

K G 아 이 티 뱅 크

자료구조

D a t a S t r u c t u r e

하노이타워

하노이타워(The Tower of Hanoi)

❖ 조건

세 개의 기둥과 서로 다른 크기인 N 개의 원반
원반들은 세 개의 기둥 중 하나에 꽂혀있어야 한다
작은 원반의 위에 큰 원반이 올려져선 안된다

❖ 문제

기둥 A에 N 개의 원반이 크기대로 꽂혀있다
이 원반을 기둥 C으로 모두 옮겨라
옮기는 과정 중에 기둥 B를 사용할 수 있다

원반 1개

하노이타워(The Tower of Hanoi)

HanoiTowerMove(1, A, B, C);



하노이타워(The Tower of Hanoi)

HanoiTowerMove(1, A, B, C);

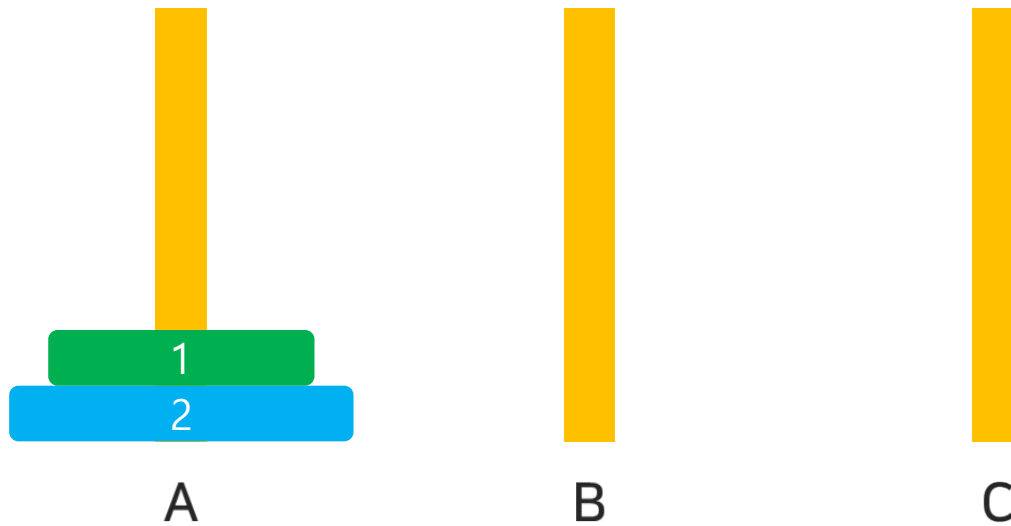
원반 1 A --> C



원반 2개

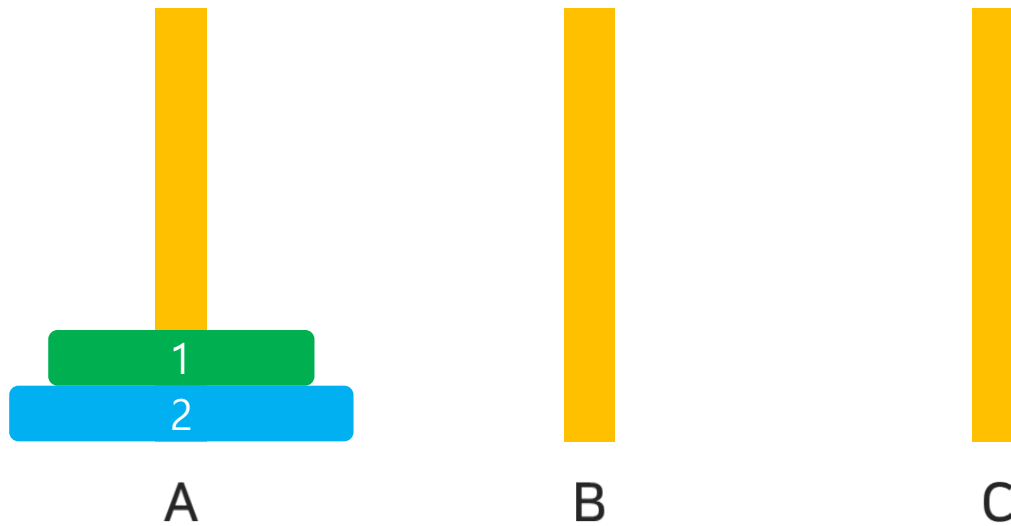
하노이타워(The Tower of Hanoi)

