13 Dynamic Object Creation

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13.1 Object creation

- When a C++ object is created, two events occur:
  - ◆Storage is allocated for the object.
    - ➢static storage area
    - ➢stack (Local variable memory allocation)
    - ➢heap (dynamic memory allocation)
  - ◆The constructor is called to initialize that storage.

operator new/delete

```
new type(initializer);   // create a dynamic object
delete pointername;      // destroy a dynamic object
```

- MyClass *fp = **new** MyClass(1,2);
- MyClass *fp = **new** MyClass;

- **delete** fp;

13.2 new & delete for arrays

new type[size]; // create an *array of objects*
delete[] pointer; // destroy an *array of objects*

- MyClass *fp = **new** MyClass[100];
- **delete []** fp;

13.2 new & delete for arrays

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

class MyType
{
public:
    MyType() { cout << "Constructor" << endl; }
    ~MyType() { cout << "Destructor" << endl; }
};
```

```
void main()
{
    MyType *g = new MyType[5];
    delete[] g;
}
```

13.2 new & delete for arrays

- **new/new[]** returns a pointer that pointer to type.
- **new[]** does not initialize the memory returned.
- An object created by **new** must be destroyed by **delete**.
- A pointer can be destroyed by **delete/delete[]** only once.