```cpp
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/*
Creates an array based stack using push and pop methods

Array is limited to a max size of 10

when going above capacity or trying to remove nothing, an error is thrown
*/

#include <iostream>
#define MaxSize 10
using namespace std;

class arrayStack {
private:
    int topOfStack;     // since this is a stack, this will be the only var we can interact with
    int stack[MaxSize]; // the stack
public:
    arrayStack() { topOfStack = 0; }           // stack starts at index 0
    bool isEmpty() { return topOfStack == 0; } // returns true if stack is empty
    bool push(int data = 0) {
        if (topOfStack + 1 >= MaxSize) {       // throws error if stack capacity is reached
            cout << "Maximum stack capacity reached.\n\n";
            return false;
        }
        stack[topOfStack++] = data;            // puts data on top of stack
        return true;
    }
    int pop() {
        if (isEmpty()) {                       // throws error when attempting to remove nothing
            cout << "Minimum stack capacity reached.\n\n";
            return -999;
        }

        return stack[--topOfStack]; // reduces stack number to reflect action
                                    // and returns number removed
    }
    void print() {
        cout << "Top: ";
        for (int i = topOfStack - 1; i >= 0; i--)
            cout << stack[i] << ' ';
        cout << "\n\n";
    }
};
int main()
{
    arrayStack* stack;
    stack = new arrayStack();
    cout << "--------------------------------\n";
```

```
50      cout << "Working with an Array based stack.\n\n\n"
51          << "Testing error when attempting to remove from an empty stack: \n\n";
52      stack->pop();
53      stack->print();
54      cout << "---------------------------------\n";
55
56      cout << "Push 30 onto stack: \n\n";
57      stack->push(35);
58      stack->print();
59
60      cout << "Push 1 onto stack: \n\n";
61      stack->push(1);
62      stack->print();
63
64      cout << "Push 5 onto stack: \n\n";
65      stack->push(5);
66      stack->print();
67
68      cout << "Push 7 onto stack: \n\n";
69      stack->push(7);
70      stack->print();
71
72      cout << "Push 12 onto stack: \n\n";
73      stack->push(12);
74      stack->print();
75
76      cout << "---------------------------------\n";
77      cout << "Testing maximum capacity of stack: \n\n";
78      while (stack->push(5)) {
79          cout << ".";
80      }
81      stack->print();
82      cout << "---------------------------------\n";
83  }
84  /*//-----------------------------------case 1:
85  --------------------------------
86  Working with an Array based stack.
87
88
89  Testing error when attempting to remove from an empty stack:
90
91  Minimum stack capacity reached.
92
93  Top:
94
95  --------------------------------
96  Push 30 onto stack:
97
98  Top: 35
99
100 Push 1 onto stack:
101
```

```
102  Top: 1 35
103
104  Push 5 onto stack:
105
106  Top: 5 1 35
107
108  Push 7 onto stack:
109
110  Top: 7 5 1 35
111
112  Push 12 onto stack:
113
114  Top: 12 7 5 1 35
115
116  --------------------------------
117  Testing maximum capacity of stack:
118
119  ....Maximum stack capacity reached.
120
121  Top: 5 5 5 5 12 7 5 1 35
122
123  --------------------------------
124
125  *///-----------------------------------
126
```