TheStack.java

```java
package app;

import java.util.Arrays;

public class TheStack {

    private String[] stackArray;
    private int stackSize;

    // Sets stack as empty

    private int topOfStack = -1;

    /**
     *
     * @param size
     */
    TheStack(int size){

        stackSize = size;

        stackArray = new String[size];

        // Assigns the value of -1 to every value in the array
        // so I control what gets printed to screen

        Arrays.fill(stackArray, "-1");

    } // end TheStack

    /**
     *
     * @param input
     */
    public void push(String input){

        if(topOfStack+1 < stackSize){

            topOfStack++;

            stackArray[topOfStack] = input;

        } // end if
        else { System.out.println("Sorry But the Stack is Full"); } // end else

        displayTheStack();
```

```java
        System.out.println("PUSH " + input + " Was Added to the Stack\n");

   } // end push

   /**
    *
    * @return
    */
   public String pop(){

      if(topOfStack >= 0){

         displayTheStack();

         System.out.println("POP " + stackArray[topOfStack] + " Was Removed From the Stack\n");

         // Just like in memory an item isn't deleted, but instead is just not available

         stackArray[topOfStack] = "-1"; // Assigns -1 so the value won't appear

         return stackArray[topOfStack--];

      } // end if
      else {

         displayTheStack();

         System.out.println("Sorry But the Stack is Empty");

         return "-1";
      } // end else

   } // end pop

   /**
    *
    * @return
    */
   public String peek(){

      displayTheStack();

      System.out.println("PEEK " + stackArray[topOfStack] + " Is at the Top of the Stack\n");

      return stackArray[topOfStack];

   } // end peek

   /**
    *
```

```java
 * @param multipleValues
 */
public void pushMany(String multipleValues){

    String[] tempString = multipleValues.split(" ");

    for(int i = 0; i < tempString.length; i++){ push(tempString[i]); } // end for

} // end pushMany

/**
 *
 */
public void popAll(){

    for(int i = topOfStack; i >= 0; i--){ pop(); } // end for

} // end popAll

/**
 *
 */
public void popDisplayAll(){

    String theReverse = "";

    for(int i = topOfStack; i >= 0; i--){ theReverse += stackArray[i]; } // end for

    System.out.println("The Reverse: " + theReverse);

    popAll();

} // end popDisplayAll

/**
 *
 */
public void displayTheStack(){

    for(int n = 0; n < 61; n++)System.out.print("-"); // end for

    System.out.println();

    for(int n = 0; n < stackSize; n++){ System.out.format("| %2s "+ " ", n); } // end for

    System.out.println("|");

    for(int n = 0; n < 61; n++)System.out.print("-"); // end for

    System.out.println();
```

```java
    for(int n = 0; n < stackSize; n++){

        if(stackArray[n].equals("-1")) System.out.print("|     ");

        else System.out.print(String.format("| %2s "+ " ", stackArray[n]));

    } // end for

    System.out.println("|");

    for(int n = 0; n < 61; n++)System.out.print("-");

    System.out.println();

} // displayTheStack

/**
 *
 * @param args
 */
public static void main(String[] args){

    TheStack theStack = new TheStack(10);

    theStack.push("10");
    theStack.push("17");
    theStack.push("13");

    // Look at the top value on the stack

    theStack.peek();

    // Remove values from the stack (LIFO)

    theStack.pop();
    theStack.pop();
    theStack.pop();

    // Add many to the stack

    theStack.pushMany("R E D R U M");

    // Remove all from the stack

    // theStack.popAll();

    // Remove all from the stack and print them

    theStack.popDisplayAll();
```

```
        theStack.displayTheStack();

    } // end main

} // end TheStack
```

Console.java

```
-----------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
-----------------------------------------------------------
| 10 |   |   |   |   |   |   |   |   |   |
-----------------------------------------------------------
PUSH 10 Was Added to the Stack


-----------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
-----------------------------------------------------------
| 10 | 17 |   |   |   |   |   |   |   |   |
-----------------------------------------------------------
PUSH 17 Was Added to the Stack


-----------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
-----------------------------------------------------------
| 10 | 17 | 13 |   |   |   |   |   |   |   |
-----------------------------------------------------------
PUSH 13 Was Added to the Stack


-----------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
-----------------------------------------------------------
| 10 | 17 | 13 |   |   |   |   |   |   |   |
-----------------------------------------------------------
PEEK 13 Is at the Top of the Stack


-----------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
-----------------------------------------------------------
| 10 | 17 | 13 |   |   |   |   |   |   |   |
-----------------------------------------------------------
POP 13 Was Removed From the Stack


-----------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
-----------------------------------------------------------
| 10 | 17 |   |   |   |   |   |   |   |   |
-----------------------------------------------------------
POP 17 Was Removed From the Stack


-----------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
-----------------------------------------------------------
| 10 |   |   |   |   |   |   |   |   |   |
-----------------------------------------------------------
POP 10 Was Removed From the Stack
```

```
------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R |   |   |   |   |   |   |   |   |   |
------------------------------------------------------------
PUSH R Was Added to the Stack


------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R | E |   |   |   |   |   |   |   |   |
------------------------------------------------------------
PUSH E Was Added to the Stack


------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R | E | D |   |   |   |   |   |   |   |
------------------------------------------------------------
PUSH D Was Added to the Stack


------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R | E | D | R |   |   |   |   |   |   |
------------------------------------------------------------
PUSH R Was Added to the Stack


------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R | E | D | R | U |   |   |   |   |   |
------------------------------------------------------------
PUSH U Was Added to the Stack


------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R | E | D | R | U | M |   |   |   |   |
------------------------------------------------------------
PUSH M Was Added to the Stack
```

The Reverse: MURDER

```
------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R | E | D | R | U | M |   |   |   |   |
------------------------------------------------------------
POP M Was Removed From the Stack
```

```
------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R | E | D | R | U |   |   |   |   |   |
------------------------------------------------------------
```
POP U Was Removed From the Stack

```
------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R | E | D | R |   |   |   |   |   |   |
------------------------------------------------------------
```
POP R Was Removed From the Stack

```
------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R | E | D |   |   |   |   |   |   |   |
------------------------------------------------------------
```
POP D Was Removed From the Stack

```
------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R | E |   |   |   |   |   |   |   |   |
------------------------------------------------------------
```
POP E Was Removed From the Stack

```
------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
| R |   |   |   |   |   |   |   |   |   |
------------------------------------------------------------
```
POP R Was Removed From the Stack

```
------------------------------------------------------------
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
------------------------------------------------------------
|   |   |   |   |   |   |   |   |   |   |
------------------------------------------------------------
```