



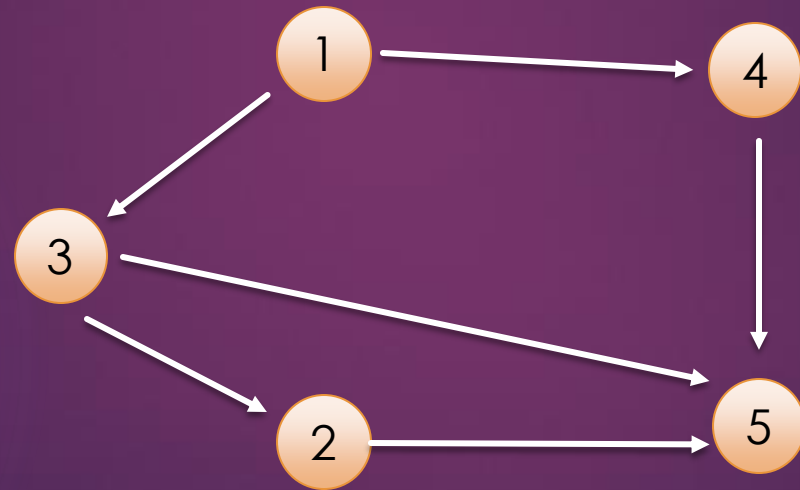
ROBOTICS CLUB

PRESENTS

VISION 2.0
WORKSHOP 3
BREATH FIRST SEARCH

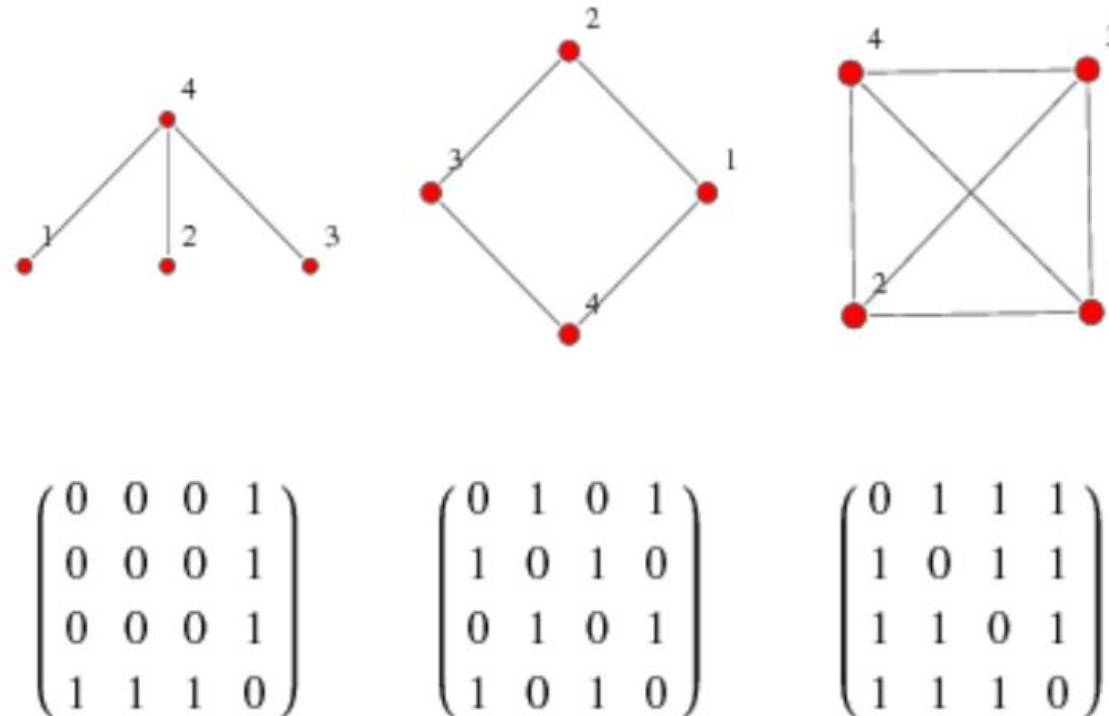
Graph:

- A COLLECTION OF ENTITIES THAT WE CALL NODES CONNECTED TO EACH OTHER THROUGH A SET OF EDGES.



