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| Node(String ip_name, int ip_frequency); | | |
|---|-------------------------------------|--|
| Description | Constructor for individual node | |
| Parameters | 1. Input name 2. Input frequency | 1. Name for the node eg: facebook 2. Starting frequency for the node. |
| Return value | None | |

| Node fibonacci_heap.insert(Node new_node); | | |
|--|---|----|
| Description | Insert a new node into the fibonacci heap | |
| Parameters | 1. New node | 1. |
| Return value | Reference of the new node | |

| Node fibonacci_heap.remove_max() | | |
|----------------------------------|---|------|
| Description | Remove the max node from fibonacci heap | |
| Parameters | None | None |
| Return value | Reference of the removed max node | |

| Node fibonacci_heap.increase_frequency(Node node, int new_frequency) | | |
|--|---|---|
| Description | Increase frequency of a node in the fibonacci heap | |
| Parameters | 1. node 2. New frequency | 1. Reference of Node whose frequency is to be increased 2. Value by which the frequency is to be increased |
| Return value | Reference of the node whose frequency was increased | |

| void fibonacci_heap.cascading_cut(Node node_to_cut) | | |
|---|---------------------------------------|---|
| Description | Start a cascading cut from given node | |
| Parameters | 1. Node to cut | 1. Node from which the cascading cut starts in the upward direction |
| Return value | None | |

| Node fibonacci_heap.merge(Node node1, Node node2) | | |
|---|---|---|
| Description | Merge two circular doubly linked lists | |
| Parameters | 1. Node 1 2. Node 2 | 1. First node to merge 2. Second node to merge |
| Return value | Max node of the merged circular doubly linked lists | |

| Node fibonacci_heap.test_linkedlist(Node first) | | |
|---|---|---|
| Description | Utility function to test if a linked list containing the input node is correctly circular | |
| Parameters | 1. First | 3. One node of the linked list to check |
| Return value | None | |

| Node fibonacci_heap.test_max_node() | | |
|-------------------------------------|-----------------------------------|------|
| Description | Utility function to peek max node | |
| Parameters | None | None |
| Return value | None | |

| Node fibonacci_heap.test_max_node() | |
|-------------------------------------|-----------------------------------|
| Description | Utility function to peek max node |

| | | |
|---------------------|------|------|
| Parameters | None | None |
| Return value | None | |

| boolean driver.is_first_file_open() | | |
|-------------------------------------|---|------|
| Description | Function to check if the file is being opened for the first time for this test case | |
| Parameters | None | None |
| Return value | True if the file is being opened for the first time otherwise false. | |

| List<String> driver.read_lines_from_file(String file_name) | | |
|--|------------------------------------|--------------------------|
| Description | Function to read lines from a file | |
| Parameters | file_name | Name of the file to read |
| Return value | List of lines from the file | |

| driver.process_lines(List<String> lines_in_file) | | |
|--|---|----------------------------|
| Description | This function instantiates the dictionary and the fibonacci heap and then calls the process_line_to_fibonacci_heap function for every line. | |
| Parameters | lines_in_file | A list of lines to process |
| Return value | None | |

| driver.one_by_one() | | |
|---------------------|---|------|
| Description | This function instantiates the dictionary and the fibonacci heap and then prompts the user for inputs to give to the process_line_to_fibonacci function till stop is called | |
| Parameters | None | None |
| Return value | None | |

| | | |
|--|---|---|
| driver.process_line_to_fibonacci_heap(HashMap<String, Node> dicti, fibonacci_heap fib_heap, String line) | | |
| Description | This function processes each line according to the logic - check if the node mentioned in the line exists in the dictionary and if it does then increment the frequency by the amount mentioned in the line otherwise make the node with the given frequency. | |
| Parameters | <ol style="list-style-type: none"> 1. Dicti 2. Fib_heap 3. Line | <ol style="list-style-type: none"> 1. Reference of the Dictionary to point to the nodes 2. Reference of the Fibonacci heap into which the nodes are inserted 3. Input line |
| Return value | None | |