HanoiTowerMove(2, A, B, C);



하노이타워(The Tower of Hanoi)

```
HanoiTowerMove(2, A, B, C);  
HanoiTowerMove(1, A, C, B);
```

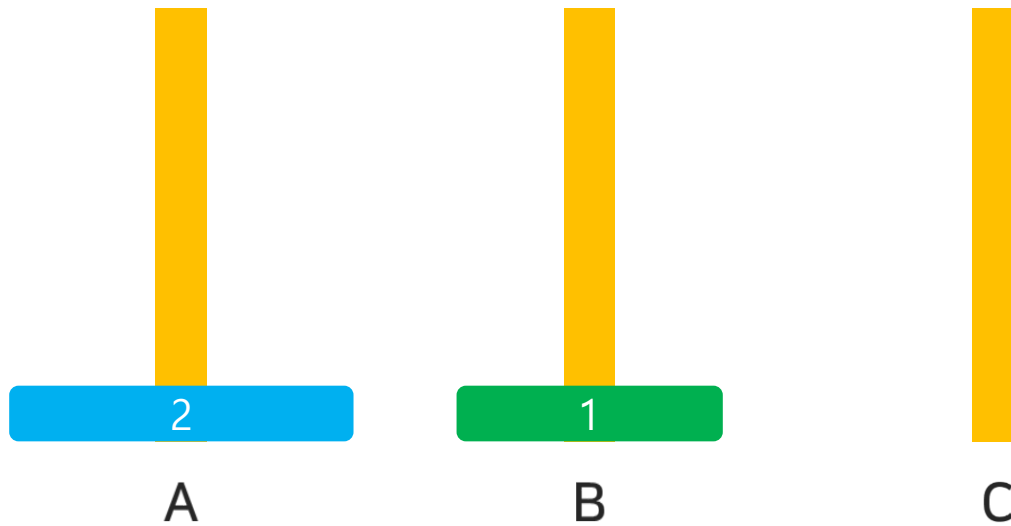


하노이타워(The Tower of Hanoi)

HanoiTowerMove(2, A, B, C);

HanoiTowerMove(1, A, C, B);

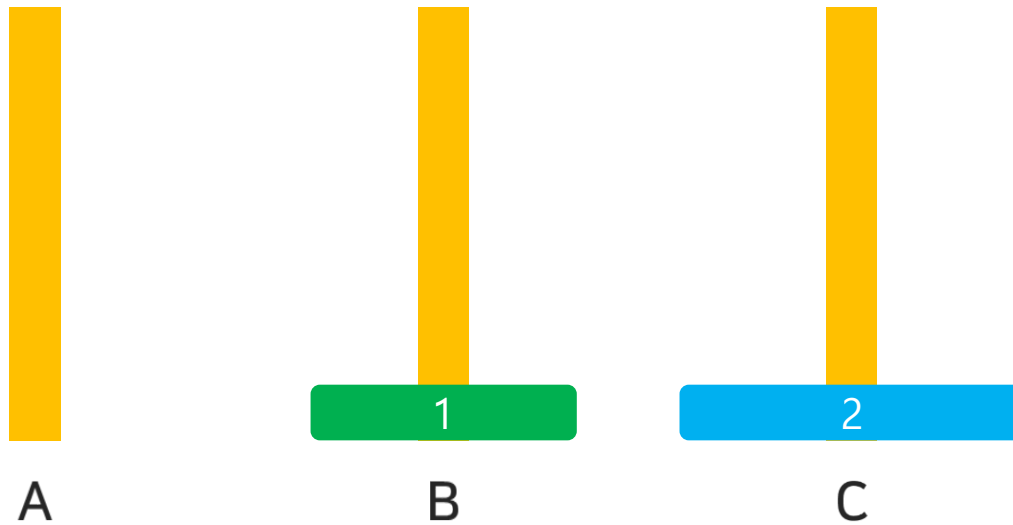
원반 1 A --> B



하노이타워(The Tower of Hanoi)

