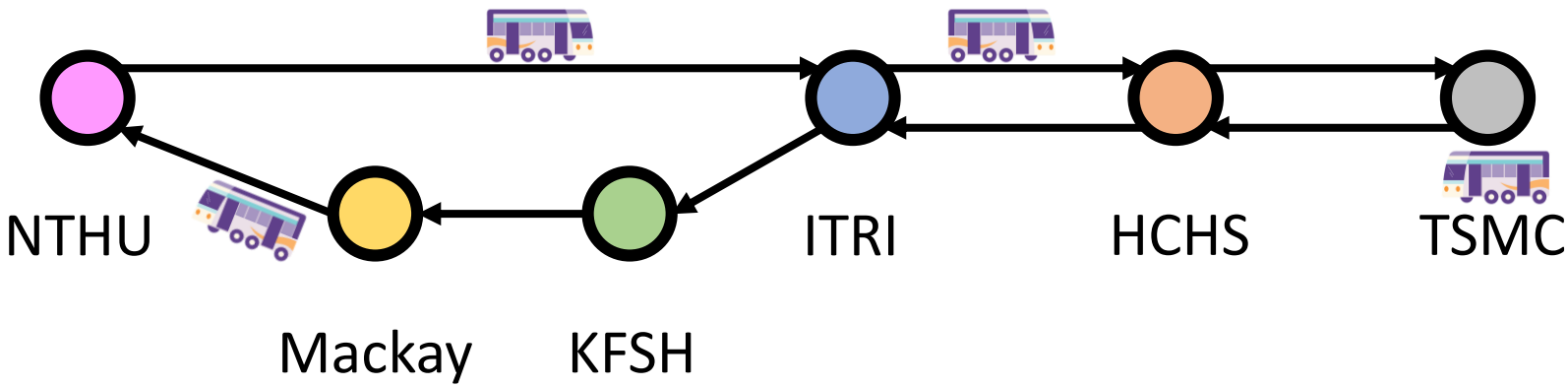
Bus Route Editor

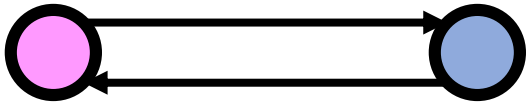
EECS Data Structures, HW3, 2019 Spring

https://acm.cs.nthu.edu.tw/problem/12206/



Bus Route Editing Operations

- **INSERT** (src, dst, new, method)
  - src: the name of the source bus stop
  - dst: the name of the destination bus stop, which is next to the src stop
  - new: the name of the newly added bus stop
  - method:
    - 1: insert the new stop in between **src→dst**
    - 2: In addition to **src→dst**, also insert the same stop in between **dst→src** **if appropriate**
- **DELETE** (name)
  - Delete the named bus stop

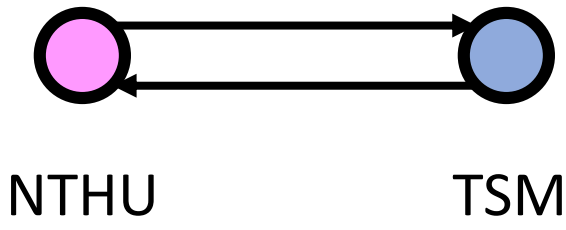


NTHU TSMC

src, dst, new, method

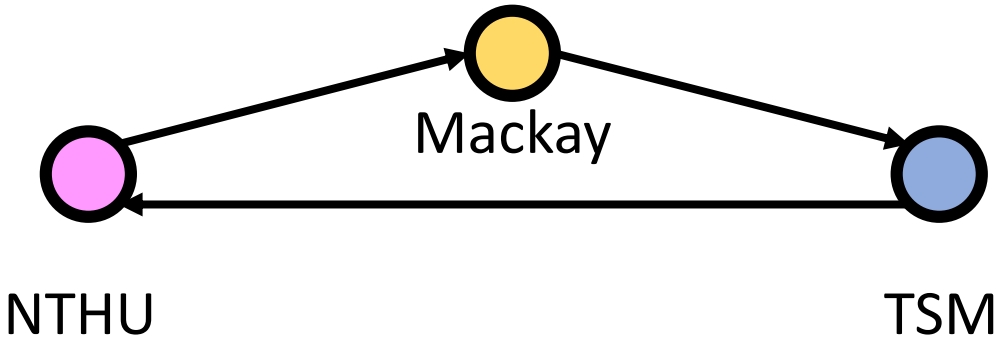
Insert (NTHU, TSMC, Mackay, 2)
or
Insert (TSMC, NTHU, Mackay, 2)

