上.
The state of the s
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y

5)	S. Size() - Returns no of elements present
	in the stack.
	SOCIO DE LA COLONIA DE LA COLO
- 17	Creation of stack using STL #include <stack></stack>
	#Include <stack></stack>
	int main () {
4	Stack < int>S j // Stack Storing integer  data.
	Here we have created stack with name as
	Printing a stack
	Printing a stack There is no index based accessing in the stack.
	S C C IX
	while (   s. empty()) { // Run until stack is
d	cout << s. top (); // Print top element
	5. pop () > // Remove element
	3
	The state of the s
	30 0/p - 30) Revenue ordan
9 11 10	The voice or der of
	20 20 insertion.
<u>.</u> , .,	Hence stack can be used for reversal
	Operation.
	Implement Stack
	Ve need to implement operations such as
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bush, pop, top, size and empty.
Push operation
0 1 2 3 4
top = -1
Two scenarios - space available - insert
Space not available → Stack overflow
insert = increment top
arr [top] = element
How to check where there stack has space or
not? 9f size - top >1, then space available
else not available.
EISE 170C GVAGGEIC
void push (int data) {
if (size - top>1) {Space available
top++;
arr [top] = data;
3
else t
cout << "Stack overflow" << endli
3
5
Pop operation 123
Ttop
Two scenarios - Stack empty - underflow
Stack not empty - top
top = = -1, then stack is empty else not
empty.

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	void pop () {
	//Stack embty
	//Stack empty if (top = = -1) {
	cout << "Stack underflow";
	3 Commence of the commence of
	else { //Stack not empty
1.74	topi
	3
	3
-	and the standard and done the
	Peek operation
<u>5 I)</u> ,	If stack is empty, then topmost element
	does not exist.
೪)	Else simply cout over [top].
	void get Top () {
	// Empty stack
	If (tob = = -1) {
	cout << " Stack empty";
	elco f // Porint lat a
	else { // Print top element
	Cout << arr [top];
	2
	getSize operation
	tour poid elements in the
	tere no of elements in the Stack should
	0   2
	123
	Ttop
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	no. of elements = 3 i.e top+1
	int getSize(){
	return top+111 and many
i ja	3 200 to 300 to
	3 Calvind James
dia Ala	is €mpty operation
142	bool is Empty () {
	if(tob = = -1)
	return true; //Stack is empty
	3
	return false; //Stack is not empty
1.5	3
	Ladah - Habib anu
$\Omega$ I	2 stacks in an array.
	We are required to implement 4 functions i.e.
	pushl, pusha, popl, popa
	weight and a lang trail
	Brute force
	Dividing the away into 2 half but this will
	lland to come memory wastage as one stack
	Thead co some tilled but other stack is not full
	might get filled but other stack is not full l we are trying to push in full stack & it
	we will right but stack has available
	Says overflow but stack has available
	space.
	Ollin a physoch.
TET!	Optimal approach
	top2=size
	topl=-1) Stack2
	Stack 1 and Stack 2 are full when top2-top1
	Stack and stacks out for the copy copy

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`	
(ı)	Push operation =
	Space not available = top2-top1 == 1,
	then can't insert
	p) int data
	void push! (1) {
	//Space not available
	1f(tob2 - tob1 = = 1)
	cout << "Overflow"
<u> </u>	//Chaca averia 11
	//Space available else f
	tobl++;
	avr [tob]] = data;
<b>9</b> 1	3 register to the transfer of all 28 miles
	C 10 Edod Idea Salar In over
<u>(၃)</u>	Pusha operation
	1 (2) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1
	Void pusha (int data) {
<u> </u>	//Space not available if (top2-top1 ==1) {
i	cout << "Overflow";
	3 STORE TOWN
	//Space available
	else {
	top2 ; //Stack2 to be filled !
	top2 ; //Stack2 to be filled from  aur [top2] = data; right to left
	1 Super 10 s
	Time complexity = O(1) -15
1 4	Time complexity = O(1) -> For both push! & pusha

ocanneu wini **c**am

(3)	Pobl operation					
	topl==-1, then stackl is empty					
	and the state of t					
	void popl() {					
	//Stack empty					
	if $(tobl = = -1)$ {					
	cout << "Underflow";					
	3 Indianate biox					
	else { // StackI not empty					
	tobli rakunda danda					
	Man 3 water and one of the state of the stat					
	3					
	- Carrelanders					
(4)	Pobl oberation					
(4) Pop2 operation top2 == size, then stack2 is empty						
17/1	2/29 1/2 2 2 2 2 1/1/2 2 1 1 1 1 1 1 1 1 1 1					
	void popa () {					
	//Stacka empty					
	if (top2 = = size) {					
	cout << "Underflow";					
	3					
	else { //Stack 2 not empty top2++; //As stack is filled from					
	top2++1//As stack is stack grown.					
	3 right to left					
	3					
	D(1) -> Fox both bobl & bob?					
	Time complexity = O(1) -> For both popl & pop2.					
	atrice with helb of stack.					
Q2	Reverse a string with help of stack.					
	i/p → "bhavya"  0/p → "ayvahb"					
	O/P / OJ.					
	Scarnicu Willi Ca					