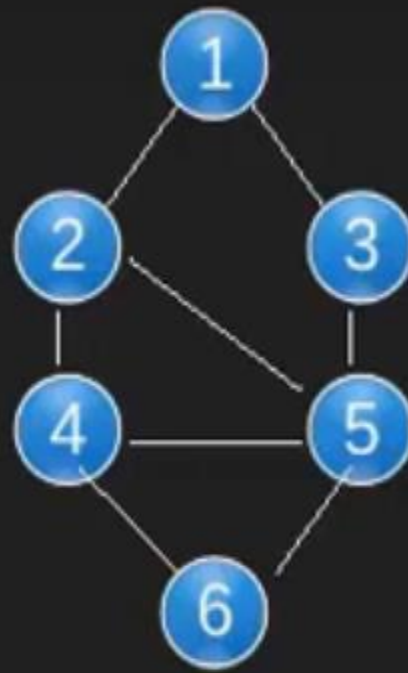
Adjacency Matrix:

- ▶ The adjacency matrix, sometimes also called the connection matrix, of a simple labeled graph is a matrix with rows and columns labeled by graph vertices, with a 1 or 0 in position according to whether and are adjacent or not.



BFS:

- REPRESENT THE GRAPH USING ADJACENCY MATRIX.
- MAKE VISITED ARRAY TO KEEP TRACK OF ALL VISITED ELEMENTS.
- QUEUE TO TRAVERSE IN THE GRAPH.
- PARENT ARRAY TO KEEP TRACK OF ITS PARENT ELEMENT.



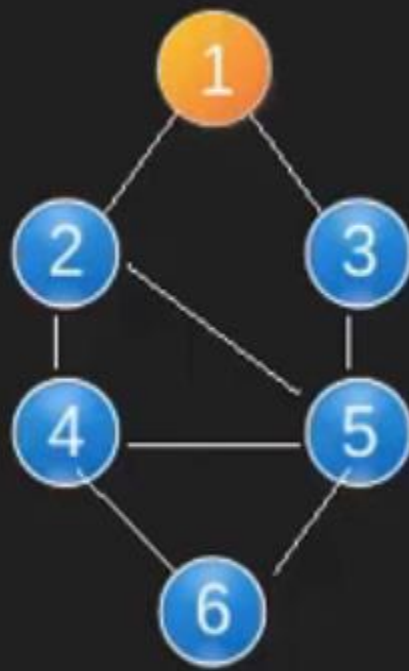
Visited :

1	2	3	4	5	6
0	0	0	0	0	0

Queue :

PARENT :

-1	-1	-1	-1	-1	-1
----	----	----	----	----	----



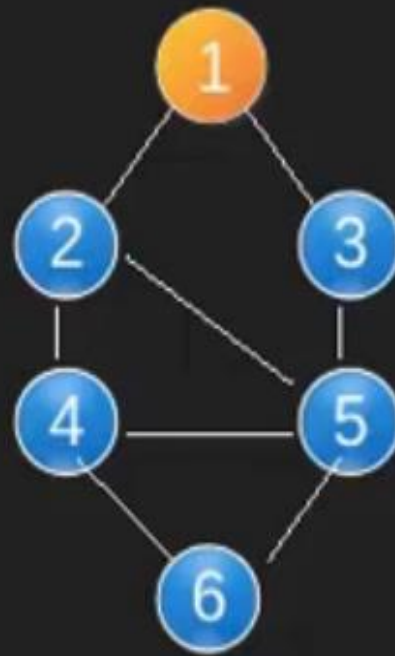
Visited :

1	2	3	4	5	6
1	0	0	0	0	0

Queue : 1

PARENT :

