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| **https://upload.wikimedia.org/wikipedia/commons/thumb/4/4e/VU_Logo.png/260px-VU_Logo.png** | **Artificial Intelligence Practical (CS607P)**  Assignment # 01  **Fall 2024** | **Total marks = 10** |
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| Student Name: Nouman Ali  Student ID: BC220424776  **Question**  **Marks (10)**  **Best First Search (BFS)** is an informed search and problem solving technique which uses an evaluation function to decide the best node in the currently available nodes prior towards traversing that node.  Consider the given below graph in which each node has estimated cost (mentioned on each node) to the target node. Your task is to find the path from node **S** to node **T** using **Best First Search** technique.    **Solution:**  Start at Node S:   * + Neighbors of node S: P(20), Q(18)   + Choose Q (cost 18) as it has the lower heuristic value.  1. Move to Node Q:    * Neighbors of node Q: S(22), Y(13), Z(6), R(3)    * Choose R (cost 3) because it has the lowest heuristic value. 2. Move to Node R:    * Neighbors of node R: Q(18), P(20), U(4), V(5), Z(6)    * Choose U (cost 4) as it has the lowest heuristic value. 3. Move to Node U:    * Neighbors of node U: R(3), V(5), X(7)    * Choose V (cost 5) because it has the lowest heuristic value. 4. Move to Node V:    * Neighbors of node V: U(4), R(3), W(8), T(0)    * Choose T (cost 0) because it has the lowest heuristic value. 5. Move to Node T:    * Target node reached.  Final Path: Path: S → Q → R → U → V → T  This is the path from node S to node T using the Best First Search technique.   |  | | --- | | Graph of final path from node **S** to node **T** using **Best First Search** technique | |  | | | |