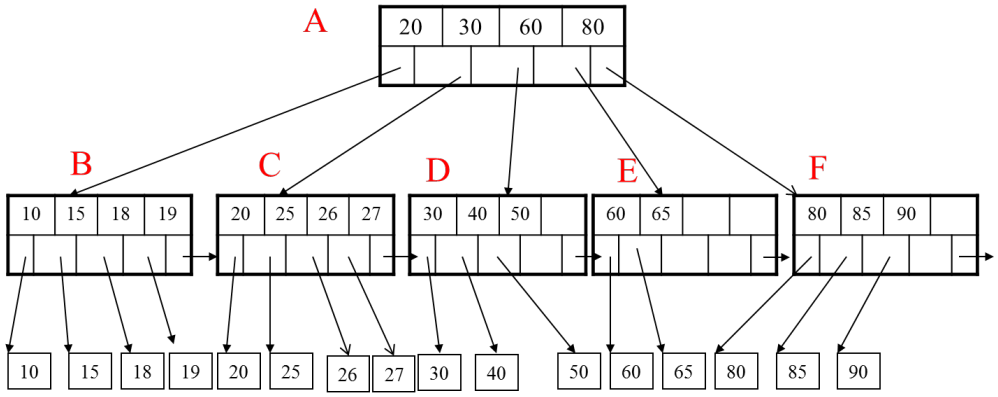
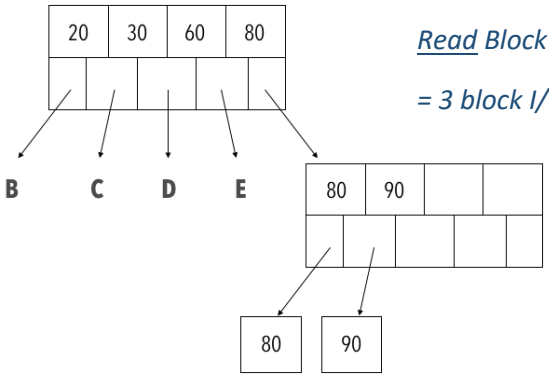
Name: _____ USC ID: _____

Quiz 8: Indexing (10 points), 10 minutes

Consider the following index on person age. Assume no caching is done.



1. [4 points] Draw the updated tree after deleting 85. What is the cost (# of block I/O's) of this deletion?



Cost of deleting 85:

Read Block A + Read Block F + Write Block F

= 3 block I/Os

2. [6 points] Draw the updated tree after further deleting 90 **from the tree produce in question 1**. What is the cost of this deletion?

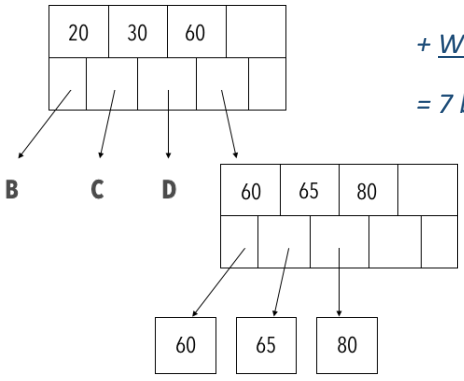
Cost of deleting 90:

Read Block A + Read Block D + Read Block E + Read Block F

+ Write updated Block A + Write updated Block D

+ Write a new node for combined Block E&F

= 7 block I/Os



Note:

if you create a new node for the combined Block E&F

then you should also read/write D to connect the new block!

(5 block I/Os is acceptable if you write E&F in E)