-1	-1	-1	-1	-1	-1
----	----	----	----	----	----



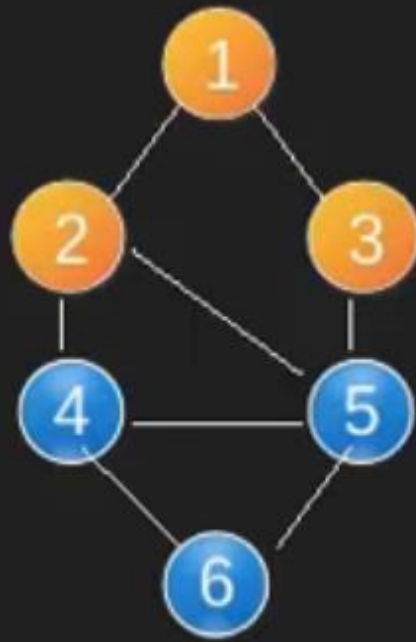
Visited :

1	2	3	4	5	6
1	0	0	0	0	0

Queue :

PARENT :

-1	-1	-1	-1	-1	-1
----	----	----	----	----	----



Visited :

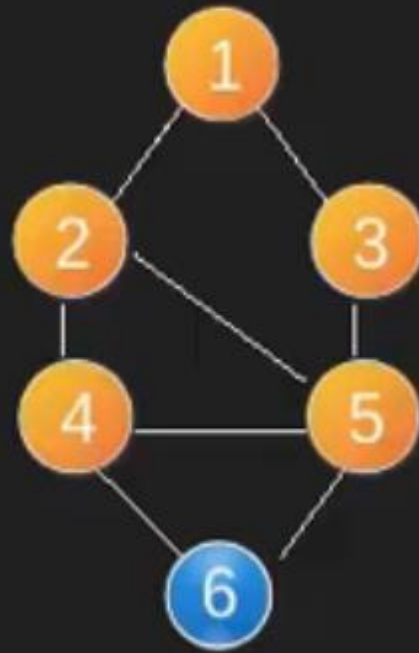
1	2	3	4	5	6
1	1	1	0	0	0

Queue : 2 3

After removing 1 from queue and printing it, we enqueue its non-visited adjacentNodes

PARENT :

-1	1	1	-1	-1	-1
----	---	---	----	----	----



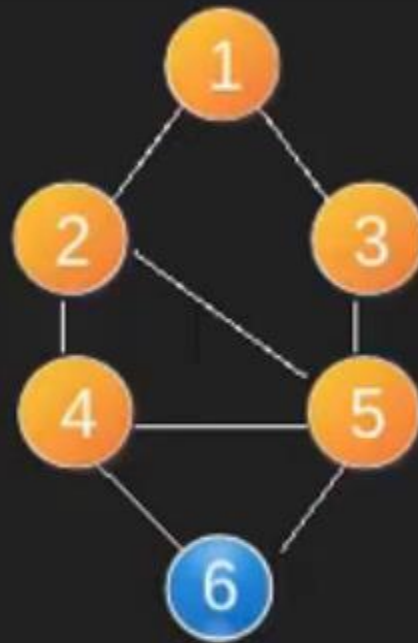
Visited :

1	2	3	4	5	6
1	1	1	1	1	0

Queue : 3 4 5

PARENT :

-1	1	1	2	2	-1
----	---	---	---	---	----



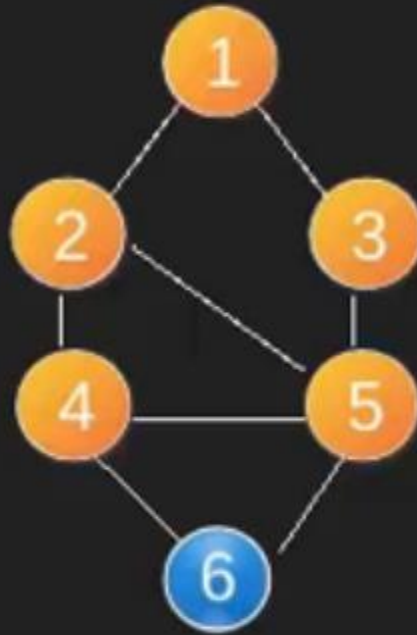
Visited :

