Stack Exercise

Case: Create a class called Stack. As you know, a stack behaves in a last-in, first out fashion. That is, the first element that is pushed into it is the last element that can be accessed. Also, only the topmost element can be accessed at any point in time. If the Stack is already empty the user should be informed and a pop should not be allowed. For this particular exercise, make the stack store integer numeric literals.

The Stack class has the following functionalities:

1. Creation of a stack with a user-defined maximum size
2. Checking if the stack is empty
3. Putting an item on the stack (Push). The user should be notified if there is no more space on the stack.
4. Removing and returning the top item from the stack (Pop). The use should be notified if the stack is empty.
5. Getting the top value of the stack without removing it
6. Either one of the two:
    a. Prints the contents of the whole stack
    b. Returns a String representation of the contents of the stack (search for toString() method in Google)

Tasks:

1. Write your class diagram.
2. Create the Driver class and create a stack with a maximum size of 10. Also, create a simple menu as shown below. The menu allows the user to call any of the functionalities of a Stack.

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What do you wish to do now? Choose the appropriate letter of the next action
[ P – Push , O – Pop , T – TopValue , S – ShowStack, E - Exit ]
Enter Choice : P
Enter Value to Push : 5
5 Successfully Pushed into the Stack

What do you wish to do now? Choose the appropriate letter of the next action
[ P – Push , O – Pop , T – TopValue , S – ShowStack, E - Exit ]
Enter Choice : P
Enter Value to Push : 4
4 Successfully Pushed into the Stack

What do you wish to do now? Choose the appropriate letter of the next action
[ P – Push , O – Pop , T – TopValue , S – ShowStack, E - Exit ]
Enter Choice : P
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Enter Value to Push : 7
7 Successfully Pushed into the Stack

What do you wish to do now? Choose the appropriate letter of the next action
[P – Push , O – Pop , T – TopValue , S – ShowStack, E - Exit]
Enter Choice : S
Content of the Stack From the Top to Bottom :
7
4
5

What do you wish to do now? Choose the appropriate letter of the next action
[P – Push , O – Pop , T – TopValue , S – ShowStack, E - Exit]
Enter Choice : T
Top value of the Stack is 7

What do you wish to do now? Choose the appropriate letter of the next action
[P – Push , O – Pop , T – TopValue , S – ShowStack, E - Exit]
Enter Choice : O
Popped 7 from the Stack

What do you wish to do now? Choose the appropriate letter of the next action
[P – Push , O – Pop , T – TopValue , S – ShowStack, E - Exit]
Enter Choice : S
Content of the Stack From the Top to Bottom :
4
5

What do you wish to do now? Choose the appropriate letter of the next action
[P – Push , O – Pop , T – TopValue , S – ShowStack, E - Exit]
Enter Choice : E
Closing Program ... You will lose all data stored in Stack.