```cpp
#include <iostream>
#include <cmath>
using namespace std;
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const float g =9.8 ;
const float R=8.31;


float KE(float m , float v)
{
   cout<<"Enter THE mass and spead";
   cin >>m ;
   cin>>v;
   float KE;
   KE= 0.5*m*pow(v,2);

   return KE ;
}

float ideal_gas ( float N ,float T)
{
   float V;
   cout<<"Enter The Number of mole and temprature and volume ";
   cin>>N;
   cin>>V;
cin>>T;
   float ideal_gas;
   ideal_gas=(N*R*T)/V ;
   return ideal_gas ;
}

float Pascal(float F,float A)
{
   cout<<"Enter The force and Area ";
   cin>>F;
   cin>>A;
   float Pascal ;
   Pascal=F/A ;
   return Pascal ;
}
```

```cpp
float Archimedes (float P)
{
    float V;
    cout<<"Enter The volume and  density ";
    cin>>P;
    cin>>V;
    float Archimedes;
    Archimedes = P*V*g ;
    return Archimedes ;

}


int main()
{
    float V;
    cout<<"Welcome to our program, we will apply with you one of the famous physical laws by
entering the required data according to the law you want. All you have to do is choose the law and
include the data as required."<<endl;

 int choice;
do
{
cout<<" 1 - KE.\n";
cout<<" 2 - ideal_gas.\n";
cout<< " 3 - Pascal.\n";
cout<< " 4 - Archimedes.\n";
cout<< " Enter your choice and press return: "<<endl;
cin>>choice;
switch (choice)
{
case 1:
float m,v;
float ret;
ret=KE(m,v);
cout<<"kE is "<<ret<<endl;
break;
case 2:
float N,T,x;
x=ideal_gas(N,T) ;
cout<<"ideal_gas is"<<x<<endl;
break;
case 3:
float F,A,y;
y=Pascal(F,A) ;
cout<<"Pascal is"<<y<<endl;
break;
case 4:
float P,V,z;
z =Archimedes(P) ;
cout<<"Archimedes is"<<z<<endl;
```

```cpp
break;
case 5:
cout << "End of Program.\n";
break;
default:
cout << "Not a Valid Choice. \n"<< "Choose again.\n";
break;
}
}
while (choice !=5);


return 0;
}
```