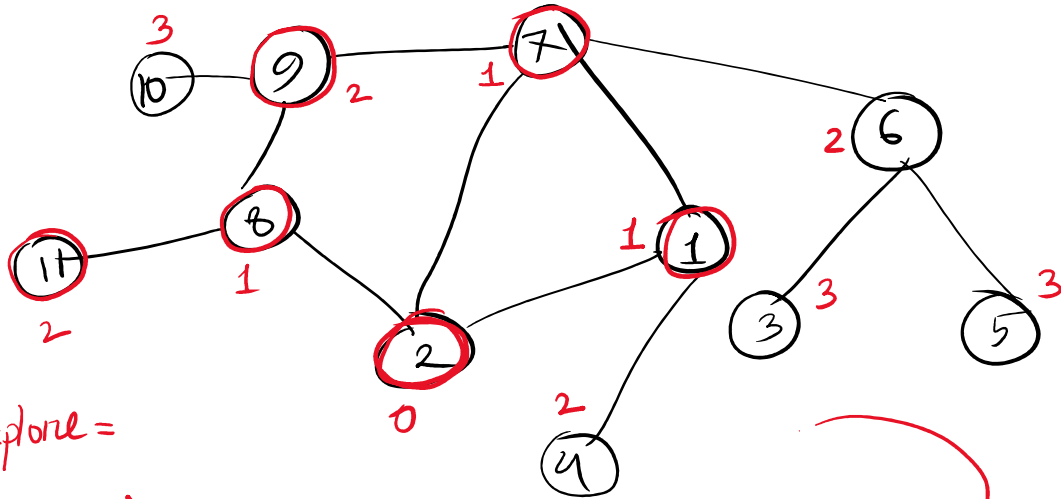# BFS → Breadth First Search

0-1 BFS

dist

0 → 2 ✓

1 → 8, 7, 1 ✓

2 → 9, 11, 6, 4 ✓

3 → 10, 3, 5 ✓

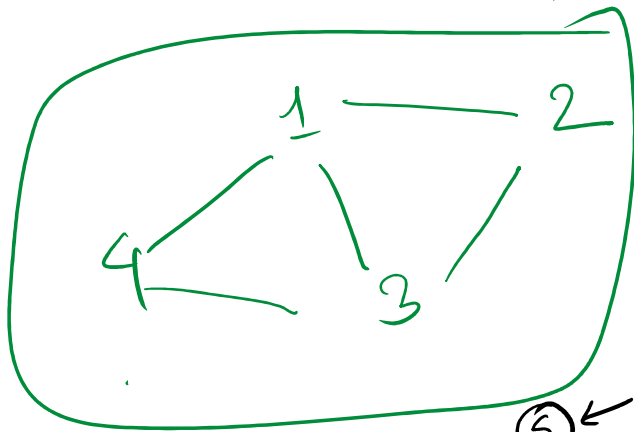explore =

11, 9, 6, 4
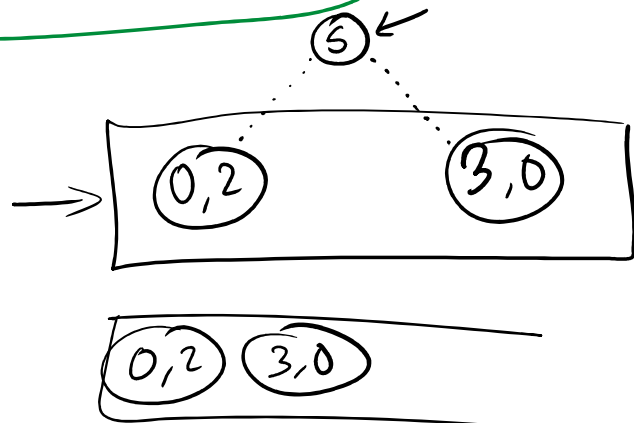
N   M

20   5

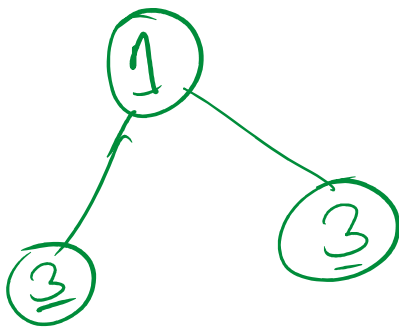| 1	2
1	3
1	4
1	4
3	4
2	3

1	3
1	10
1	20
1	20
10	20
3	10

1   3   10   20
↓   ↓   ↓   ↓
1   2   3   4

3	×	5	1
2	2	1	×
1	×	2	×

1	×	2	×
Ⓖ⁻	×	3	4

Ⓖ⁻ ③

(0,2) (3,0)

$-1, 0, 1, \boxed{0,-1}$

UP, R, D, L

R-1,C

R,C-1 | R;C | R,C+1

R+1,C

$(-1,0)$

$(0,-1)$ · $(0,1)$

$(1,0)$

$R + (0)$
$C + (1)$