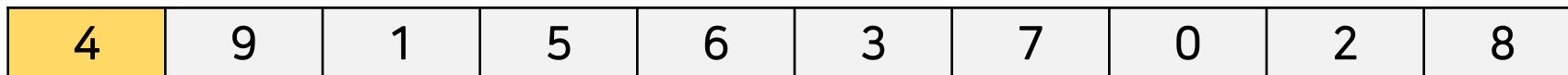


## 1

## 선형검색 Linear Search

- 4를 검색

순차적으로 검색



4	9	1	5	6	3	7	0	2	8
---	---	---	---	---	---	---	---	---	---

원하는 데이터를 찾는 순간 검색 종료

- 8을 검색



4	9	1	5	6	3	7	0	2	8
---	---	---	---	---	---	---	---	---	---

최악의 경우는 데이터를 끝까지 검색

Big-O :  $O(N)$

## 2 이진검색 Binary Search

- 9를 검색

↓ 데이터의 중간인 5 부터 검색

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

선택된 5와 9를 비교합니다. 5는 9보다 작으므로 오른쪽으로 계속 진행

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

남은 데이터의 중간점인 8부터 검색 ↓

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

선택된 8와 9를 비교합니다. 8은 9보다 작으므로 오른쪽으로 계속 진행

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

3회에 탐색 완료



첫번째 수행 후 :  $\frac{N}{2}$

두번째 수행 후 :  $\frac{1}{2} \times \frac{N}{2}$

세번째 수행 후 :  $\frac{1}{2} \times \frac{1}{2} \times \frac{N}{2}$

k번 수행 후 :  $\left(\frac{1}{2}\right)^k N$

$$\left(\frac{1}{2}\right)^k N \approx 1$$

↓  $\times 2^k$

$$2^k \approx N$$

↓  $\log_2$

$$k \approx \log_2 N$$

Big-O :  $O(\log N)$