Algorithm in Programming

In programming, algorithm is a set of well defined instructions in sequence to solve the problem.

Qualities of a good algorithm

1. Input and output should be defined precisely.
2. Each steps in algorithm should be clear and unambiguous.
3. Algorithm should be most effective among many different ways to solve a problem.
4. An algorithm shouldn't have computer code. Instead, the algorithm should be written in such a way that, it can be used in similar programming languages.

Algorithm Examples
Algorithm to add two numbers
Algorithm to find the largest among three numbers
Algorithm to find all the roots of quadratic equation
Algorithm to find the factorial

Algorithm Examples

Algorithm to check prime number

Algorithm of Fibonacci series

Examples Of Algorithms In Programming

Write an algorithm to add two numbers entered by user.

```
Step 1: Start
Step 2: Declare variables num1, num2 and sum.
Step 3: Read values num1 and num2.
Step 4: Add num1 and num2 and assign the result to sum.
          sum←num1+num2
Step 5: Display sum
Step 6: Stop
```

Write an algorithm to find the largest among three different numbers entered by user.

```
Step 1: Start
Step 2: Declare variables a,b and c.
Step 3: Read variables a,b and c.
Step 4: If a>b
              If a>c
                  Display a is the largest number.
              Else
                  Display c is the largest number.
          Else
              If b>c
                  Display b is the largest number.
```

```
            Else
                Display c is the greatest number.
Step 5: Stop
```

Write an algorithm to find all roots of a quadratic equation $ax^2+bx+c=0$.

```
Step 1: Start
Step 2: Declare variables a, b, c, D, x1, x2, rp and ip;
Step 3: Calculate discriminant
           D←b2-4ac
Step 4: If D≥0
                r1←(-b+√D)/2a
                r2←(-b-√D)/2a
                Display r1 and r2 as roots.
          Else
                Calculate real part and imaginary part
                rp←b/2a
                ip←√(-D)/2a
                Display rp+j(ip) and rp-j(ip) as roots
Step 5: Stop
```

Write an algorithm to find the factorial of a number entered by user.

```
Step 1: Start
Step 2: Declare variables n,factorial and i.
Step 3: Initialize variables
             factorial←1
             i←1
Step 4: Read value of n
```

```
Step 5: Repeat the steps until i=n
       5.1: factorial←factorial*i
       5.2: i←i+1
Step 6: Display factorial
Step 7: Stop
```

Write an algorithm to check whether a number entered by user is prime or not.

```
Step 1: Start
Step 2: Declare variables n,i,flag.
Step 3: Initialize variables
          flag←1
          i←2
Step 4: Read n from user.
Step 5: Repeat the steps until i<(n/2)
       5.1 If remainder of n÷i equals 0
              flag←0
              Go to step 6
       5.2 i←i+1
Step 6: If flag=0
             Display n is not prime
          else
             Display n is prime
Step 7: Stop
```

Write an algorithm to find the Fibonacci series till term≤1000.

```
Step 1: Start
Step 2: Declare variables first_term,second_term and temp.
Step 3: Initialize variables first_term←0 second_term←1
Step 4: Display first_term and second_term
Step 5: Repeat the steps until second_term≤1000
       5.1: temp←second_term
```

```
        5.2: second_term←second_term+first term
        5.3: first_term←temp
        5.4: Display second_term
Step 6: Stop
```

Algorithm is not the computer code. Algorithm are just the instructions which gives clear idea to you idea to write the computer code.

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