	23/06/2023 - 1000 1002 10000 100
	s of traps situation
	Shortest distance concept
	SYC
	5
	(1) (6) (1) (A = (1) (1)
	1 4
į	1= pals (2) 1 man 1 man and an
	3 destination
	that bring land I a whole to the
	0-1-2-3
	0-1-2-3 0-6-3 3 Shortest
. 74.	20-15-14-13 into haid all all all all all all all all all al
<u> </u>	Dodlodal River on the Panadr of the same
(1)	Using BFS
	A node is having shortest bath when
	A node is having shortest path when it is visited first time.
	A TOTAL MATERIAL STREET STREET STREET
	6 - 3 (it is planted in the file of
	l → 2 → 3
	5-14-13 Hazara July Driving burd
-	7 :- : :
	3 is visited first from node 6 and hence this will be the shortest path.
	This will be the shortest bath.
W.	
	Dry run
7	
÷.	(5)
	$\begin{array}{c c} \hline & \hline $

Classmate

Ball Date Page

top	Page
	Parent
	VISITEOL
	0 - 1
	1+0 ET
	2 + 0 2 + (1) what 2 + F Take
	3+0 () drawl D = photo - 3+ 87
	4+ 7
	5727 de 1 de
	6-3 (1) 2x 12 m man Joseph 2 m 1) 6-7 FT
	((derire and daud p
	queue - {0,1,2,3,4,5,63
aboy	thend = i derin excitat deservi
	parent + {-1,0,0,0,1,2,33
	dest = 5
	parent of 5=2
	5 → 2 (+20) = 100 +11
	Now parent of 2 150
	5-12-10 3 simply reverse the answer
	1 If about the way a stage
	Hence Shortest Bath > 0 →2 7 5
/5	
Lote	This concept will be valid for same
	weights on all edges.
/	Code
	(int syc. int dest) {
	Void Shortest Path (int Src, int dest) {
	que <int>q; unordered_map <int, bool=""> visited; unordered_map <int, int=""> barent;</int,></int,></int>
	unordered_map (int) parent;
	Scarifica With Car

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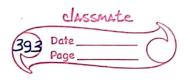
	// Initial steps for source node			
	q. push (src);			
	visited [src] = true;			
	parent [syc] = -1;			
	while (q.empty()) {			
int front Node = q. front ();				
	9.000();			
	for (auto nbr: adjlist [frontNode]){			
	if (Į visited [nbr. first]) {			
	q.push (nbr.first);			
	visited [nbr. first] = true;			
	parent [nbr.first] = front Node;			
	CE, 3 d Sion Onland duamond			
	7.			
	J Control of the state of the s			
	// Parent avoiay is ready			
	vector <int>ons;</int>			
	int node = dexti			
	While (node != -1) { 10 + 10 + 10 }			
	node = parent [node];			
	3			
	JELEN E HOLD TANDONE MOUNT			
	reverse (ans begin () = ans end ());			
	reverse (ans begin (), ans end ()); for (auto i : ans) cout << i << " ";			
	cout << 1' << " ";			
	3			
10	Time complexity - linear			
Lote →	Time complexity - linear grantead of using vector, we can use			
	Stack also.			
	duarned start dolla trade present			

