Algorithm Tutorial_11

1. Briefly explain Greatest Common Division [GCD]

The largest number can be divide two or more integers without leaving any remainder value
Also known as the Highest Common Factor [HCF]

2. Explain the steps of the Euclidean Algorithm

As parameters of the algorithm,it takes two numbers as number 1 and number 2 where number 1 is always the greater value.
If number 2 is equal to 0 the GCD value will be returned as number 1
Else the GCD (number 1 ,number 2) =>GCD (number 2, GCD(number 1 % number 2))

3. Write a function pseudo or source code to find out the GCD using recursive

```java
public class RecursiveGCD {

    public static void main(String[] args) {
        int num1 = 120;
        int num2 = 35;
        System.out.print("GCD (" + num1 + ", " + num2 + ") = ");
        System.out.print( gcd(num1, num2) );
    }

    public static int gcd(int num1, int num2) {
        if (num2 == 0) {
            return num1;
        }
        return gcd(num2, num1 % num2);
    }
}
```

4. Try to use the iteration to get the same results

```java
public class IterativeGCD {

    public static void main(String[] args) {
        int num1 = 120;
        int num2 = 35;
        System.out.print("GCD (" + num1 + ", " + num2 + ") = ");
        System.out.print(gcd(num1, num2));
    }

    public static int gcd(int num1, int num2) {
        while (num2 != 0) {
            int temp = num1 % num2;
            num1 = num2;
            num2 = temp;
        }
        return num1;
    }
}
```

5. What is defined by prime factorization

Finding out the prime numbers that divide a given number without leaving a remainder

6. Graphically represent how to identify the prime factorization