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IS Exp6- Implementation of Diffie Hellman Key Exchange Algorithm

Code:

```cpp
#include <iostream>
#include <cmath>
using namespace std;

long long int power(long long int a, long long int b,long long int P)
{
if (b == 1)
return  a;
else
return (((long long int)pow(a, b)) % P);
}
int main()
{
long long int P, G, x, a, y, b, ka, kb;
cout << "The value of P : ";
cin>>P;
 cout << "The value of G : " ;
cin>>G;
 cout << "The private key a for Alice : ";
cin>>a;
 x = power(G, a, P);
cout << "The private key b for Bob : ";
cin>>b;
y = power(G, b, P);
ka = power(y, a, P);
kb = power(x, b, P);
cout << "Secret key for the Alice is : " << ka << endl;
cout << "Secret key for the Bob is : " << kb << endl;
return 0;
}
```

Output:

```
The value of P : 50
The value of G : 19
The private key a for Alice : 4
The private key b for Bob : 6
Secret key for the Alice is : 21
Secret key for the Bob is : 21
```