Lab 07

A polynomial P1(x) = x^4+2x^2+5 has three terms: x^4, $2x^2$ and 5. Coefficients of these terms are 1, 2 and 5 respectively while exponents are 4, 2 and 0 respectively. To work with Polynomials, a definition of class Polynomial is given below and memory configuration for P1 is shown as follows:

```
class Polynomial

{

private:

int totalTerms;//Total terms in a Polynomial

int* coeff;//to save array of coefficients

int* exp; //to save array of exponents

static  int objectcount; //Total count of
objects

};
```
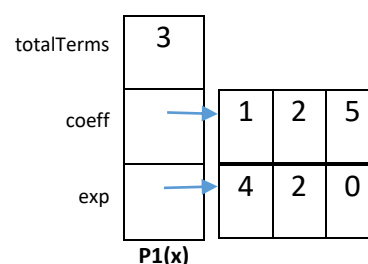

Your task is to complete the definition of Polynomial class such that the main program runs successfully. Make sure that your program doesn't consume extra memory space and it should not leak any memory.

```
void main()

{

    int coeff_P1[] = {1,2,5};  //Coefficients for Polynomial P1

    int exp_P1[] = {4,2,0};     //Exponents for Polynomial P1


    int coeff_P2[] = {4,3};     //Coefficients for Polynomial P2

    int exp_P2[] = {6,2}; //Exponents for Polynomial P2

    int coeff_P3[] = {1,6,5};    //Coefficients for Polynomial P3
    int exp_P3[] = {4,2,4};      //Exponents for Polynomial P3



    Polynomial P1(3, coeff_P1, exp_P1);//Creates P1 with 3 terms (P1 =
1x^4 + 2x^2 + 5x^0 )

}
```

```cpp
    Polynomial P2(2, coeff_P2, exp_P2);//Creates P2 with 2 terms (P2 =
4x^6 + 3x^2)


    P1.print(); //Prints P1 = x^4+2x^2+5

    P2.print(); //Prints P2 = 4x^6+3x^2

    if(!P1)

cout<<"P1 is zero"<<endl;/*if polynomial has only 1 term and its coeff
and exp are zero. i.e. if p1 = 0.*/

if(P1 != P2)

cout<<"P1 is Not Equal to P2"<<endl;


    Polynomial P4 = P2+P3;      //Adds P2 and P3 and saves result in
P4.You may consume extra space for resultant Polynomial in Add function

    P4.print();

    Polynomial P5 = P4-P3;      //subtract P4 and P3 and saves result
in P5.You may consume extra space for resultant Polynomial in Add
function

    P5.print();

  Polynomial P6 =p5;

   P6.print();

   cout<<"Total Noofobject have been made"<< Polynomial::Getcount();


}
```

END