

Code :

```
class GFG
{
    private static long power(long a, long b, long p)
    {
        if (b == 1)
            return a;
        else
            return (((long)Math.pow(a, b)) % p);
    }

    public static void main(String[] args)
    {
        long P, G, x, a, y, b, ka, kb;

        P = 23;
        System.out.println("The value of P:" + P);
        G = 9;
        System.out.println("The value of G:" + G);

        a = 4;
        System.out.println("The private key a for Alice:"
                           + a);

        x = power(G, a, P);

        b = 3;
        System.out.println("The private key b for Bob:"
                           + b);

        y = power(G, b, P);

        ka = power(y, a, P);
        kb = power(x, b, P);

        System.out.println("Secret key for the Alice is:"
                           + ka);
        System.out.println("Secret key for the Bob is:"
                           + kb);
    }
}
```

Output :

The value of P : 23
The value of G : 9

The private key a for Alice : 4

The private key b for Bob : 3

Secret key for the Alice is : 9

Secret Key for the Bob is : 9

Code :

```
function power(a, b, p)
{
    if (b == 1)
        return a;
    else
        return((Math.pow(a, b)) % p);
}

var P, G, x, a, y, b, ka, kb;

P = 23;
document.write("The value of P:" + P + "<br>");

G = 9;
document.write("The value of G:" + G + "<br>");

a = 4;
document.write("The private key a for Alice:" +
    a + "<br>");

x = power(G, a, P);
b = 3;
document.write("The private key b for Bob:" +
    b + "<br>");

y = power(G, b, P);

ka = power(y, a, P); kb = power(x, b, P);

document.write("Secret key for the Alice is:" +
    ka + "<br>");
document.write("Secret key for the Bob is:" +
    kb + "<br>");
```

