

Critical Path Method

EF of immediately
predecessor + 1

$(ES + \text{Duration}) - 1$

ES

DR

EF

ACTIVITY ID

LS

TF/TS

LF

$(LF - \text{Duration}) + 1$

LS of immediately
successor - 1

TOTAL FLOAT / TOTAL SLACK VS FREE FLOAT / FREE SLACK

TOTAL FLOAT / TOTAL SLACK (TF/TS):

- Total amount of time an activity can be delayed without delaying Project Finish Date

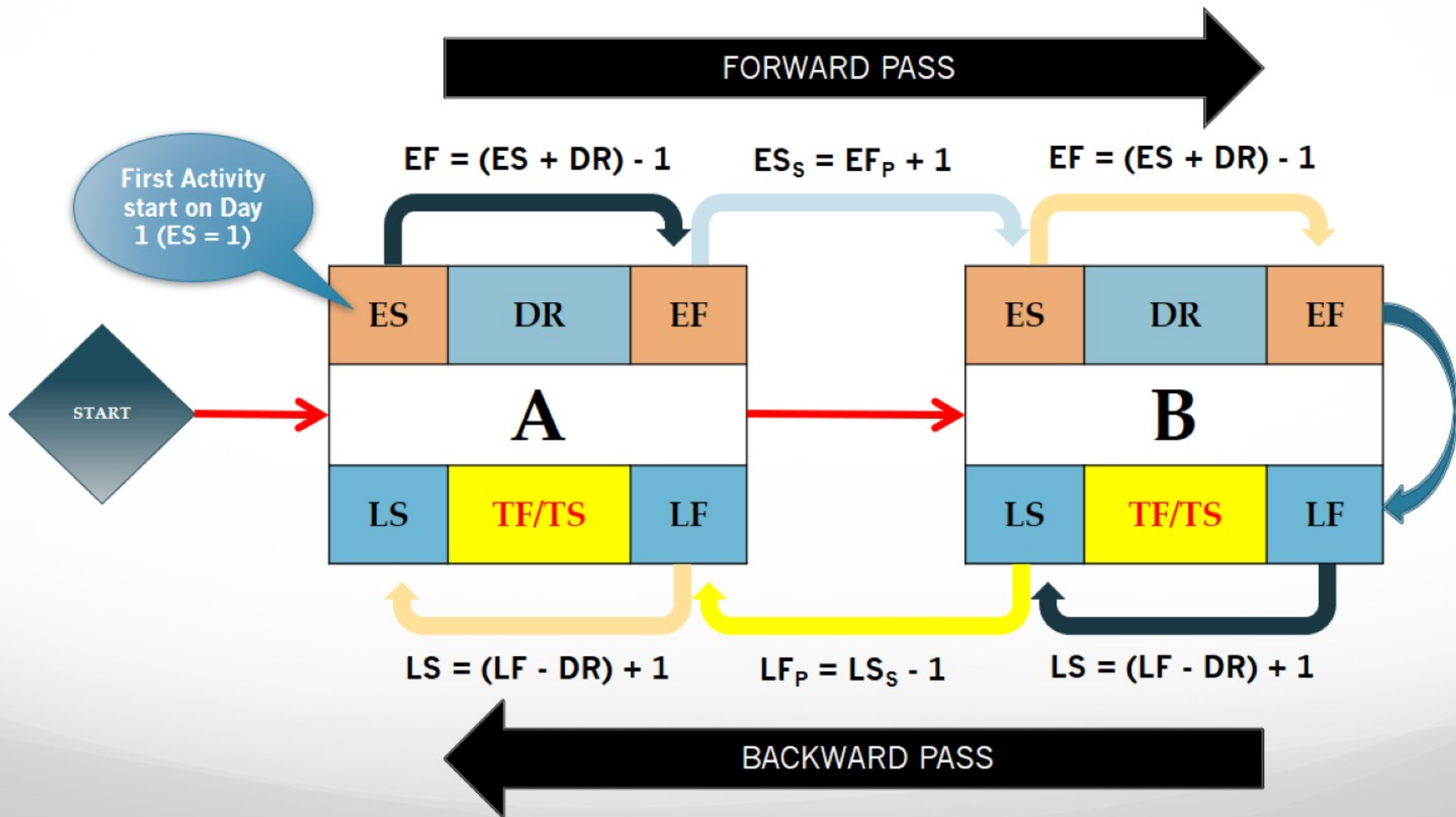
$$\begin{aligned} \text{TF / TS} &= \text{LS} - \text{ES} \\ &= \text{LF} - \text{EF} \end{aligned}$$

ONLY USE THIS
FORMULA TO
CHECK &
RECHECK...!!!!

