CIS-277-002HY
Assignment 2 Stacks
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Project 2 Design

1-6 Space for any imports
7 Create a stack size 10
8- 15 Space for any prototypes
16 Create a function main
17 Initialize an integer with the name “stack”
18 Initialize an integer with the name “top”
19 Initialize an integer with the name “option”
20 Initialize an integer with the name “item”
21 Initialize a character with the name “repeat”
22 While the repeat variable is “y”’
23 Do Loop
24 Display “Menu”
25 On a new line display “1 Push an integer”
26 On a new line display “2 Pop an integer”
27 On a new line display “3 Display the top element”
28 On a new line display “4 Check if stack is empty”
29 On a new line display “5 Purge the stack”
30 On a new line display “6 Exit”
31 Input an integer
32 Store the integer in the choice variable
33 Compare the menu integer
34 If choice equals 1:
35 Call (isFull(top))
36 If stack is full display “Stack is full, overflow error”
37 Display “enter an integer between 0 and 99”
38 Input an integer
39 Store the integer in the item variable
40 If item is greater than or equal to zero and item is less than or equal to 99
41 Call push(stack, top, item)
42 Call displayStack(stack, top)
43 If item is less than 0 or item is larger than 99
44 Display "Error, enter a positive integer between 0 and 99"
45 Call displayStack(stack, top)
46 Else if choice equals 2
47 Call (isempty(top))
48 If stack is empty display “Stack is empty, underflow error”
49 Else call pop(stack, top)
50 Call displayStack(stack,top)
51 Else if choice equals 3:

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        Call (isempty(top))
        If stack is empty display “Stack is empty”
        Else call topfunction(stack, top)
        Call displayStack(stack, top)
Else if choice equals 4:
        Call (isempty(top))
        If stack is empty display “Stack is empty”
        Else stack is not empty display “Stack is not empty” Call displayStack(stack, top)
Else if choice equals 5:
        Call purge(stack, top)
        Call display(stack, top)
Else if choice is not equal to 6:
        Display “Invalid choice, please select an option from 1 through 6”
        Display new empty line
While choice is not equal to 6:
        Display “If you would like to run the program again, press ‘y’”
        Store input in character named ‘repeat’
END Function main

Create a Function push(parameters: stack, top, item)
        If the stack is full
        Display “Stack is full, overflow error”
        Else Set stack top equal to item
        Increment top by 1
End function

Create a Function pop(parameters: stack, top)
        If the empty function equals 1
        Display “Stack is empty, underflow error”
        Else subtract top by 1
        Display stack top number and print “ has been removed”
End function

Create a Function purge(parameters: stack, top)
        Set top equal to -1
Display “Stack has been purged”
End function

Create a function top_function(parameters: stack, top)
        If the empty function equals 1
        Display “Stack is empty, underflow error”
        Else display “Top element: “ display stack top -1
        Display new empty line
End function
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96
97      Create a function isempty(parameters: top)
98              Returns true if stack is empty
99      End function
100
101     Create a function isfull(parameters: top)
102             Return true if stack is full
103     End function
104
105     Create a function ispurge(parameters: top)
106             Set top equal to -1
107     End function
108
109     Create a function displaystack(parameters: stack, top)
110             Display empty new line
111             Display “Stack elements: “
112             Display empty new line
113             If the empty function equals 1
114             Display “Stack is empty”
115             Display empty new line
116     Else
117             For (i is equal to top-1, while i is equal to or greater than zero, decrease i by 1)
118             Display the number in the stack of position equal to i
119     End function
```