

## Tournament Tree

2 Types : Winner Tree + Loser Tree

### Winner Tree:

- A complete binary tree with 2 types of nodes
- A **complete binary** tree is a binary tree in which every level of the binary tree is completely filled except the last level
- (N) external nodes and (N-1) internal nodes
- **External** : tournament player
- **Internal** : Match between its two children. Winner is stored in internal node
- Ex. Minimum value will win  $\rightarrow$  min winner tree
- Instead of creating a tree, you can just use an array as representation (as heap)
- Replace winner/Replay  $O(\log n)$

### Loser Tree:

- Each match node stores the loser rather than the winner
- Replay  $O(\log n)$