**Lab Practical #12:**

1. Implementation of Diffie Hellman Key exchange technique.

**Program:**

import java.util.Scanner;

public class Diff\_Hill {

    public static void main(String[] args) {

        Scanner sc = new Scanner(System.in);

        System.out.println("Enter q :");

        int q = sc.nextInt();

        System.out.println("Enter Alpha :");

        double alpha = sc.nextInt();

        System.out.println("Enter XA :");

        double xa = sc.nextInt();

        System.out.println("Enter XB :");

        double xb = sc.nextInt();

        double ya = (Math.pow(alpha,xa))%q;

        double yb = (Math.pow(alpha,xb))%q;

        double akey = (Math.pow(yb, xa))%q;

        double bkey = (Math.pow(ya, xb))%q;

        System.out.println("Key By User A :"+akey + "\nKey By User B :"+bkey);

    }

}

**Output:**

Enter q :

19

Enter Alpha :

10

Enter XA :

7

Enter XB :

8

Key By User A :5.0

Key By User B :5.0