

U19CS076

Krithukha Balamurugan

Tutorial 2

a) push

Push (Stack, data)

Max = Size of array

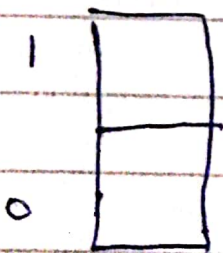
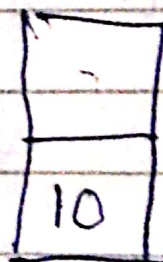
begin

1. IF (~~TOP~~ STACK.TOP > MAX-1)  
PRINT "overflow", return null

ENDIF

2. Set Stack.Top  $\leftarrow$  Stack.Top + 13. Stack.S[Stack.Top]  $\leftarrow$  data

end

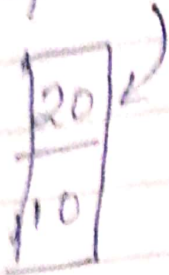
Dry RunInitially stack empty  
Top = -12. push (stack, 10, 2)  
inserts 10 at top = 0

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الموافق

3.  $Top = 1$  Push(Stack, 20, 2)



$Top = 2$

4.  $Top = 2 > (MAX - 1)$   $MAX = 3$   
Now stack is full

b) pop(Stack)

begin

1.  $Top = Top - 1$  // Decrementing to lower pos  
2. IF  $top = -1$   
PRINT "Overflow", return null

ENDIF

3.  $Data \leftarrow Stack[Top]$

4. Set  $Top = Top - 1$

5. return Data

end



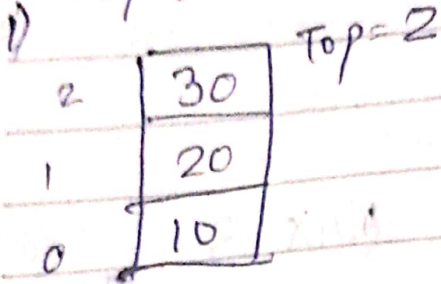
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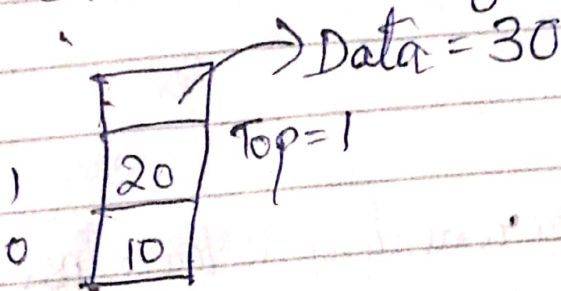
مادة الدرس

## Dry Run

Pop(stack)



2) Stack not empty,  $top = 1$  ( $top = top - 1$ )



c) Peek

Peek(stack)

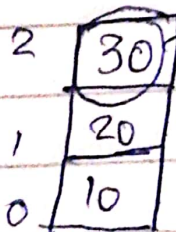
begin

Return (Stack.s[s.top])

end

Dry run

$Top = 2$



Peek returns 30

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1) is empty

isEmpty(stack)

