



Time Complexity - Part II

Complete Course on Algorithm for GATE - CS & IT

steps needed to design algo

① Problem Definition

a - b ✓

c - d ✓

e - f ✓

...

y - z ✓

✓ ② select design Technique

③ Draw Flowchart

④ Testing

⑤ Implementation

✓ ⑥ Analysis

~~Design, Analysis.~~

Analysis

If a problem has many more than 1 step
then how one is decided based on

1. Time complexity (CPU-Time)
2. Space " (min memory)

Time Complexity

$$T(P) = C(P) + R(P)$$



compiler



S/W



Language of
Compiler



processor



H/W



~~P₃~~ | n₄ , ~~I₂~~ | ~~I₃~~ | ~~I₄~~ | I₅



Type of processor

Analysis

Applicable Analysis

- ① Dependent \Rightarrow L.C
T.P
- ② Exact Answer
- ③ C.C answer
changed

Applicable Analysis

- ① Independent \Rightarrow L.C
T.P
- ② Approximate Answer
- ③ Same answer is
every complete.

P
=

According to A priori Analysis



"Every one can't buy Super computer
but every one can write Super Algo
beez god game Same level to all"

"Some people use it effic Some not

"believe themselves Some not"

Apriori Analysis

5

it is a determination of order of magnitude of a statement.

ex ①

main()

$1 \cdot x = y + z; \Rightarrow 1$
 $\theta(1)$

ex ②

main()

$x = y + z$ ——— 1

$y = z + x$ ——— 1

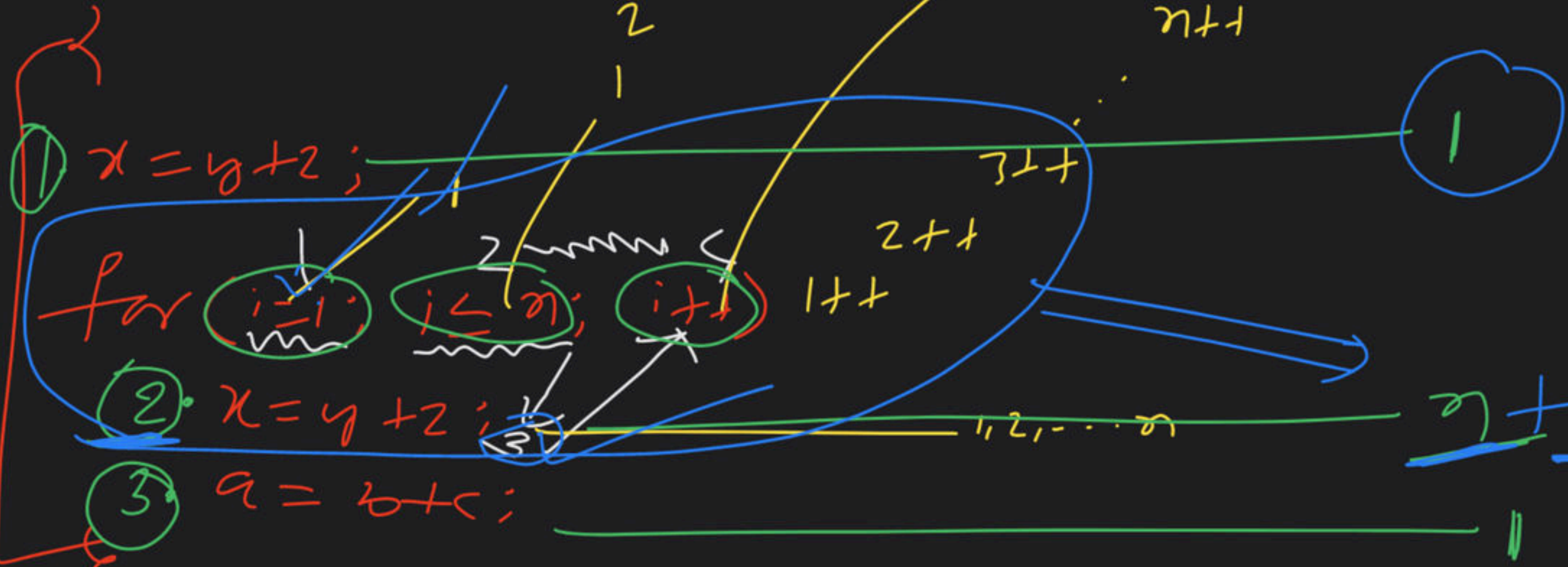
$z = x + y$ ——— 1

$3 = \theta(1)$

ex 3

RTC

main()



$$n + 1 + n + 1 + n \Rightarrow 3n + 2$$

$$n + 2 = \Theta(n)$$

Gutley

$$1 + 3n + 2 + 1$$
$$\underline{3n + 4} = 3n \Rightarrow \underline{\underline{\Theta(n)}}$$