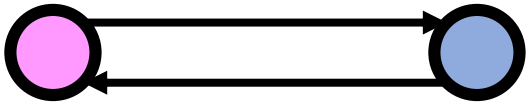
NTHU Mackay TSMC



src, dst, new, method

Insert (NTHU, TSMC, Mackay, 1)

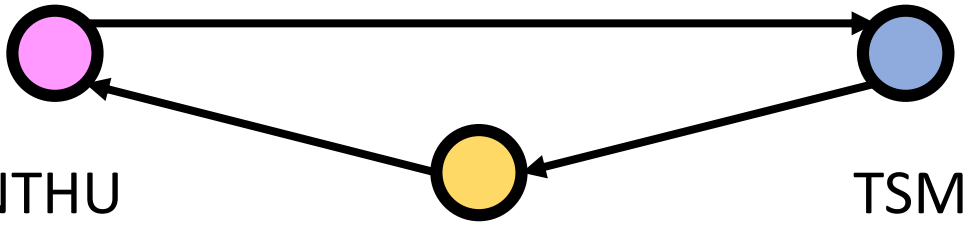




NTHU TSMC

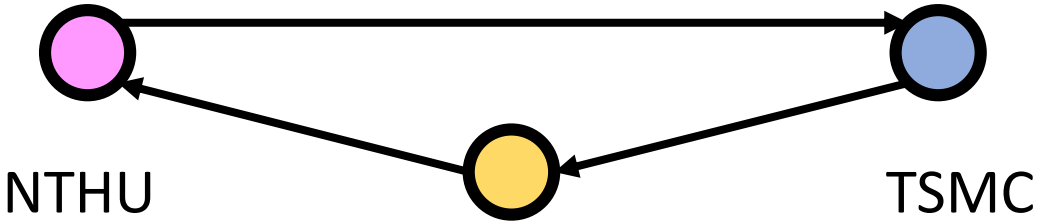
src, dst, new, method

Insert (TSMC, NTHU, Mackay, 1)