HanoiTowerMove(2, A, B, C);

원반 2 A --> C로 이동



하노이타워(The Tower of Hanoi)

HanoiTowerMove(2, A, B, C);

HanoiTowerMove(1, B, A, C);

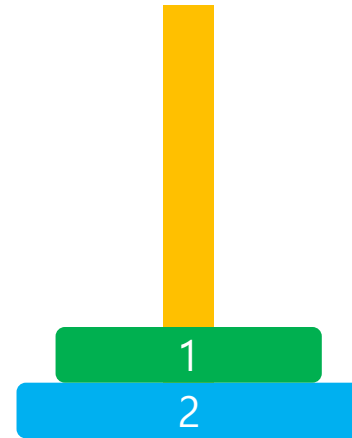
원반 1 A --> C로 이동



A



B



C

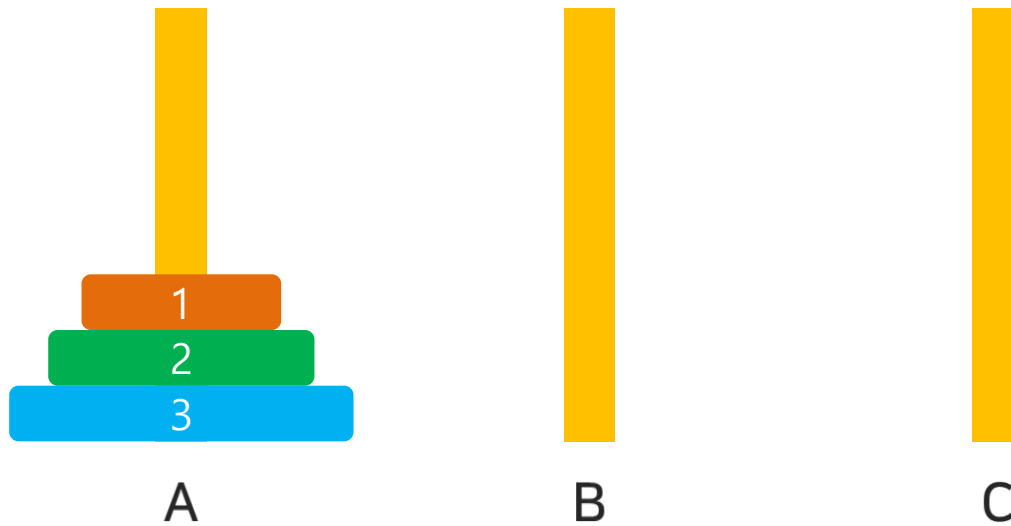
원반 3개

하노이타워(The Tower of Hanoi)

HanoiTowerMove(3, A, B, C);

HanoiTowerMove(2, A, C, B);

HanoiTowerMove(1, A, B, C);



