```
// C++ program to illustrate dynamic allocation
// and deallocation of memory using new and delete
#include <iostream>
using namespace std;

int main ()
{
	// Pointer initialization to null
	int* p = NULL;

	// Request memory for the variable
	// using new operator
	//p = new(nothrow) int;
	p = new int;
	if (!p)
		cout << "allocation of memory failed\n";
	else
	{
		// Store value at allocated address
		*p = 29;
		cout << "Value of p: " << *p << endl;
	}

	// Request block of memory
	// using new operator
	float *r = new float(75.25);

	cout << "Value of r: " << *r << endl;

	// Request block of memory of size n
	int n = 5;
```

```
        //int *q = new(nothrow) int[n];
int *q = new int[n];
        if (!q)
                cout << "allocation of memory failed\n";
        else
        {
                for (int i = 0; i < n; i++)
                        q[i] = i+1;

                cout << "Value store in block of memory: ";
                for (int i = 0; i < n; i++)
                        cout << q[i] << " ";
        }

        // freed the allocated memory


        // freed the block of allocated memory
        delete[] q;
        delete r;
        delete p;

        return 0;
}



#include <iostream>
using namespace std;
int main ()
{
   // declaration of variables
```

```
    int *ptr1, *ptr2, sum;

    // allocated memory space using new operator
    ptr1 = new int;
    ptr2 = new int;

    cout << " Enter first number: ";
    cin >> *ptr1;
    cout << " Enter second number: ";
    cin >> *ptr2;
    sum = *ptr1 + *ptr2;
    cout << " Sum of pointer variables = " << sum;

    // delete pointer variables
    delete ptr2;
    delete ptr1;
     cout << " Sum of pointer variables = " << sum;
    return 0;
}



#include <iostream>
using namespace std;
int main ()
{
    // declaration of variables
    int *arr, max_num, i;

    cout << " Enter total number of elements to be entered : ";
    cin >>max_num;
```

```
   // use new operator to declare array memory at run time
   arr = new int [max_num];

   cout << " Enter the numbers: \n";
   for (i = 0; i< max_num; i++)  // input array from user
   {
      cout << " Number " << i+1 << " is ";
      cin >> arr[i];
   }

   cout <<" Numbers are : ";
   for (i = 0; i < max_num; i++)
   {
      cout << arr[i] << "\t";
    }

    // use delete operator to deallocate dynamic memory
    delete [ ] arr;

    for (i = 0; i < max_num; i++)
   {
      cout << arr[i] << "\t";
    }


    return 0;
}

#include <iostream>
using namespace std;
int main ()
```

```
{
// initialize the integer pointer as NULL
int *ptr = NULL;
//cout<<*ptr;
// delete the ptr variable
delete ptr;
cout << " The NULL pointer is deleted.";
cout<<*ptr;
return 0;
}
```

```
#include <iostream>
using namespace std;
int main ()
{
// Use new operator to create dynamic memory
int *ptr = new int;

// Use new operator to dynamic memory space for an array
int *ptr2 = new int (10);
cout << " The value of ptr is: "<< *ptr << " \n ";
cout << " The value of ptr2 is: "<< *ptr2 << " \n ";

// use delete keyword to delete the value stored in *ptr and *ptr2
delete ptr2;
delete ptr;
cout << " The value of ptr is: "<< *ptr << " \n ";
cout << " The value of ptr2 is: "<< *ptr2 << " \n ";

return 0;
```

}