begin

1. IF Stack.Top < 1  
return "True"

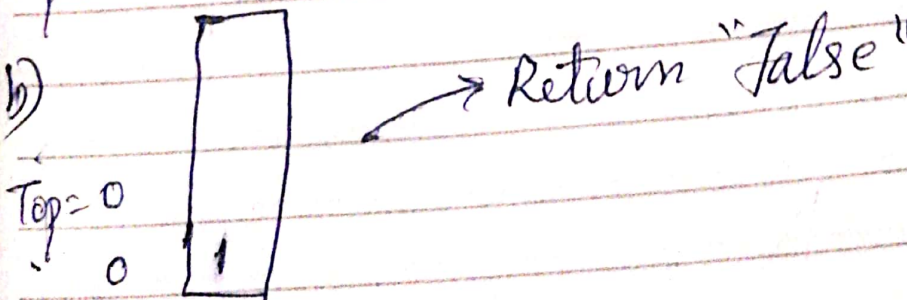
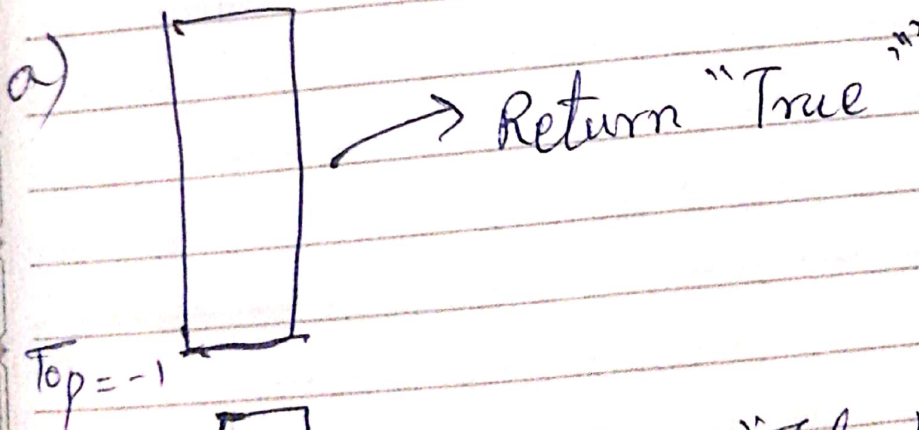
ELSE

return "False"

endif

end

is Dry Run





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ed) ~~isfull~~  
isfull(stack)

begin

1. IF Stack-Top = MAX  
Return "True"

else

return "False"

endif

end

Dry run

MAX = 2

~~isfull~~ isfull(stack)

2	
1	20
0	10

top = 1

1  $\neq$  2  $\rightarrow$  return false

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2. Reversing string using stack

Let string be S1

and stack be stack

Reverse string stored in S2

Reverse(S1, S2)

begin

1. Top = -1, i = 1

2. For I to N-1

Push(S[i], stack)

3. I = 1

4. For I to N-1

S2[i] = Pop(stack)

5. return S2

end.

Dry Run

Let S1 = "Hello" N = 5

S2 be empty

For i. Stack empty top = -1



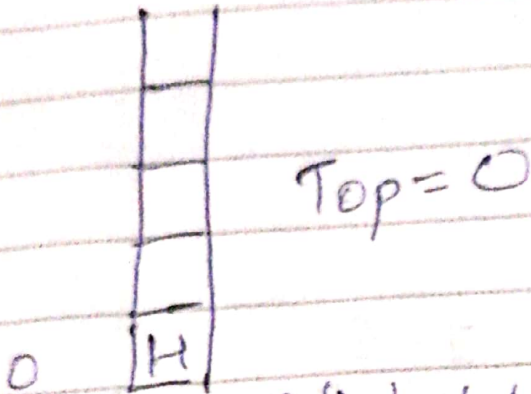
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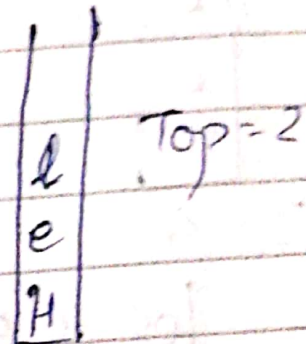
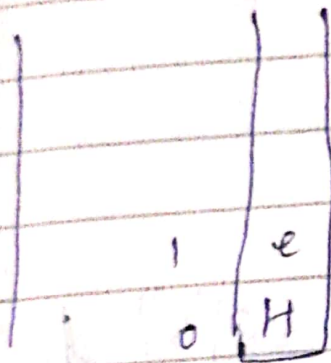
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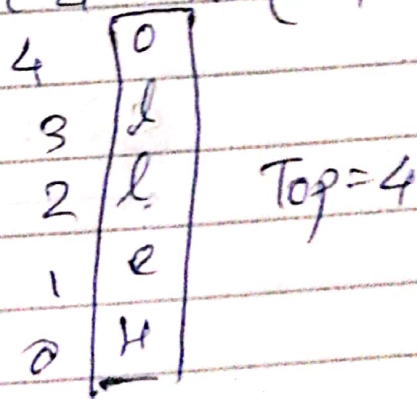
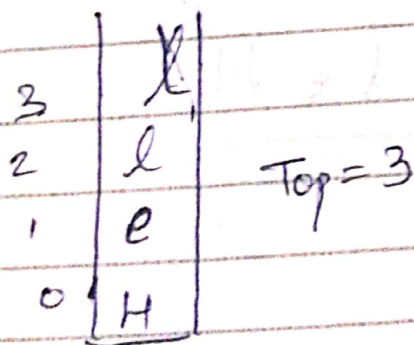
~~i = 0~~  $i = 1 \rightarrow \text{Push}('H', \text{stack})$