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	Simply add each character into the stack.					
	After inserting all the characters print the					
	top and pop until stack does not become					
	empty.					
1 /	Code					
	The state of the s					
	void reverse (string str) {					
	0					
	Stack < chan>S;					
	for (int i=0) i <str length();i++){<="" td=""></str>					
for (int i=0; i <str. add="" characters="" i++){="" length();="" simply="" stack<="" td="" to=""></str.>						
	S. push (Str[i])					
	3 Clarent Carlo					
	While (Is empty ()) {					
	cout < <s.top();< td=""></s.top();<>					
	S. pop();					
	2					
Ω3	Find the middle element in the stack					
W 3	THE THE THE SECTION OF THE SECTION O					
	70					
	60					
	50					
	40 + middle					
	30					
	20					
	10 glid din junt					
	Approach using the constitution					
	Here we will be using the concept of stack.					

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classmate

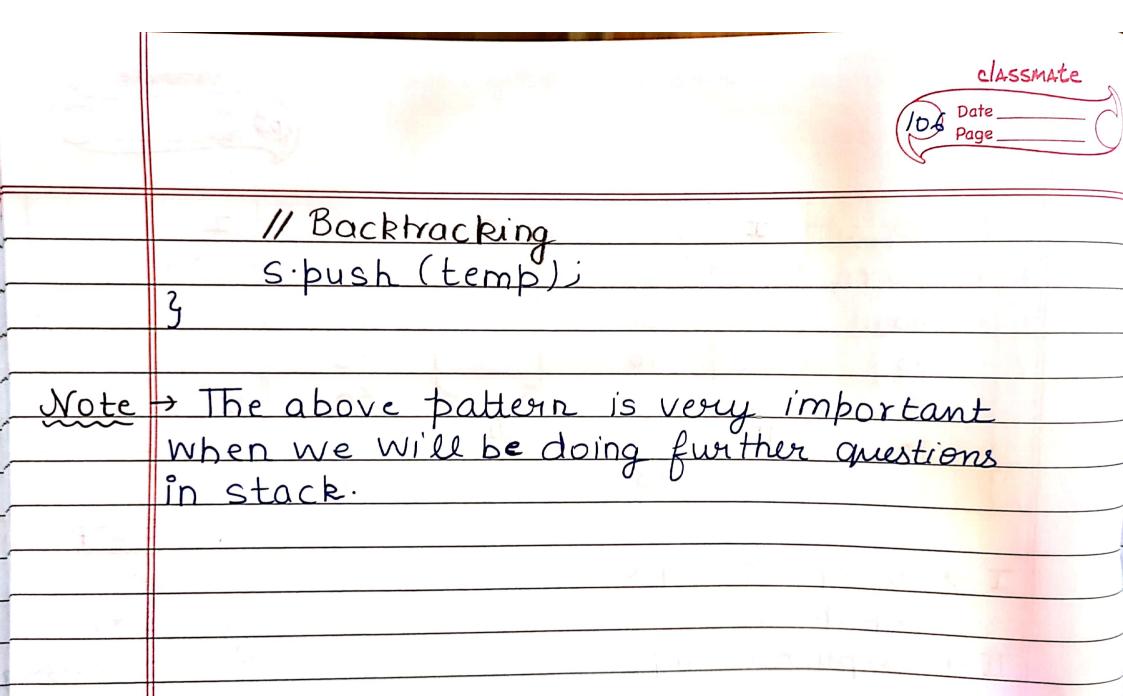
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	60	60		0 00			
	50	50		50			<u> </u>
	40	40		40		40	
	30 4 704	30		30	I	-30 N	
	20	II 20		20	00 11	20	
	10	10		10	1	10	
						Stop	
	I > tem	s = S. top ().	,			2	
	5.00	();		to	<u>stal Si</u>		
	II - S. bu	sh (temp);			2	= = Si3	
d)		•			orint	s.top(	ر و (
	Code					<del></del>	
						7 1 .	
	Void pri	nt Middle (s	stack S	int> 45	Int	: 4 tota Size)	<u>(</u>
	// Empty case if (s.size() = =0) {						
	15 (	cout << ^		nent" j			
		retwin					
	3						
	1/120	use case				1	
	if (	+ntalSize/=	1+1 = =	S.SIZE(	<u>.                                    </u>		
		cout << "	Middle	element	= " <	<s.top< th=""><th>زن</th></s.top<>	زن
	returni						
	2,						
	1/Operations						
	int temb = s. tob(),						
	$S\cdot bob()i$						
	1/ O - CUMINE COUL						
_	print Middle (S, total Size) i						
	- II						

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