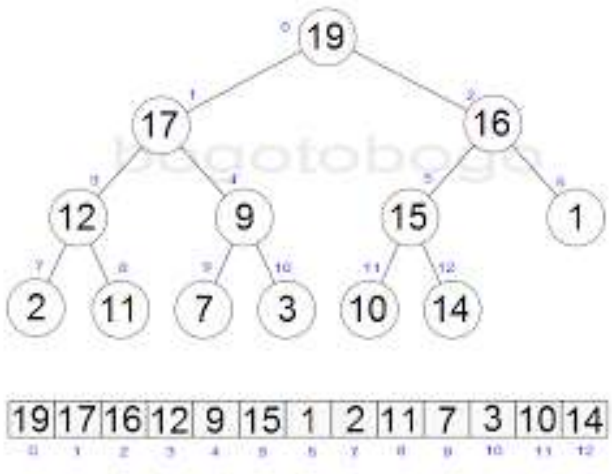
How Graph Theory is used in Heap Sort

The idea of graph theory is that it explains the relationship between lines and vectors and in this case, we are talking about the relationship between the parent node and the child node of a heap sort diagram.



The diagram above is an example of a heap sort diagram. The node at the top represents the parent node and the purpose of this node is to monitor whether or not it's children have received the broadcast message through snooping children's rebroadcasts. The nodes on the left and right represent the child nodes and they transmit data to the parent node. This is shown in a heap sort when the data gets ordered from smallest to biggest. The parent node sends out a broadcast to the child node asking "who is the biggest node". The child node sends back a rebroadcast that tells the parent node that they are either the biggest or not. Once the parent node knows who is the biggest, the node is deleted and put back to the end of the heap and process is repeated.

This shows how the parent and child node are relating to each other and communicate with each other.

Sources:

https://www.statisticshowto.com/graph-theory

https://www.mygreatlearning.com/blog/representing-graphs-in-data-structures

https://www.sciencedirect.com/topics/engineering/parent-node

https://www.sciencedirect.com/topics/engineering/child-node#:~:text=Children%20nodes%20transmitting%20the%20data,data%20to%20its%20parent%20node.

Images:

https://www.google.com/imgres?imgurl=https%3A%2F%2Fwww.bogotobogo.com%2FAlgorithms%2Fimages%2Fheapsort%2Fheapsort_diagramA.png&imgrefurl=https%3A%2F%2Fwww.bogotobogo.com%2FAlgorithms%2Fheapsort.php&tbnid=XCyLWhIJauGunM&vet=12ahUKEwiEiqn3pN_2AhU2YPEDHboCAT4QMygOegUIARD5AQ..i&docid=b_ImUJpTTfKfAM&w=715&h=564&q=heap%20sort&ved=2ahUKEwiEiqn3pN_2AhU2YPEDHboCAT4QMygOegUIARD5AQ