1	2	3	4	5	6
1	1	1	1	1	0

Queue : 4 5

PARENT :

-1	1	1	2	2	-1
----	---	---	---	---	----



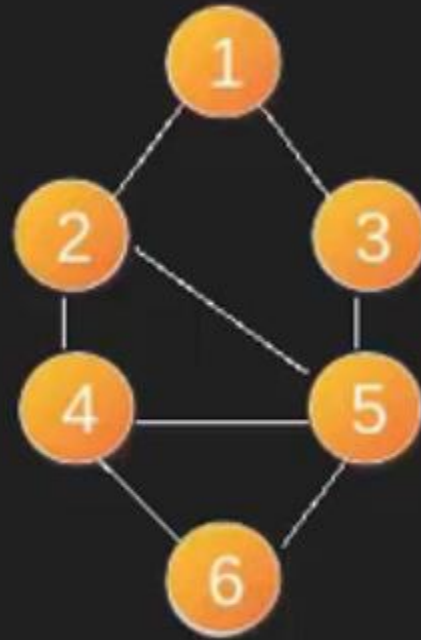
Visited :

1	2	3	4	5	6
1	1	1	1	1	0

Queue : 5

PARENT :

-1	1	1	2	2	-1
----	---	---	---	---	----



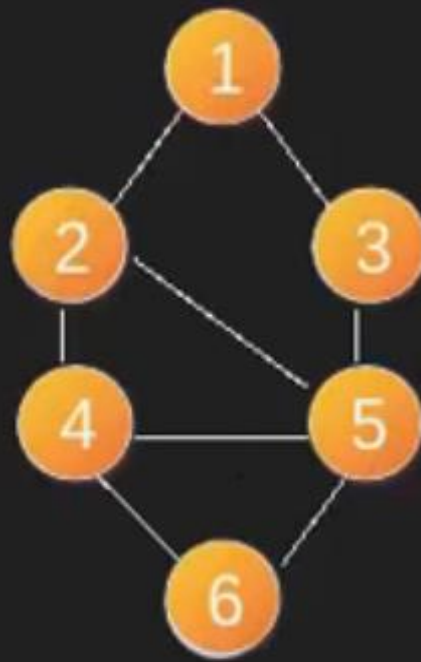
Visited :

1	2	3	4	5	6
1	1	1	1	1	1

Queue : 5 6

PARENT :

-1	1	1	2	2	4
----	---	---	---	---	---



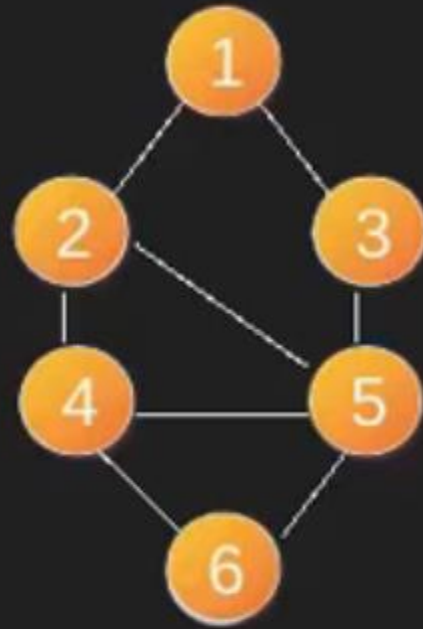
Visited :

1	2	3	4	5	6
1	1	1	1	1	1

Queue : 6

PARENT :

-1	1	1	2	2	4
----	---	---	---	---	---



Visited :

1	2	3	4	5	6
1	1	1	1	1	1

Queue :

PARENT :

-1	1	1	2	2	4
----	---	---	---	---	---


1 2 3 4 5 6

PARENT :

-1	1	1	2	2	4
----	---	---	---	---	---



SO THE PATH WILL BE 1 -> 2 -> 4 -> 6.



1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

SO IF ARENA IS OF 6x6 THEN ADHACENCY MATRIX
WILL BE OF 36 x 36 AND THERE WILL BE TOTAL 36
NODES.