is input greater than 47, the output becomes 0. Also the time taken to run the program is under a second. The clock speed of my PC 2.4 GHz.

Now:

I changed the datatype of all the variables in int to ‘unsigned long’. Doing so allows a larger range of values to be used. Hence the problem was solved.