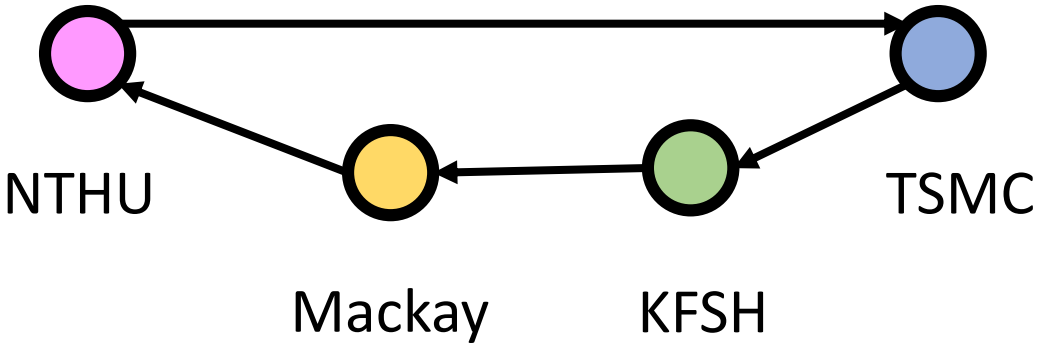
NTHU TSMC

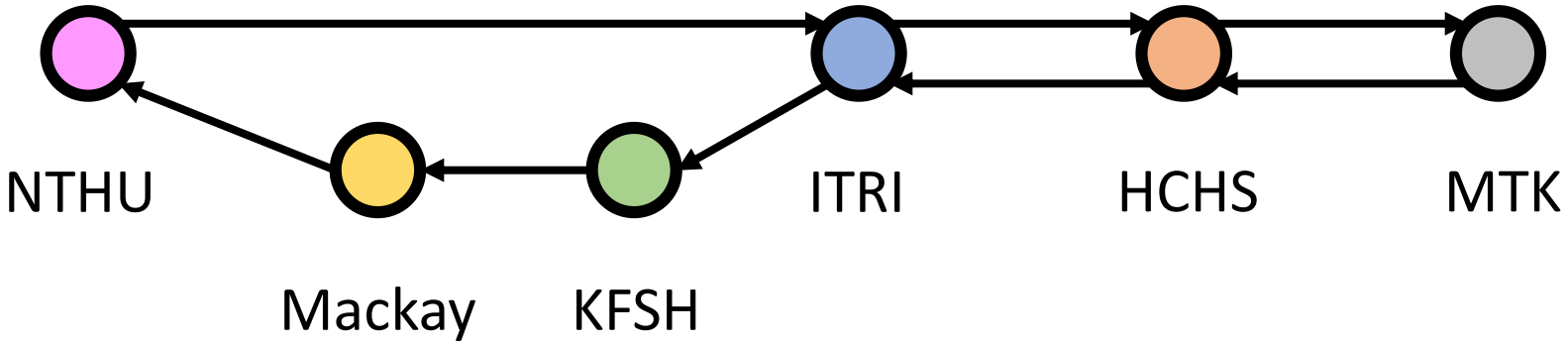
Mackay



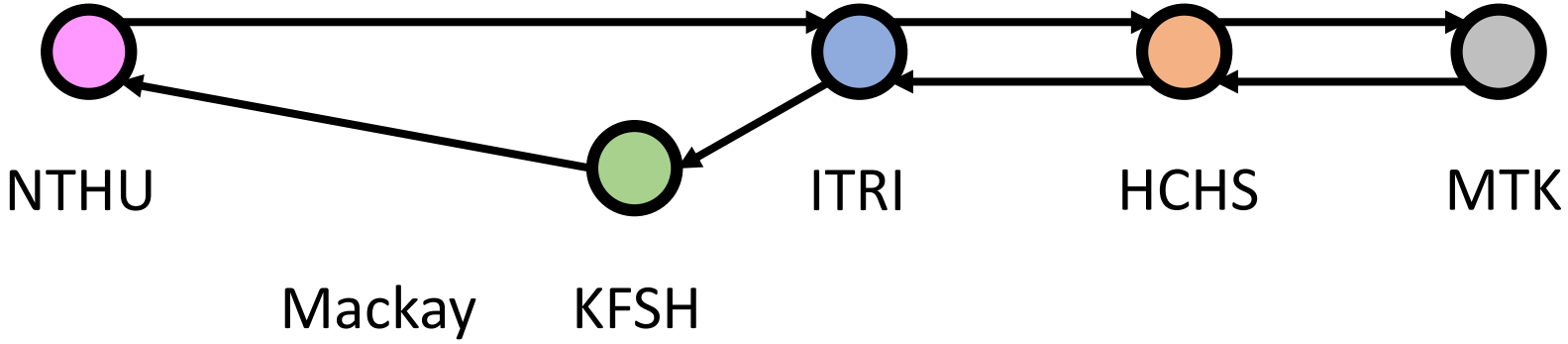
src, dst, new, method

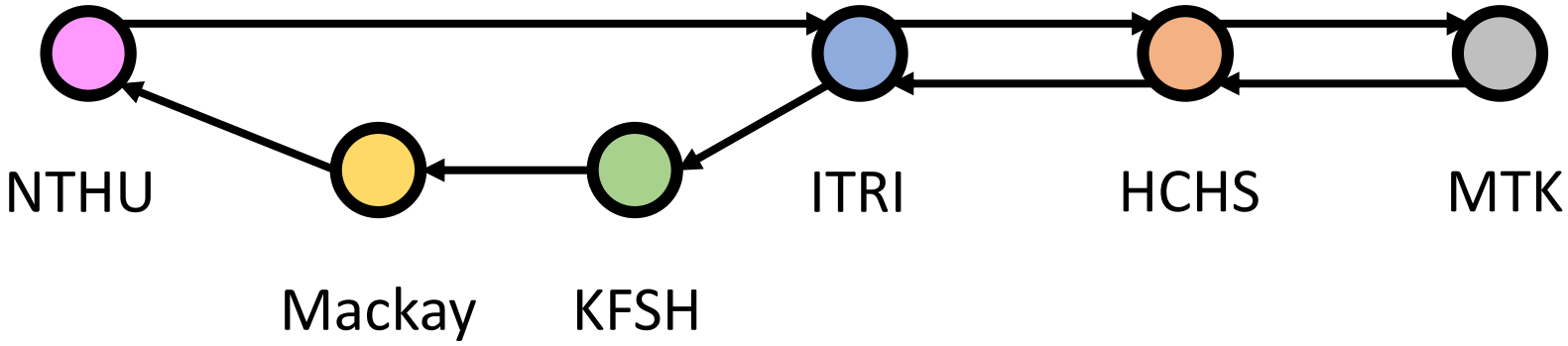
Insert (TSMC, Mackay, KFSH, 1)
or
Insert (TSMC, Mackay, KFSH, 2)



