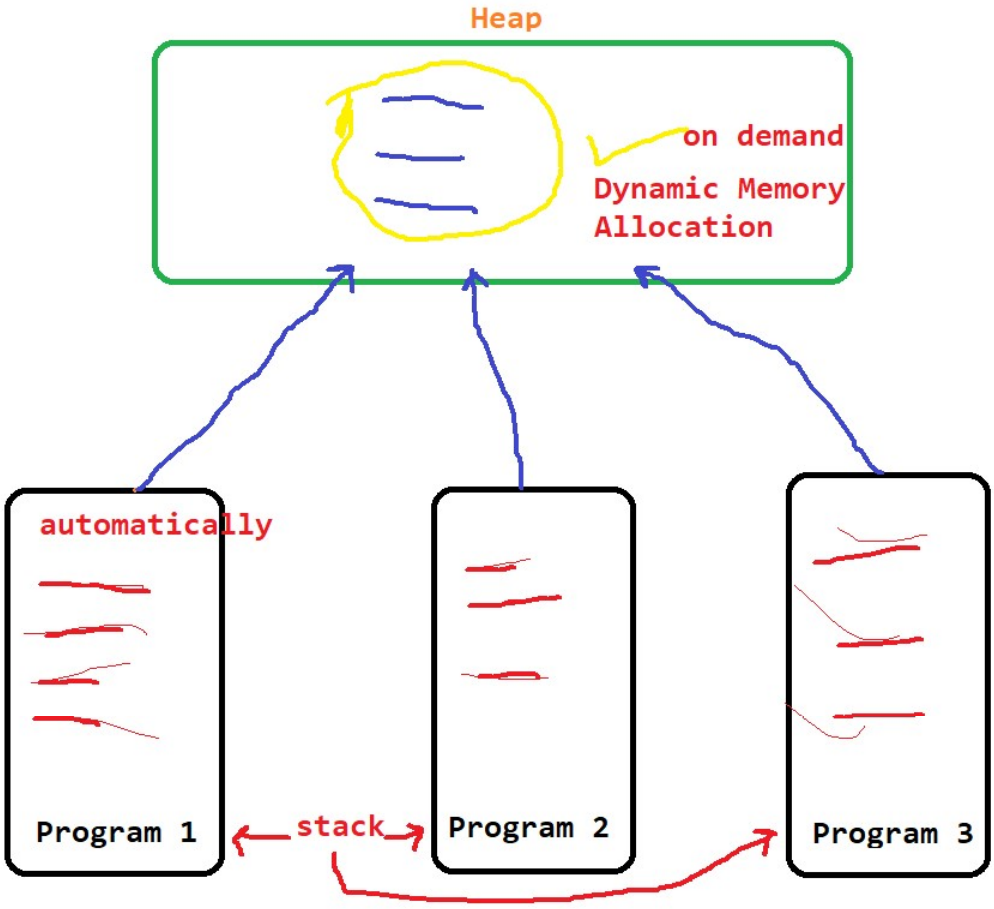
Home Work No.17 DMA

- Review (New home work is uploaded for pointers)
- Memory allocated to C++ program
  - On stack (automatically) / Static memory /Compile time
  - On heap (on Demand) /Dynamic / Run time
- How to allocate memory on heap-> how to do dynamic memory allocation.
  - You need a pointer
  - Explicitly need functions or operators to allocate and deallocate memory
    - C (functions)
      - malloc() - > Dynamic memory allocate
      - free () -> Deallocation
    - C++ (operator)
      - New -> Dynamic memory allocate
      - Delete -> Deallocation/free


Heap
on demand
Dynamic Memory
Allocation
automatically
Program 1
stack
Program 2
Program 3

```cpp
#include <iostream>

using namespace std;

int main()
{
	//////Dynamic memory allocation for an integer Array
	int size;
	int *ptr;
	cout << "\nEnter size for array:  ";
	cin >> size;

	ptr = new int[size];

	if (ptr == NULL)
	{
		cout << "\nMemory can Not be allocated";
	}
	else {


		cout << "\nEnter values for array:  ";

		for (int i = 0; i < size; i++)
			cin >> ptr[i];

		cout << "\nArray Entered :  ";

		for (int i = 0; i < size; i++)
			cout << ptr[i];

		for (int i = 0; i < size; i++)
			ptr[i] *= 2;


		cout << "\nAfter doubling :  ";

		for (int i = 0; i < size; i++)
			cout << ptr[i];

		delete[] ptr;

	}

 /*//creating a integer memory on heap
ptr = new int;


	*ptr = 19;

	cout << *ptr;


delete ptr;*/



}
```