

Diffie hellman key exchange Algorithm:

Code:

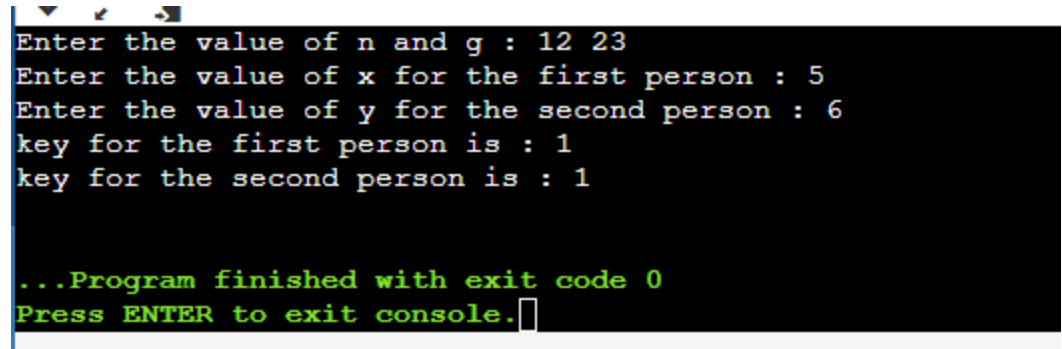
```
#include<stdio.h>
long long int power(int a,int b,int mod)
{
    long long int t;
    if(b==1)
        return a;
    t=power(a,b/2,mod);
    if(b%2==0)
        return (t*t)%mod;
    else
        return (((t*t)%mod)*a)%mod;
}
long long int calculateKey(int a,int x,int n)
{
    return power(a,x,n);
}
int main()
{
    int n,g,x,a,y,b;
    // both the persons will be agreed upon the common n and g
    printf("Enter the value of n and g : ");
    scanf("%d%d",&n,&g);

    // first person will choose the x
    printf("Enter the value of x for the first person : ");
    scanf("%d",&x);
    a=power(g,x,n);

    // second person will choose the y
    printf("Enter the value of y for the second person : ");
    scanf("%d",&y);
    b=power(g,y,n);

    printf("key for the first person is : %lld\n",power(b,x,n));
    printf("key for the second person is : %lld\n",power(a,y,n));
    return 0;
}
```

Output:

A screenshot of a terminal window with a black background and white text. The text shows a program execution process where values for n, g, x, and y are entered, followed by calculated keys for two persons. The program ends with a green message indicating successful completion and a prompt to press ENTER to exit the console.

```
Enter the value of n and g : 12 23
Enter the value of x for the first person : 5
Enter the value of y for the second person : 6
key for the first person is : 1
key for the second person is : 1

...Program finished with exit code 0
Press ENTER to exit console.
```