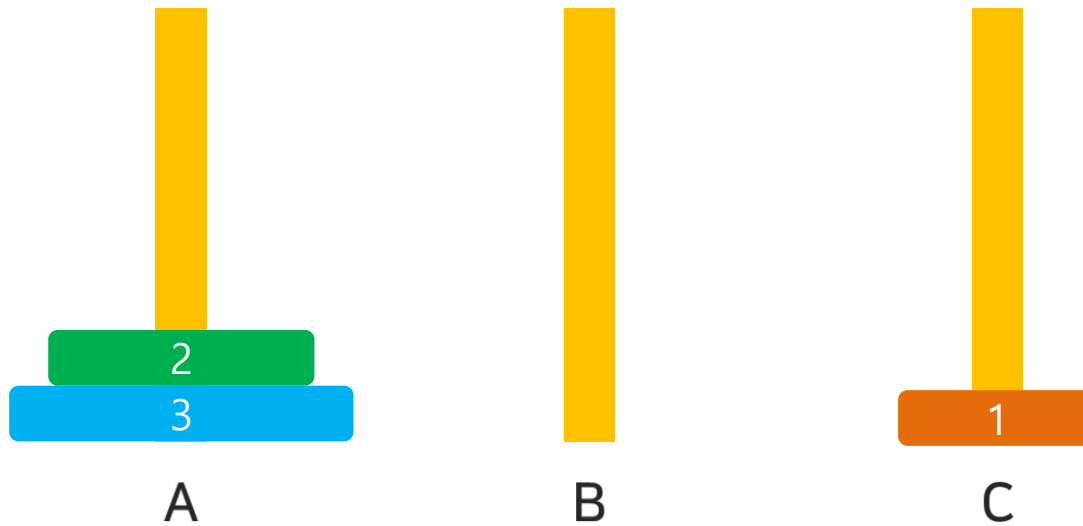
하노이타워(The Tower of Hanoi)

HanoiTowerMove(3, A, B, C);

HanoiTowerMove(2, A, C, B);

HanoiTowerMove(1, A, B, C);

원반 1 A --> C

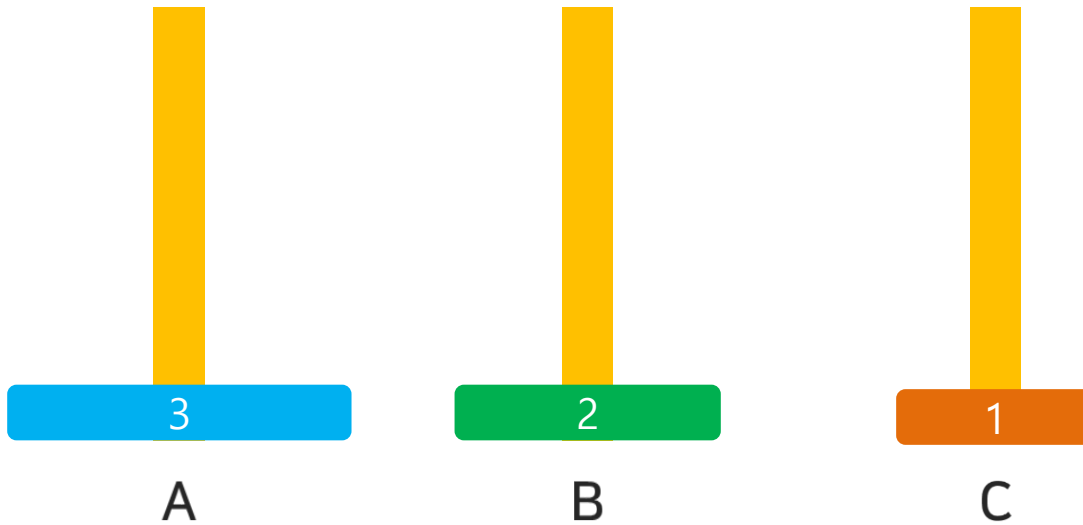


하노이타워(The Tower of Hanoi)

HanoiTowerMove(3, A, B, C);

HanoiTowerMove(2, A, C, B);

