DYNAMIC MEMORY ALLOCATION

#Tag	DYNAMIC MEMORY ALLOCAITON
king topic	C++ WITH OOPS

INTRODUCTION

- Dynamic memory is allocated on the heap rather then the stack .

APPLICATION OF THE DYNAMIC MEMORY ALLOCATION

- It is used to allocate memory in variable length arrays .
- It is useful in the allocation of the memory when it comes to linked list , tree and etc .

HOW TO USE IT ?

- In c++ there are 2 operators which you can use .

NEW OPERATOR

- It denotes a request for the memory allocation in the free store .
- If sufficient memory is available , new operator initialize the memory and returns the address of the newly allocated to the initialized memory to the pointer variable .
- Below there is syntax given in order to declare the new operator .

```
pointer-variable = new data-type;
```

- Below the example of using the new operator is given :

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

int main()
{
    double *p = new double;
    *p = 55;

    cout<<"The size of the pointer is : "<<sizeof(*p)<<endl;


        return 0;
}
```

DELETE OPERATOR

- As you know it is your responsibility to clear up the mess at home if you are the creator of it .
- Similarly , it is programmer responsibility to deallocate dynamically allocated memory .
- So in c++ , the delete operator is provided in order to dealocate the memory .
- So it uses the pointer variable in order to do this task .
- The syntax of it is given below :

```
delete pointer-variable;
```

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

int main()
{
    double *p = new double;
    *p = 55;

    cout<<"The size of the pointer is : "<<sizeof(*p)<<endl;
    delete p;
    cout<<*p;


        return 0;
}
```

- Here the example is taken in which p is first declared dynamically and then deleted by using the delete keyword .