$i = 1 \rightarrow \text{Push}('e', \text{stack})$   $i = 2 \rightarrow \text{Push}('l', \text{stack})$



$i = 3 \rightarrow \text{Push}('l', \text{stack})$   $i = 4 \rightarrow \text{Push}('o', \text{stack})$



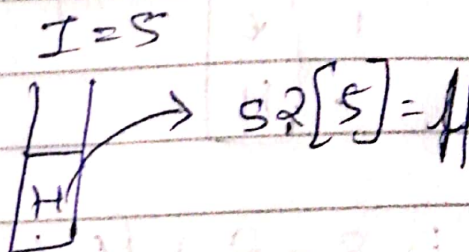
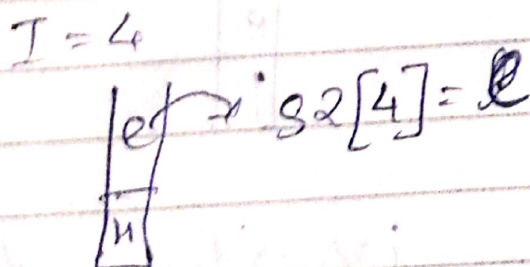
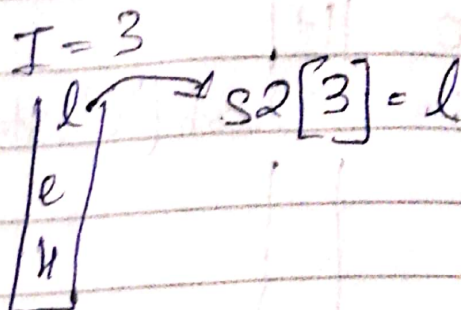
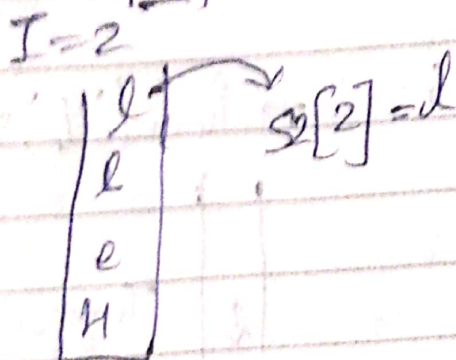
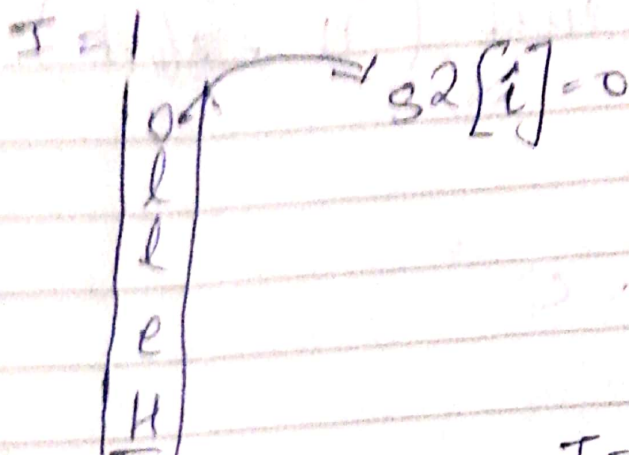
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$s2 = "olleH"$