

Point Location

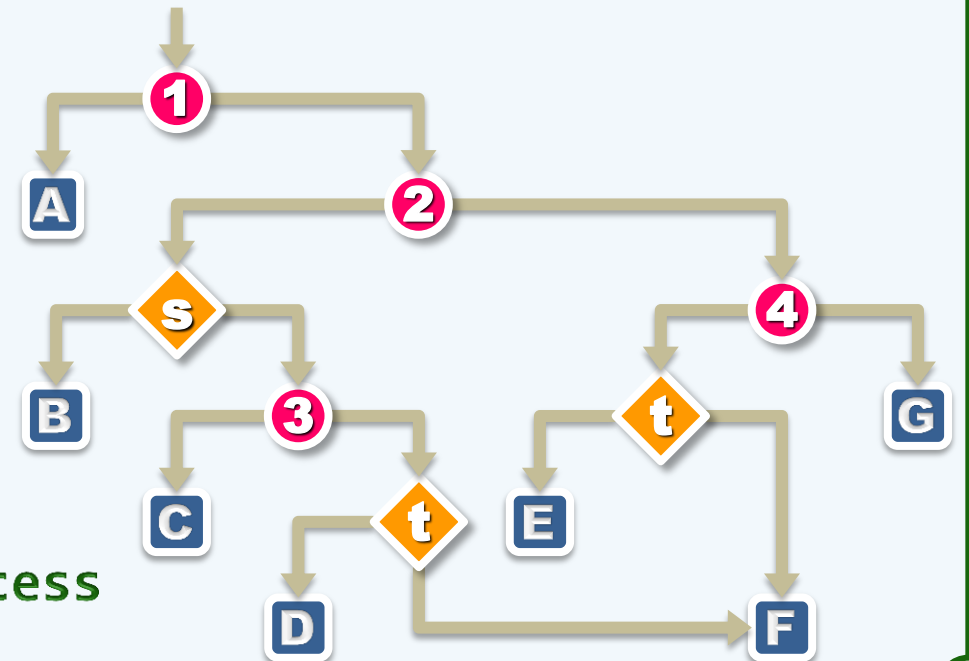
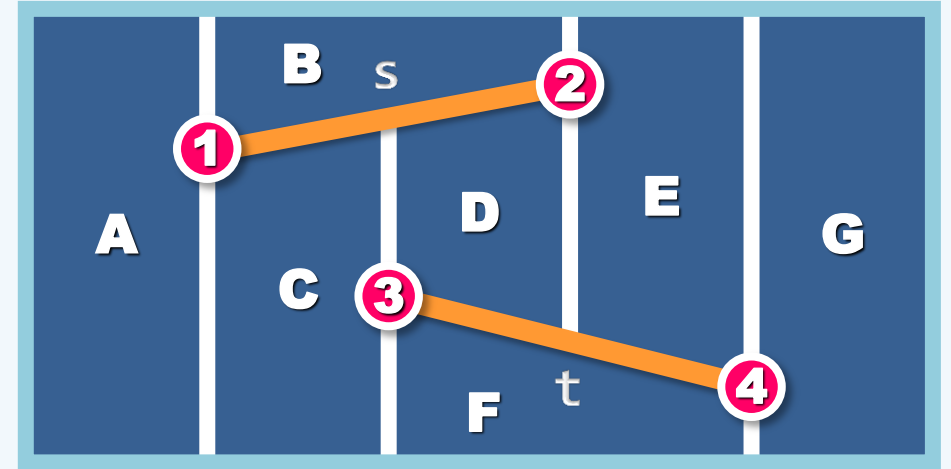
Constructing Trapezoidal Map - Initialization

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Randomized Incremental Construction

- ❖ It is easy to construct $TM(S)$ from S using a **plane sweep** algorithm
- ❖ But this doesn't help **point location** without a search structure
- ❖ Instead, an **RIC** algorithm is used here
 - start with a big enough trapezoid
 - insert the segments one by one in a **random** order
 - maintain the structures during the process



Initialization

- ❖ Create a bounding box R that contains all segments of S
- ❖ Let $TM(S)$ = the trapezoidal map with the single trapezoid R
let $SS(S)$ = the search structure with a single node for R