FREE FLOAT / FREE SLACK (FF/FS):

- Total amount of time an activity can be delayed without delaying its Non-Critical Successor → *Only exist on an activity that has more than 1 predecessor.*

$$\begin{aligned} \text{FF/FS} &= \text{ES}_s - \text{ES} - \text{DR} \\ &= (\text{ES}_s - \text{EF}_p) - 1 \\ &= |\text{TF}_p - \text{TF}_s| \end{aligned}$$



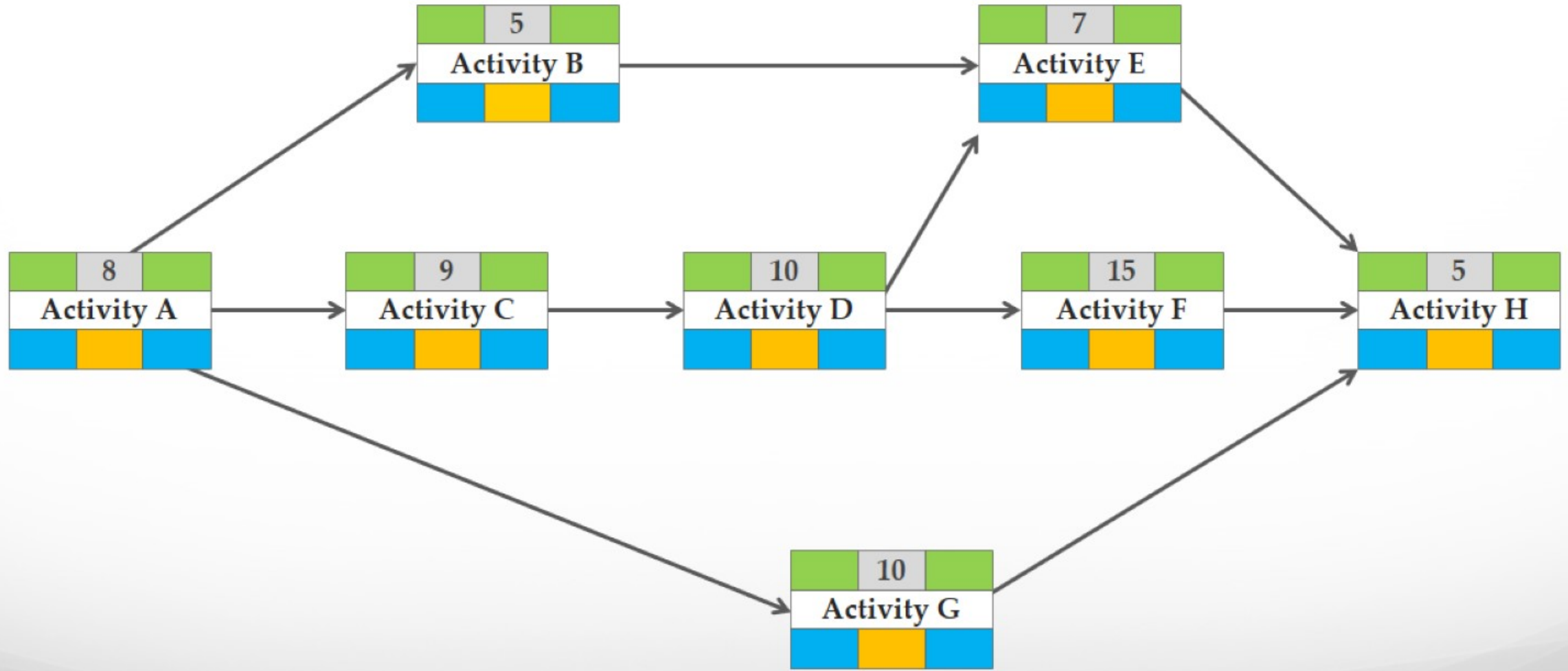
FIVE STEPS TO CREATE CPM

- 1 Create Schedule Network Diagram
- 2 Calculate Critical Path
- 3 Calculate Total Float / Slack (TF/TS)
- 4 Forward Pass to determine ES and EF
- 5 Backward pass to determine LF and LS and check & Re-check

