Classes Friend functions, Inline functions Accessor (gettor) functions and Mutator (setter) functions

```
1   using namespace std;
2   #include <iostream>
3   #include <fstream>
4
5   class emprecord
6   {
7     friend void setrate(emprecord &, double);  //This function is allowed to access private areas of emprecord
8
9     public :
10      void getinfo();
11      void calcinfo();
12      void printemployee();
13
14      double gethours()  // Inline function
15        {return hours;}
16      double getrate()   // Inline function
17        {return rate;}
18      double getid()     // Inline function
19        {return id;}
20      double gross, net, fed, state, fica, fedtax, statetax;
21
22    private :
23      int id;
24      double hours, rate;
25      double emphours[7];
26  };
27
28  void setrate(emprecord &employee, double rate)  //This function is allowed by emprecord to access private areas since it is a friend
29  {  employee.rate=rate;
30     return;
31  };
32
```

This class has declared the external function ***setrate()*** to be a ***friend*** of this class, which allows ***setrate()*** to access private sections of the class.

These are ***inline*** functions, which means the code is small enough to be included in the class definition rather than being located elsewhere.

This is the external function ***setrate(),*** which it allowed to access private sections of the class ***emprecord***.

```
33  int main ()
34  { int i;
35    emprecord employee, temp;
36
37    employee.getinfo();
38    //employee.calcinfo();
39    employee.gross= employee.gethours()*employee.getrate();
40    //employee.gross=employee.hours*employee.rate;  Incorrect
41    employee.net = employee.gross*0.7;
42    employee.printemployee();
43
44    //-------------------------------------------------
45    setrate(employee, 20.00);
46    employee.gross= employee.gethours()*employee.getrate();
47    employee.net = employee.gross*0.7;
48    employee.printemployee();
49    temp=employee;
50  return (0);
51  }
52
53  //-------------------------------------------------
54
55  void emprecord :: getinfo()
56  {  cout << " Enter id ";
57     cin >> id;
58     cout << " Enter Hours  ==> ";
59     cin >> hours;
60     cout << " Enter Rate ==> ";
61     cin >> rate;
62  }
63
64  void emprecord :: calcinfo()
65  { gross= hours*rate;
66  }
67
```

This is the call of the function ***setrate().***

```
Enter id 1234
Enter Hours  ==> 40
Enter Rate ==> 10


       Gross : $ 400.00                Hours : 40.00
       Rate  : 10.00
       net   : 280.00


       Gross : $ 800.00                Hours : 40.00
       Rate  : 20.00
       net   : 560.00
```

Notice that the friend function has changed the pay rate from 10.00 to 20.00 even though the variables are private.

```
68  void emprecord :: printemployee()
69  {
70    //-----------------------------------------------
71    cout.setf(ios::fixed);
72    cout.setf(ios::showpoint);
73    cout.precision(2);
74    cout << "\n\nGross : $ " <<  gross <<  "\t";
75    //cout << "Hours : " <<  employee.hours <<  endl;
76    cout << "Hours : " <<  gethours() <<  endl;
77    //cout << "Rate  : " <<  employee.rate  <<  endl;
78    cout << "Rate  : " <<  getrate()  <<  endl;
79    cout << "net  : " <<  net <<  endl;
80
81  }
82
```