원반 2 A --> B



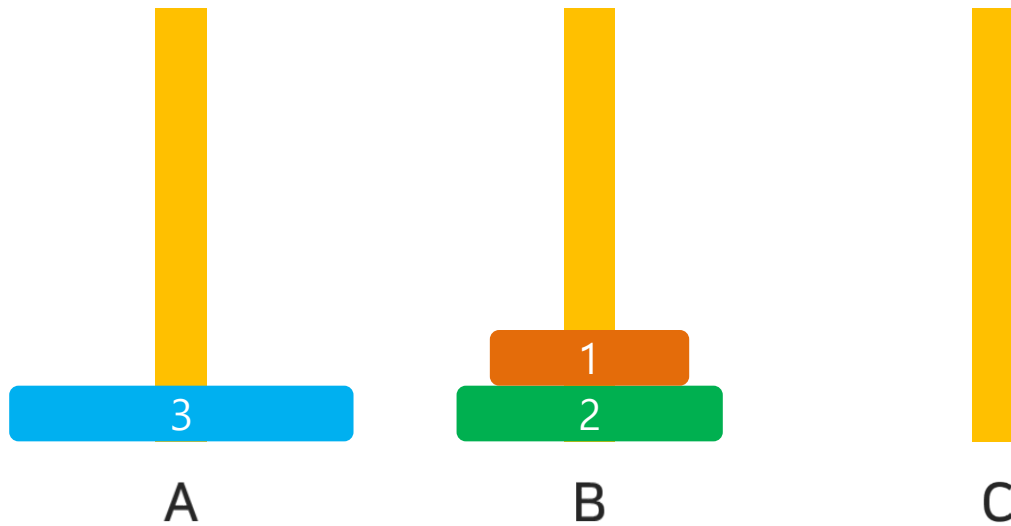
하노이타워(The Tower of Hanoi)

HanoiTowerMove(3, A, B, C);

HanoiTowerMove(2, A, C, B);

HanoiTowerMove(1, C, A, B);

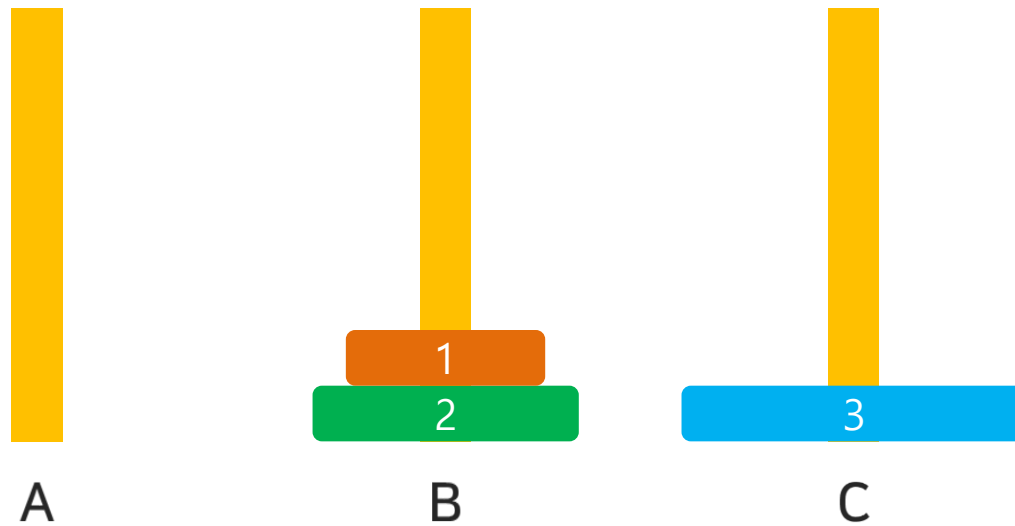
원반 2 C --> B



하노이타워(The Tower of Hanoi)

HanoiTowerMove(3, A, B, C);