iii	Dir	Directed graphs (DFS)					
	9		. gl = (4,8			dest	
		_ ~ (1)-3		3)		
		5 Ans =(8)					k
		(0)	2 5		1	<u> </u>	
	1	3	1 / 2/2 2 1		2	Shortest	path
	SYC	2)	——————————————————————————————————————	4)	distance	
×		2 B & B & B & O b & + 2 c b d d d					
		dfs(o)					
		,	4	\searrow		<u> </u>	
			dfs(1)	(dfs(2))	
1.1	(int	do pata	4/11-1	71) Atı	<u> </u>	genā liowi	- ;
			4	<u> </u>	4 10.	<u> </u>	
144		d	fs(3)		fs(3)	dfs(4)	
		FLXAW	O FINE	1 dist	(din!)	1 Vector	
		, O	Mitop (de	s be Bud		265 7W - 2 m	
	z 1 - 23°-	2	1. 1. 1.	() dod	<u>- 139 Liv</u>	Till I	
	7 1 7 1	4		distance	z arrio	8 9	
		4.0	actions	1 Ø 1	00 0	5 0 0	
	1.50	3	15000000 PH	0	1 2		
4		$\gamma c] = 0$	100 510	12111.10	117.15.10	42	
<u>*</u>	Pic	R 0.	V	- A - L - + ()	- Lain-4	LA AMONDO	
100							
	A CO	3 2					
*	Pic	k-211	= IT drawn	al harm	7 4 11/2		
120	(C) 3 1 4 A	and the second	221	10 0 3	+2 = 5	(no update)	
		36		3	3+5=8	(update)	
)/	A Draw	in it is a similar	6, 4	1) gers) 3	+6=9	(update)	
)			(jor it.	· Yaka U			
*	Pic	R 4.	, it tourd	. 5401	2216	- 1	
			Lennos	e rand		. N. GIIII EU VVI	

	(240) MARRY 100 1971 (T. 1)
	(9 4 ± 3 9+1=10 (no update)
*	Pick 1.
	3
,	5+3=8 (no update)
	dist - 10,5,3,8,93
	Code
	with which will be a second of the second of
	void shortest Path (int dest, stack (int) &
	topoOrder, int n) {
	(4) 2(3) dis(4)
	vector (int) dist (n, INT_MAX);
	int src = topoOrder·top();
	topoOrder.pop();
	dist [src] = 0 intel
	for (auto nbr: adj'List [0]){
	if (dist [0] + nby. second < dist (nby. first))
	dist (nbr.first) = dist [0]+nbr. secondi
	3
	while (I topo Order · empty ()) ?
	int top Element = topo Order · top()
	topoOrder.pop();
	if (dist [top Element] = INT_MAX) {
	for (auto nbr: adjlist [top [lement])
	10 (1 in 17)
<u>, </u>	if (dist [top flement] + nbr. second <
	dist[nbr.first]){
	dist[nbr.first] = dist[top Flement] 2 + nbr. second;
	Julinea Willi Cam

		Page
	9 5	
	©6 2 3	e e e e e e e e e e e e e e e e e e e
	14	
	Now We WI	Il pick 2 distance, node = 3
	9/1	2+9=11 (Update)
(2	3 = 11 4	2+11=13 (update)
	10 2	2+10=12 (update)
	2/6	2+2=4 (don't update)
	C 1 (C 1 1	minter air services and
	Set -) (1119	13, {9,53, {12,23, {13,43}}
	2	4 picked
	9 6	9+9=18 (no updation)
	5 4	9+6=15
		1, {12,23, {13,43}
	1 h	cked
27.0	14/6	11+14=25
	1 9 3	
	7 2	$\frac{11+9=20 \text{no updation}}{11+7=18}$
		5 THE TOTAL STATE STATE OF THE
	Similarly	We need to herform the 100
	Steps until	we need to perform the same set is not empty.
		2/1 11 21 12
·?.)	Code	sego list has to a set with the
_	Void dig R	stra Algo (int src, int n) {
	Vector	stra Algo (Int src, int n) { Kint> dist (n, INT_MAX); ux kint, int>>st;
(Set < po	syc] =0;
	CL L'DO	vit ({0, src3);
	5t. (1)5t	(Ichaemil ())
	// Fetch	(Ist.empty()) { Smallest distance element
		silvus austance element
	II .	

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```
auto tob = * (st. begin());
 Int node Distance = top first;
 int node = top second;
 // pop from set
 St. erase (St. begin ());
// Traverse neighbour
for (auto nby: adjlist [node]) {
    if (node Distance + nbr. second < dist [nbr.
     first]){
   //updating distance
  // finding entry in set
      auto result = St. find ({dist (nbr. first),
                                 nby. first 3);
      // if found + delete
      if (result != st.end())
          5t. erase (result);
     // Update in dist away & set
      dist [nbr first] = node Distance + nbr second;
      st. insect ({dist[nbr.first], nbr.first]);
cout << "Printing away << endl;
for (int i = 0 ; i < n ; i++)

cout << dist [i] << " ";
```

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