Dynamic Memory Allocation

Stack Memory Allocation

The memory is allocated on the function call stack. The memory gets deallocated as soon as the function call gets over. Deallocation is handled by the compiler.

Heap Memory Allocation

Allocation takes place on the pile of memory space available to programmers to allocated and de-allocate. The programmer has to handle the deallocation.

Delete Operator

To de-allocate a memory p, we pass its address to the delete() function.

```
//to de-allocate a memory,
//pointed by pointer 'p'
delete(p)
```

New Operator:

New operator is used to allocate a block of memory of the given data type.

```
//Syntax
//myPointer = new <data_type>[size];
int *p = new int[10];
```

NOTE: I t is different from the heap data structure.

Dangling Pointer

If the memory location pointed by the pointer gets freed/ deallocated, then the pointer is known as the Dangling Pointer.

Practise Question:

1. Declare a 2D array Dynamically.
2. Declare a 3D array Dynamically.
3. MCQs on Dynamic Memory Allocation.

Use of heap memory over stack

If we want to change value of variable in run-time code then we can do it only in heap allocation not in stack allocation

In heap allocation and deallocation of memory is done by us while in stack it is done by compiler