원반 3 A --> C



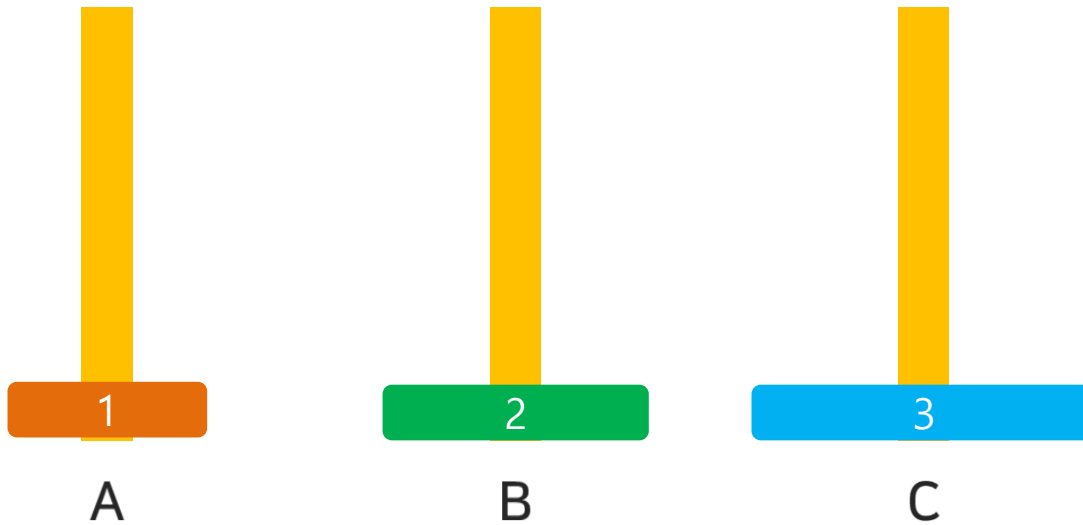
하노이타워(The Tower of Hanoi)

```
HanoiTowerMove(3, A, B, C);
```

```
HanoiTowerMove(2, B, A, C);
```

```
HanoiTowerMove(1, B, C, A);
```

원반 1 B --> A

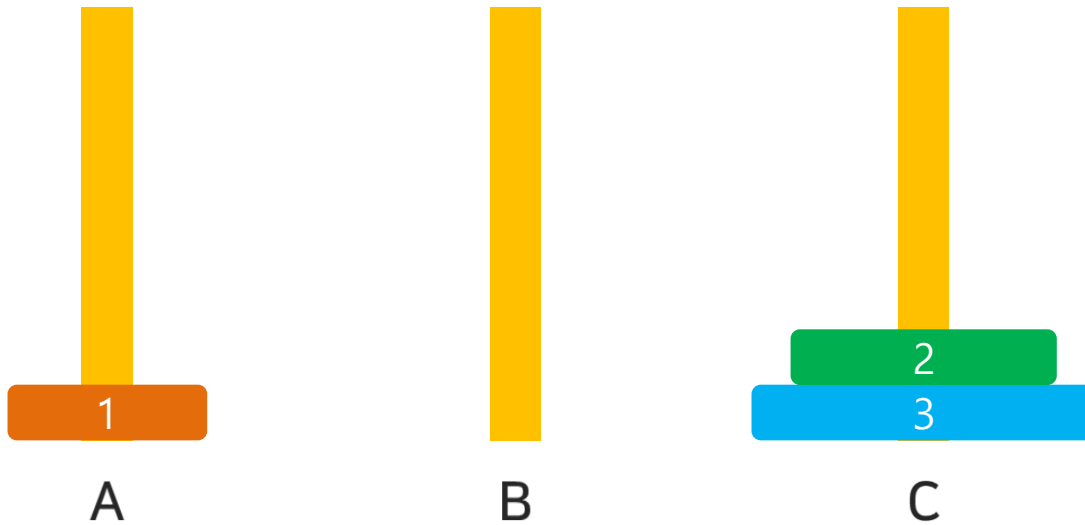


하노이타워(The Tower of Hanoi)

HanoiTowerMove(3, A, B, C);

HanoiTowerMove(2, B, A, C);

원반 2 B --> C



하노이타워(The Tower of Hanoi)

```
HanoiTowerMove(3, A, B, C);
```

```
HanoiTowerMove(2, B, A, C);
```

```
HanoiTowerMove(1, A, B, C);
```

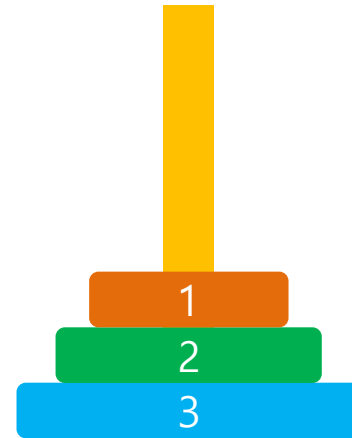
원반 1 A --> C



A



B



C