Lecture 12,13,14. Tree Visualization.

- World tree
- Bubble.
- Squarified treemap
- - Tree Visualization Techniques →

① identation → Represent hierarchiel data using linear list e.g., Visual Studio code, opene project

② Node-link diagrams → family tree
(2D)

③ Enclosure diagrams → Represent hierarcial structures through shapes

④ Layering

- - Reingold - Tilford.

- Bottom-up traversal
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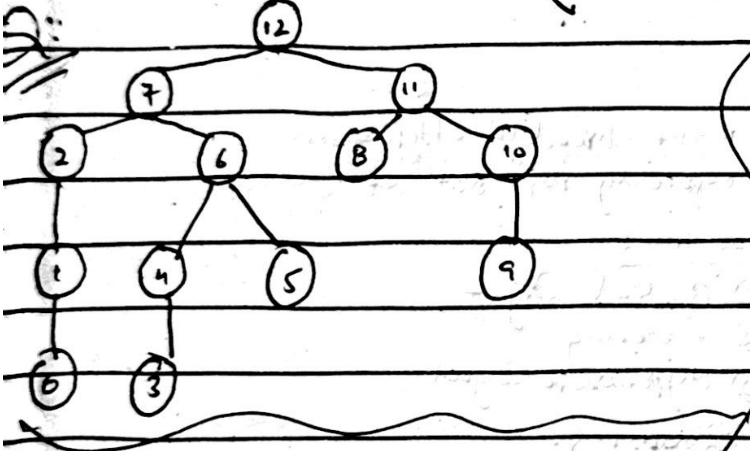
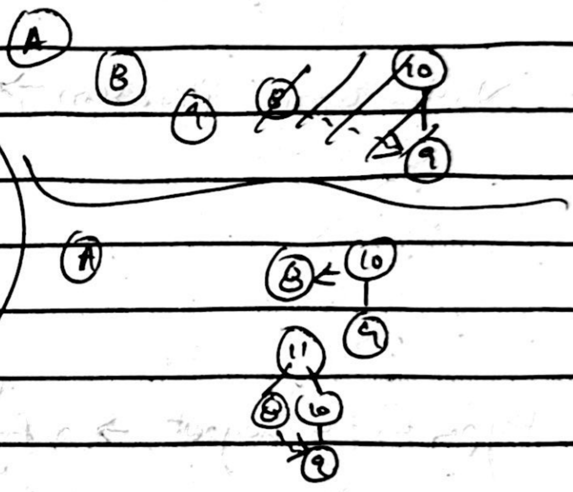
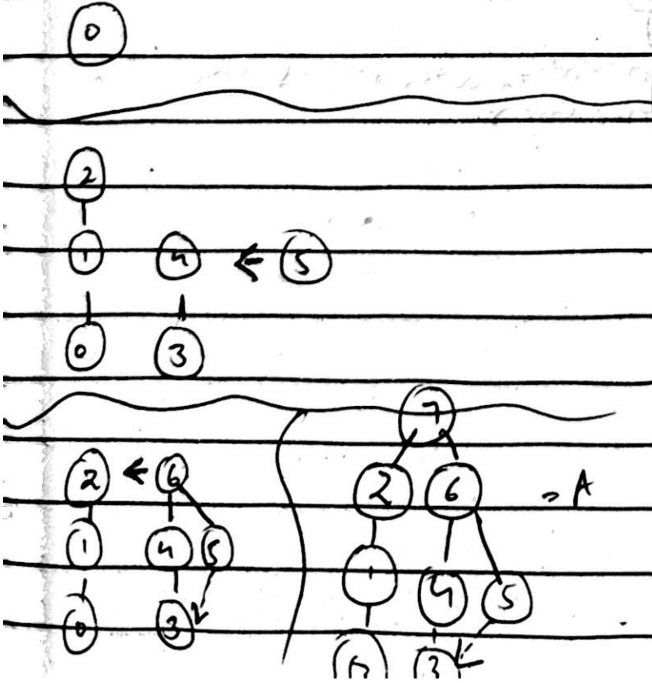
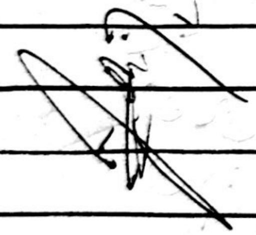






- Radial Layout:- (show tree like data in circular form)
  - Root node in center
  - first circle around root is its immediate children.
  - Then one circle for its children
  - lines are connected to root to its Children & show relationships
  - Equal importance to all nodes.
  - for simple trees.
- Cluster Dendrogram:- (show data that how data is grouped step by step)
  - displays how smaller groups are combined into bigger ones.
  - data points (leaf nodes) are lined up,
  - Internal node depth indicates value at which clusters merge.

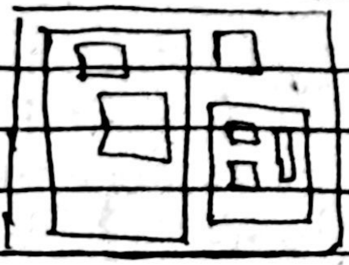
- Node link Problem → • tree-breadth often grows quickly run out of space.



Solutions
① Radial Layout
② filtering
③ Hyperbolic Layout
④ Zooming.

- Hyperbolic Layout → • fits many nodes without crowding
  - focuses on center, outer nodes shown
  - for large, complex hierarchies

•– Enclosure diagrams →



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- single view of entire tree
- easier to spot large/small nodes.

•– Circle Packing layout → • insufficient use of space.

•– TreeMaps → • no. of. children decides number of partition in rectangle

- Weight determines size of each partition.

Problems → • lots of long stripes in orignal treemap.

- squarified treepmaps → orders not easily read

•– Cushion Treemaps (use shading to make tree structure easier to see)

① no extra space
② easy to customize
③ Better visibility.

•– Voroni treemaps (treemaps which uses polygon shapes)

•– Layer diagram. (hierarchial or network data. without showing edges.)

① icicle trees
② sunburst trees.

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same as node-link layouts without edges.