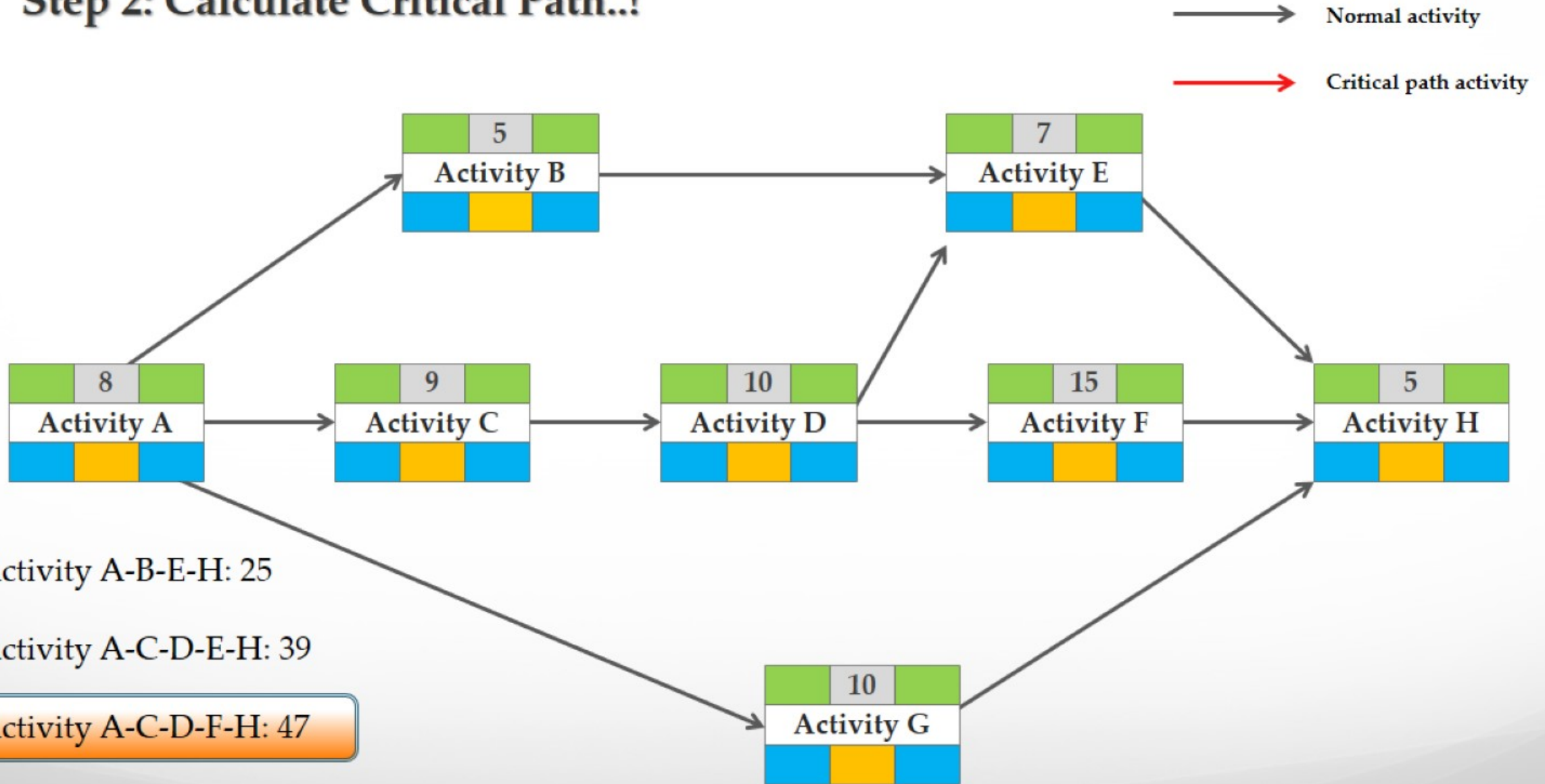
CASE STUDY FOR CRITICAL PATH METHOD (CPM)

During the planning session, a scheduler identify 8 activities for an IT project. The project can soon be started with activity A that has duration of 8 weeks. As soon as activity A is finish, then activity B, C and G can also be started. The duration for activity A direct successor consecutively is 5 week, 9 week and 10 week. Once activity B is done, activity E that has a duration of 7 week can be started but it also has to wait until activity D that followed after activity C is finished. The duration of activity D is 10 week. Once activity D is finished, activity F can also be started with the duration of 15 week. The project is finish when activity H with the duration of 5 week is finish, however prior the beginning of activity H, activity E, F and G has to be finished first.

