Functions

Lecture - 4

Destructors

- A destructor is another type of special function which is called implicitly when an object is destroyed
- Name of destructor is the tilde character (~) followed by the class name (negation of constructor)

Destructors

- Destructor itself does not actually release the object's memory – it performs termination housekeeping before system reclaims the object's memory
- Receive no parameter and return none
- Compiler creates an empty destructor if programmer does not specify

Example

```
class stack {
    private:
        int stck[100];
        int top;
    public:
        ~stack();
        void push(int i);
    int pop();
};
```

```
stack::~stack()
{ top=0;
    std::cout<<“initialized”; }
```

```
int main()
{
stack s1;
 }
```

When constructors and destructors are called

- Called implicitly by the compiler
- Order or call depends on the order in which execution enters and leaves the scopes where the objects are instantiated

Storage class of variable

- Storage class determines the period during which that identifier exists in memory
  - auto
  - register
  - extern
  - Static
- An identifier’s scope is where the identifier can be referenced throughout the program.

Scope rule

- The portion of the program where an identifier can be used is known as its scope
  - Function scope
  - File scope
  - Block scope
  - Class scope
  - Namespace scope

File scope

- Identifier declared outside any function or class has file scope
- It is known in all functions from the point at which it is declared until the end of the file
- Example – global variables, function definitions, function prototypes

Function and block scope

- Identifiers declared inside the block or function (local variables)
- Function parameters

Class scope

- Members of the class – like data members and member functions belong to that class scope.
- Non-member function are defined at file scope
- Within a class's scope class members are accessible by all of that class's member function and can be referenced by name

Class scope

- Outside class scope public class member are referenced through objects
- If a member function defines a variable with the same name as a variable with class scope, the class scope variable is hidden by the block scope variable.
- Use scope resolution in that case

Assignment

- What are various Storage Classes and explain the Class Scope.