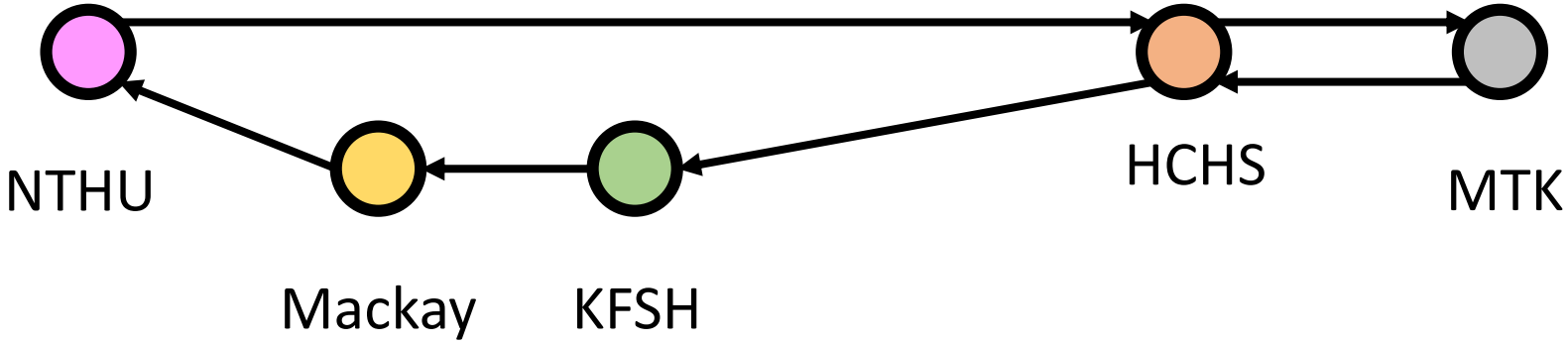


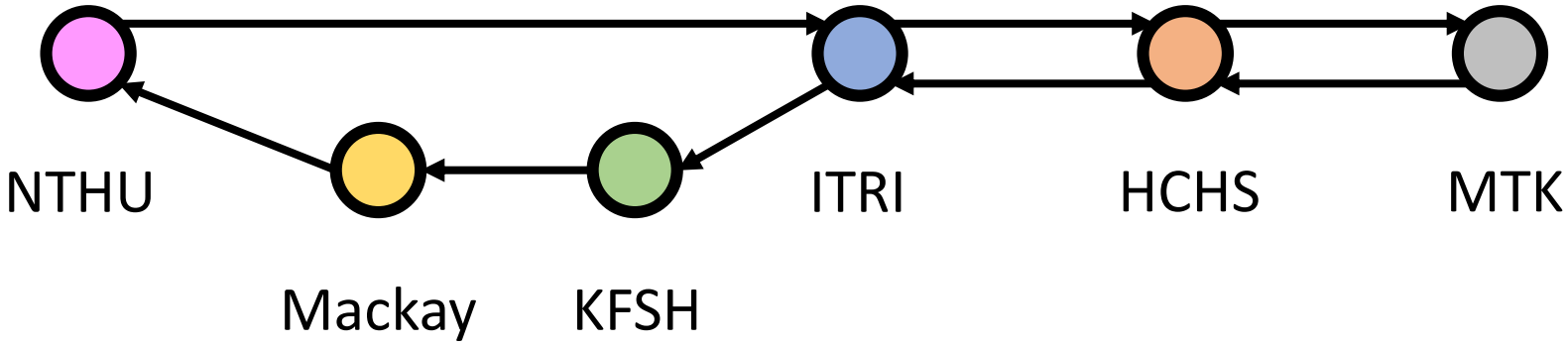
Delete (Mackay)