Step 1: Create Project Network Diagram..!



Step 2: Calculate Critical Path..!



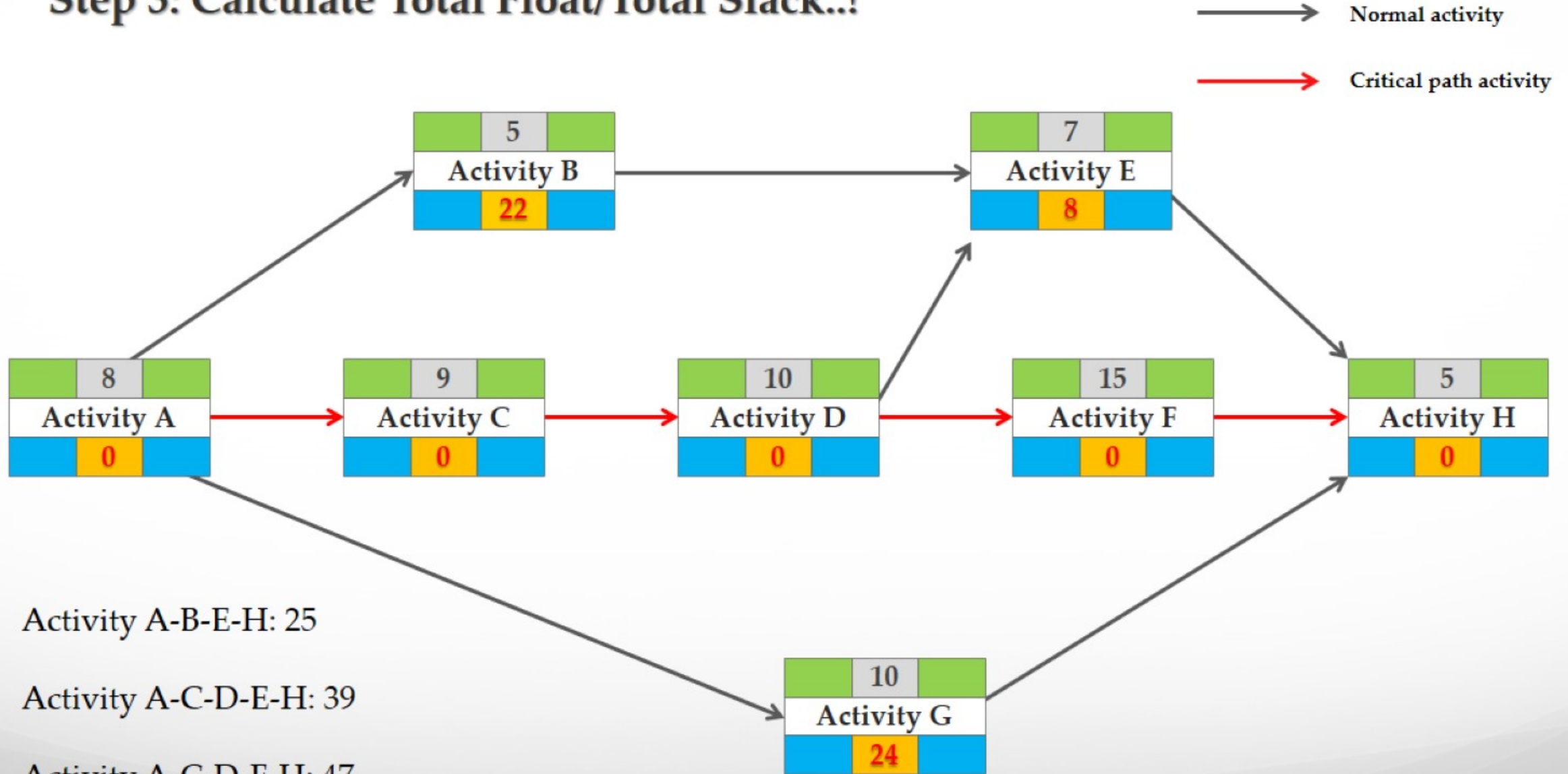
Activity A-B-E-H: 25

Activity A-C-D-E-H: 39

Activity A-C-D-F-H: 47

Activity A-G-H: 23

Step 3: Calculate Total Float/Total Slack..!



