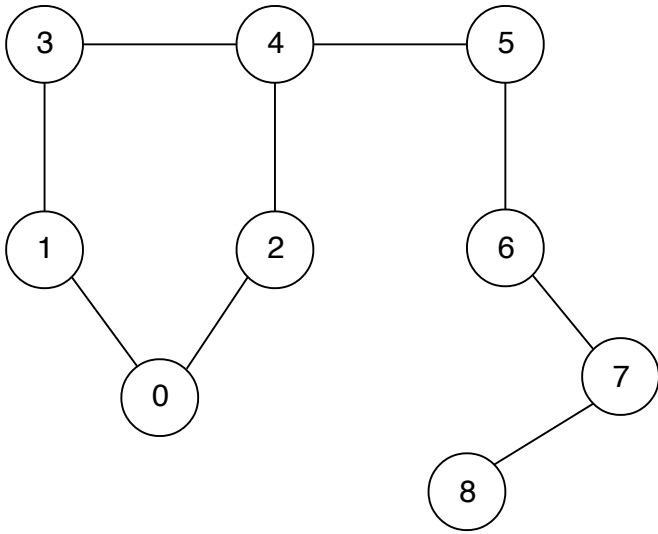
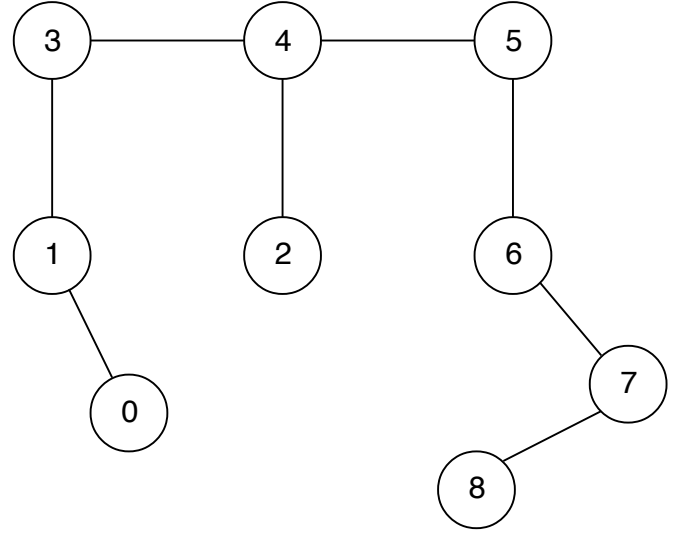


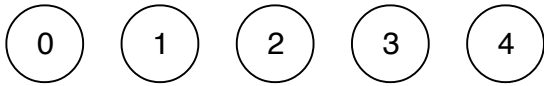
Graph contains Cycle



Graph does not contain Cycle

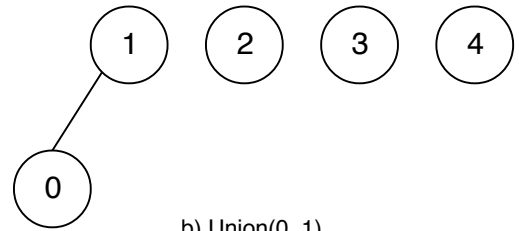


Naive Union



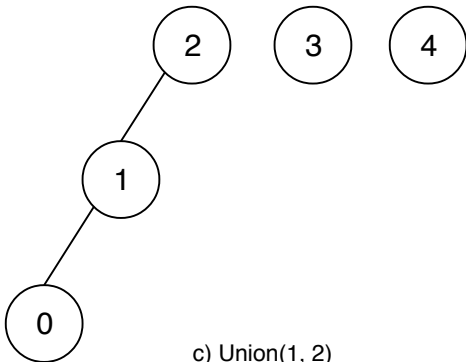
a) Initial

0	1	2	3	4
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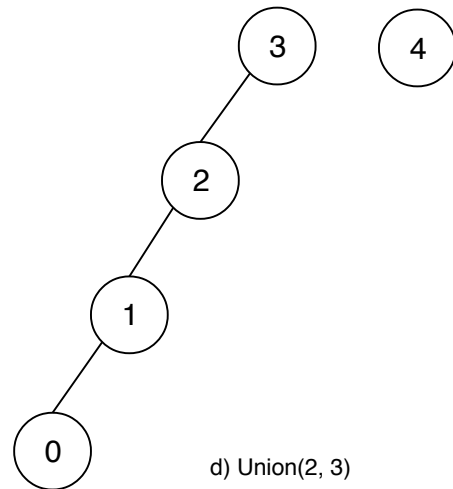
b) Union(0, 1)

1	1	2	3	4
---	---	---	---	---



c) Union(1, 2)

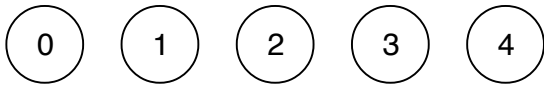
1	2	2	3	4
---	---	---	---	---



d) Union(2, 3)

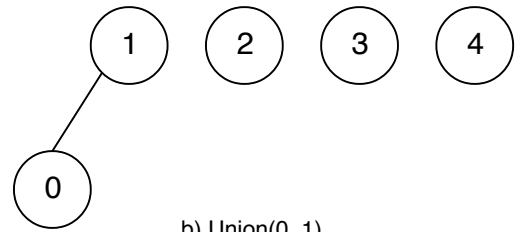
1	2	3	3	4
---	---	---	---	---

Union by Rank



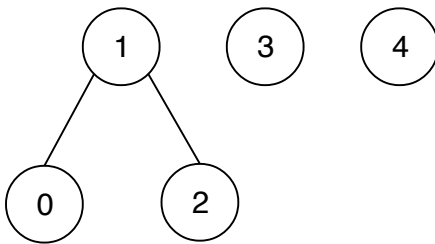
a) Initial

0	1	2	3	4
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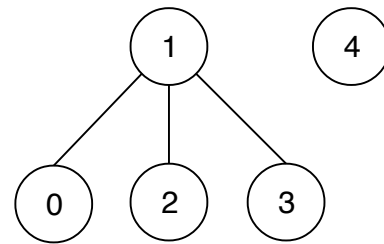
b) Union(0, 1)

1	1	2	3	4
---	---	---	---	---



c) Union(1, 2)

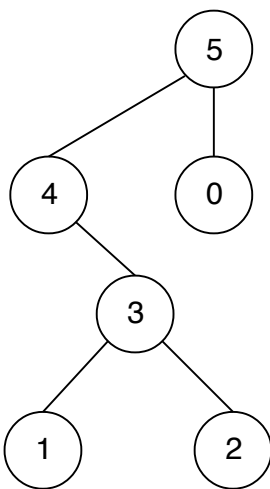
1	1	1	3	4
---	---	---	---	---



d) Union(2, 3)

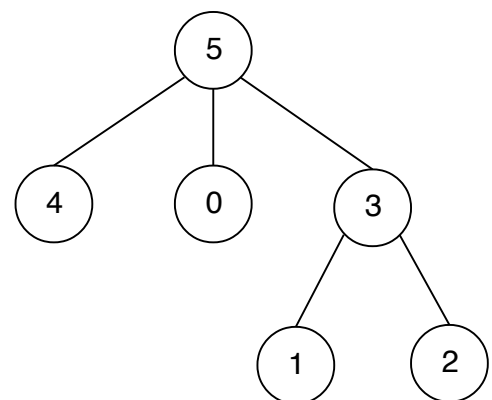
1	1	1	1	4
---	---	---	---	---

Path Compression



a) initial

5	3	3	4	5	5
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b) Find(3)

5	3	3	5	5	5
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