CAP: 770- ADVANCED DATA STRUCTURE

CONTINUOUS ASSESSMENTS (C.A)-2

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Q.1. Write a program to implement the PUSH() and POP() operations of STACK using Array.

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

#define MAX_SIZE 100

class Stack {
  private:
    int top;
    int arr[MAX_SIZE];
  public:
    Stack() {
      top = -1;
    }
    bool push(int x) {
      if(top == MAX_SIZE - 1) {
        cout << "Stack overflow!\n";
        return false;
      }
      top++;
      arr[top] = x;
```

```
        cout << x << " pushed to stack.\n";
        return true;
    }
    int pop() {
        if(top == -1) {
            cout << "Stack underflow!\n";
            return -1;
        }
        int x = arr[top];
        top--;
        return x;
    }
    void display() {
        if(top == -1) {
            cout << "Stack is empty!\n";
            return;
        }
        cout << "Stack elements are: ";
        for(int i=top; i>=0; i--) {
            cout << arr[i] << " ";
        }
        cout << endl;
    }
};

int main() {
    Stack s;
    s.push(5);
```

```
    s.push(10);
    s.push(15);
    s.display();
    cout << s.pop() << " popped from stack.\n";
    s.display();
    return 0;
}
```

```
5 pushed to stack.
10 pushed to stack.
15 pushed to stack.
Stack elements are: 15 10 5
15 popped from stack.
Stack elements are: 10 5
PS D:\VS CODE\DSA\EXAM>
```