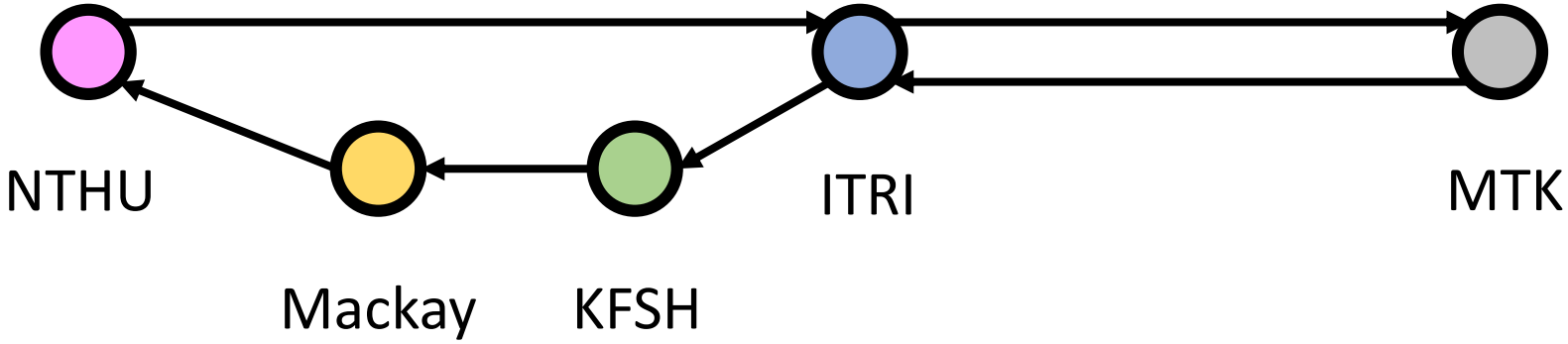


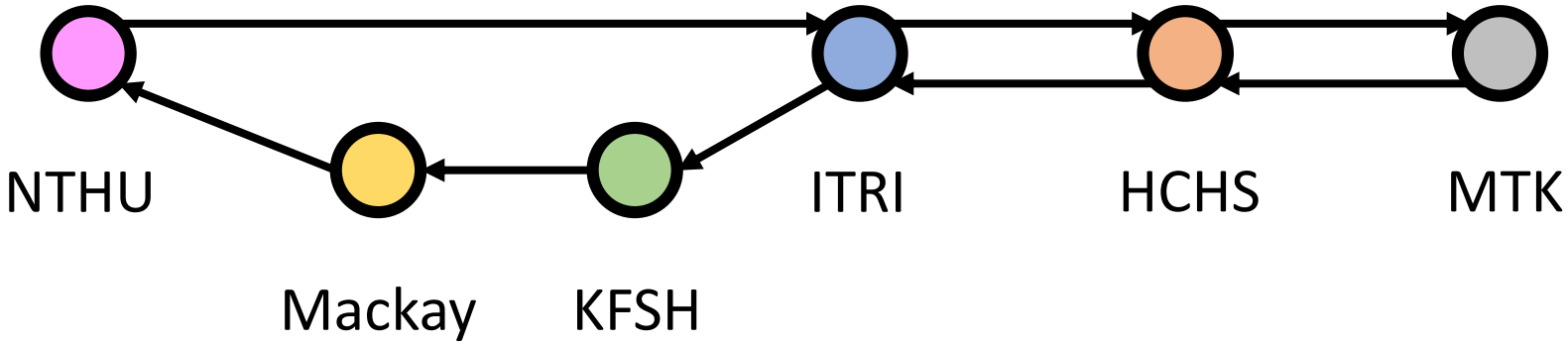
Delete (ITRI)