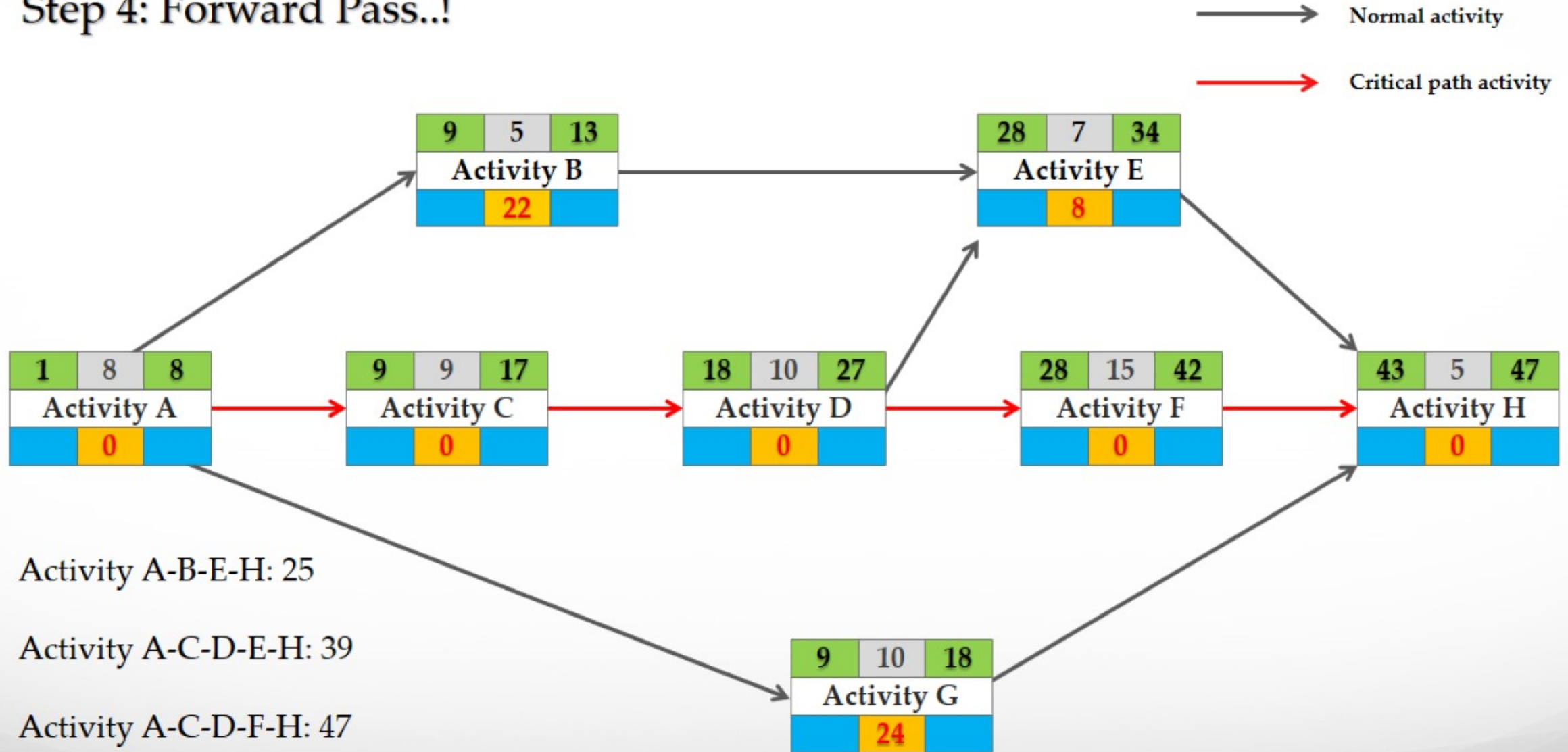
Activity A-B-E-H: 25

Activity A-C-D-E-H: 39

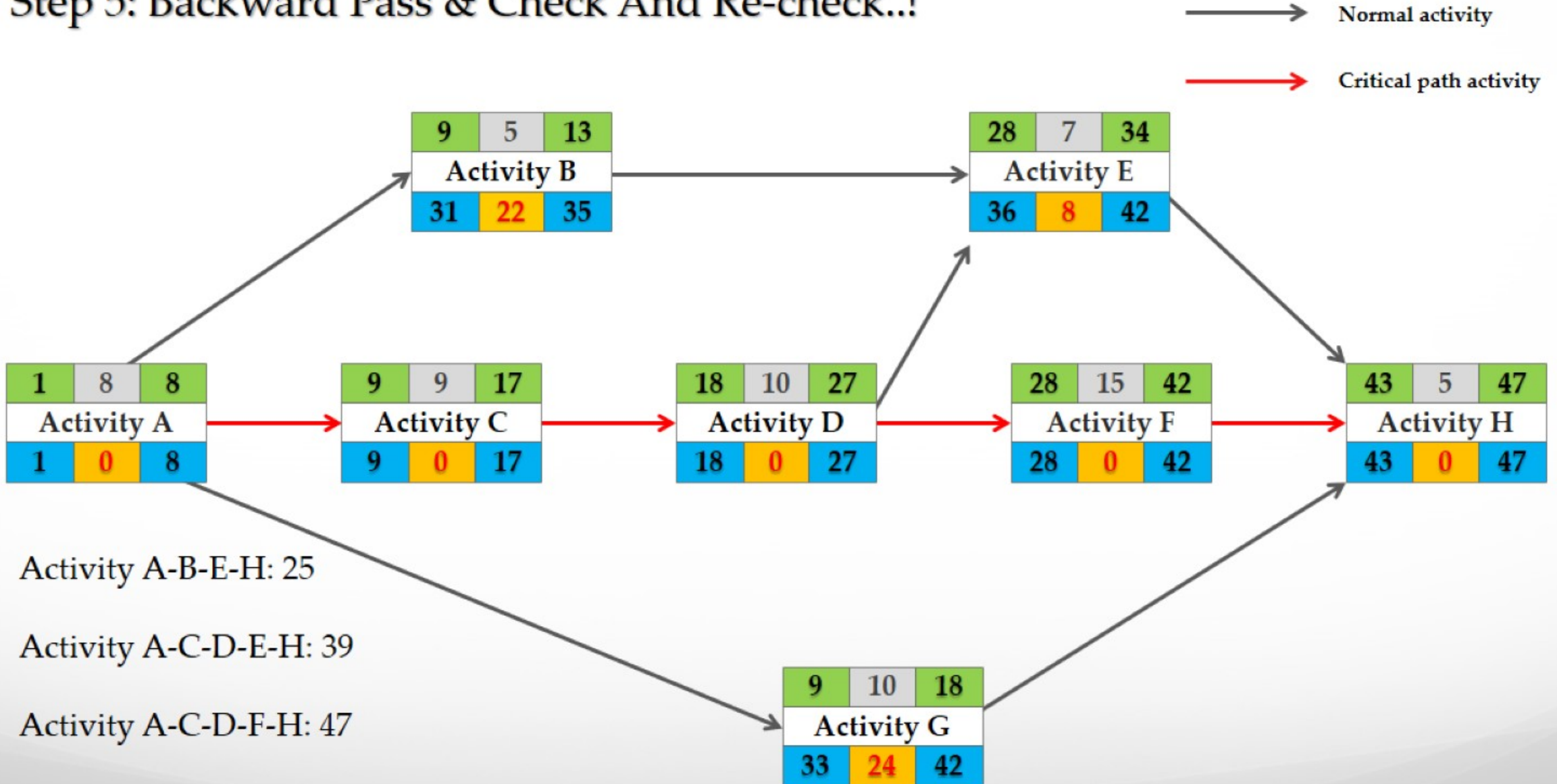
Activity A-C-D-F-H: 47

Activity A-G-H: 23

Step 4: Forward Pass..!



Step 5: Backward Pass & Check And Re-check..!



IMPLEMENTATION and INTEPRETATION..!

