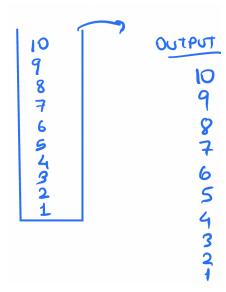
- 1. Stack is
 - a. FIFO
 - b. LIFO
 - c. LILO
 - d. None of these
- 2. The data structure requires to check whether an expression contains balanced parenthesis is?
 - a. Stack
 - b. Queue
 - c. Array
 - d. Linked List
- 3. What data structure would you mostly likely see in a non-recursive implementation of a recursive algorithm?
 - a. Stack
 - b. Queue
 - c. Array
 - d. Linked List
- 4. What is the time complexity of pop() operation when the stack is implemented using an array?
 - a. O(1)
 - b. O(n)
 - c. O(logn)
 - d. O(nlogn)
- 5. What output is displayed after the following segment of code executes:

```
ArrayStack<int> s;
int a = 22, b = 44;
s.push(2);
s.push(a);
s.push(a + b);
b = s.top();
s.pop();
s.push(b);
                                OUTPUT >> 66
s.push(a - b);
                                          22
s.pop();
while (!s.empty()) {
    cout << s.top() << endl;</pre>
    s.pop();
}
```

6. What output is displayed after the following segment of code executes:

```
ArrayStack <int> s;
for (int i = 1; i <= 10; i++)
    s.push(i);
while (!s.empty()){
    cout << s.top() << endl;
    s.pop();
}</pre>
```



Suppose you have a stack in which the values 1 through 5 must be pushed on the stack in that order, but that an item on the stack can be popped at any time. Give a sequence of push and pop operations such that the values are popped in the following order:

a. 2, 4, 5, 3, 1

b. 1, 3, 5, 4, 2

Push(1)
Push(2)
Pop() 2
Push(3)
Push(4)
Pop() 4
Push(5)

push(1)
pop() → 1
push(2)
push(3)
pop() → 3
push(4)
push(5)
pop() → 5
pop() → 4
pop() → 1

8. Suppose you have three stacks s1, s2, s2 with starting configuration shown on the left, and finishing condition shown on the right. Give a sequence of push and pop operations that take you from start to finish.

| start | | |
|-------|--|--|
| | | |
| | | |
| | | |
| | | |
| | | |
| s3 | | |
| | | |

| 52. push (s1. top()); |
|--------------------------------------|
| |
| 52. push (s1. top()); \$1. pop(); |
| S1. pop(); |
| 52. push (s1. top()); \$1. pop(); |
| S1. pop(); |
| 52. push (s1. top()); S1. pop(); |
| St and |
| |
| 53. push (s2. top()); |
| |
| 53. push (s2. top()); |
| 32 200 []. |
| 53. push (s2. top()); |
| |
| 53. push (s2. top()); \$2. pop(); |
| S2. pop(); |
| |

| finish | | |
|--------|----|----|
| | | Α |
| | | В |
| | | С |
| | | D |
| | | |
| s1 | s2 | s3 |

9. Same question in 8, but now suppose the finish configuration on s3 is BDAC (with B on top) ?

```
52. push (st. top());
st. pop();
s2. push (st. top());
s3. push (st. top());
s1. pop();
s1. pop();
s2. pop();
s3. push (s1. top());
s1. pop();
s3. push (s2. top());
s3. push (s2. top());
s2.pop();
```