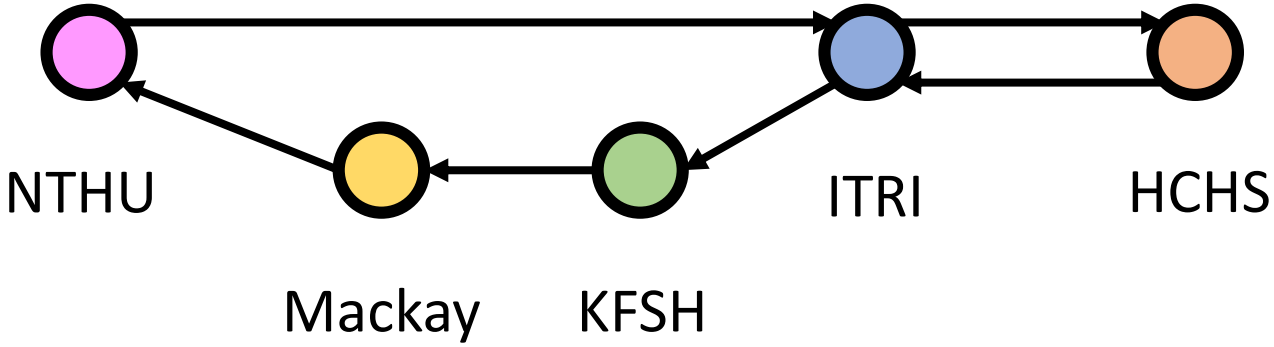


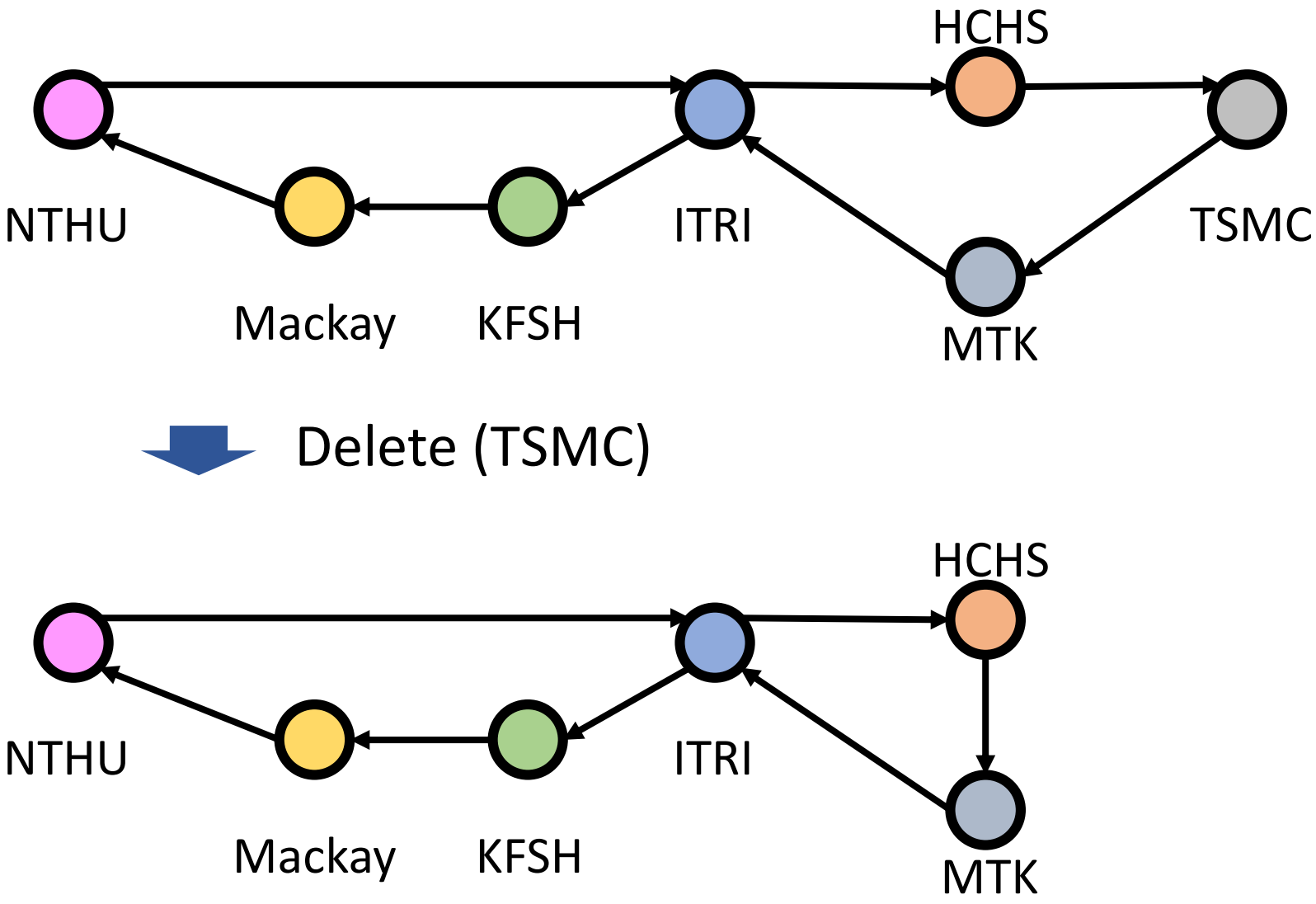
Delete (HCHS)





