Apriori Analysis

Example 4

```
main()
i = n
while( i > 1):
    i = i - 1
```

True

n = 5

i = 5 → 5 > 1 → i = 4

i = 4 → 4 > 1 → i = 3

i = 3 → 3 > 1 → i = 2

i = 2 → 2 > 1 → i = 1

i = 1 → 1 > 1 — False (Not Execute)

n = 5 — 4 times

n = 10 — 9 times

n — (n-1) times

$O(n-1) \approx O(n)$

Example 5

```
main()
i = n
while( i >= 1)
    i = i - 2
    i = i - 3
```

condition → True

$i = i-5$ → $n/5$ times → $O(n)$

$i = i-2$, $i = i-3$ → $O(n)$ → $n/3$ times

n = 10, i = 10

10 >= 1 → i = 8

8 >= 1 → i = 6

6 >= 1 → i = 4

4 >= 1 → i = 2

2 >= 1 → i = 0

0 >= 1 (false)

n = 10 — 5 times

n = 100 — 50 times

n — $n/2$ times

$O(n/2) = O(n)$

Note

1) Time complexity is loop only
2) Higher loop → $n^2+n+1 = O(n^2)$ ←
3) No loop at all → constant time complexity → $O(1)$