Delete (MTK)




HCHS
NTHU
ITRI
TSMC
Mackay
KFSH
MTK
Delete (TSMC)
HCHS
NTHU
ITRI
Mackay
KFSH
MTK

Other Notes

- The bus route contains NTHU and TSMC in the beginning
- NTHU is never deleted

- You have to use **linked lists implemented yourself** to solve the problem

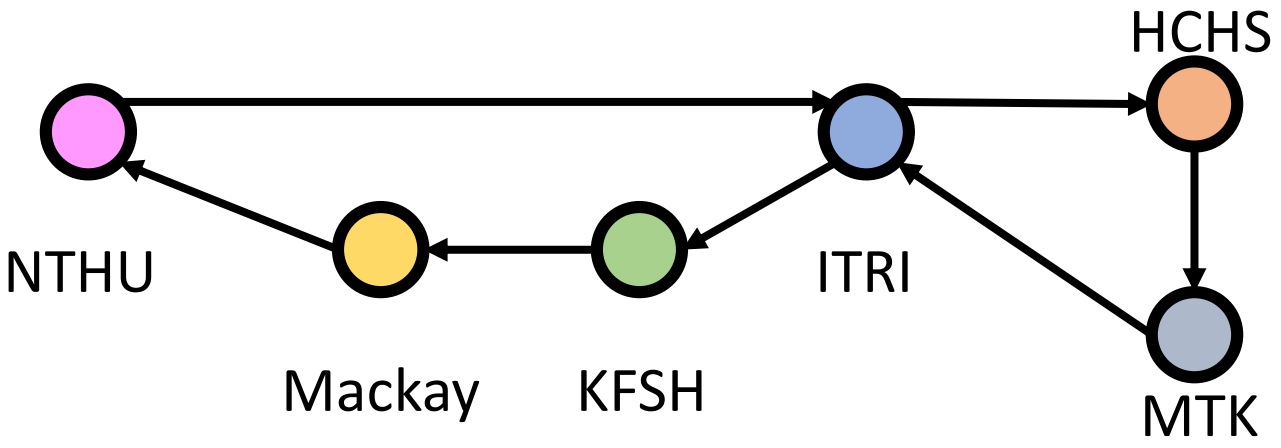
Input

Number of operations bellow

Each line is an operation

```
10↵
INSERT NTHU TSMC APPLE 2↵
INSERT APPLE NTHU Mackay 1↵
INSERT APPLE Mackay KFSH 1↵
INSERT Mackay NTHU ITRI 2↵
DELETE ITRI↵
INSERT TSMC APPLE ITRI 2↵
DELETE APPLE↵
INSERT ITRI TSMC HCHS 1↵
INSERT TSMC ITRI MTK 2↵
DELETE TSMC↵
```

Output

- Traverse the final bus route from NTHU and back to NTHU

```
NTHU->ITRI->HCHS->MTK->ITRI->KFSH->Mackay->NTHU↵
```