**ADS Project – Keyword Counter**

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**Structure:**

The zip file contains the following –

1) makefile

2) ‘Keyword\_Counter’ project directory

a) Keyword\_Counter/src/Node.java

b) Keyword\_Counter/src/FiboHeap.java

b) Keyword\_Counter/src/KeywordCounter.java

3) Report.pdf

4) The 3 source files again (for makefile) -> Node.java, FiboHeap.java, and KeywordCounter.java

**Steps to execute:**

The **makefile** command can be directly run in the main directory as the source files are present in it.

It can be used in two ways as follows:

1) Compile using makefile and run in standard way-

> make

> java KeywordCounter {absolute\_file\_path}

2) Compile and run using makefile-

> make run FILE={absolute\_file\_path}

**Method prototypes:**

**Class Node**

|  |  |  |
| --- | --- | --- |
|  | **Node(long data) Constructor** | |
| **Description** | Initialize a node with given frequency | |
| **Parameters** | long data | Frequency of keyword |
| **Return value** | - | |
|  | **void isolateNode()** | |
| **Description** | Detaches a root node from its sibling list and child. | |
| **Parameters** | - | |
| **Return value** | void | |
|  | **void makeChildOf(Node parent)** | |
| **Description** | Makes the current node a child of the specified parent node. | |
| **Parameters** | Node parent | Parent node |
| **Return value** | - | |
| **Class FiboHeap** | | |
|  | **void insert(Node newNode)** | |
| **Description** | Inserts the new node in the Fibonacci heap | |
| **Parameters** | Node newNode | Node to be inserted in heap |
| **Return value** | void |  |
|  | **void updateMaxNode(Node firstNode)** | |
| **Description** | Updates maxPtr among all roots starting from the node passed. | |
| **Parameters** | Node firstNode | Starting node |
| **Return value** | void |  |
|  | **void makeSiblingsParentNull(Node firstNode)** | |
| **Description** | Updates the parent pointers of all siblings of firstNode to null. | |
| **Parameters** | Node firstNode | Starting node |
| **Return value** | void |  |
|  | **Node removeaMax()** |  |
| **Description** | Returns (and removes) the maxNode in the heap. | |
| **Parameters** | - |  |
| **Return value** | Node retNode |  |
|  | **void pairwiseCombine(Node firstNode)** | |
| **Description** | Runs pairwiseCombine procedure starting from the specified node | |
| **Parameters** | Node firstNode | Starting node for combine |
| **Return value** | void |  |
|  | **void increaseKey(Node thisNode, int amt)** | |
| **Description** | Increases the value of thisNode and performs cuts if required. | |
| **Parameters** | Node thisNode | Node (keyword) whose frequency is to be increased |
|  | int amt | Frequency |
| **Return value** | void |  |
|  | **void cut(Node thisNode)** | |
| **Description** | Cuts the given node from its parent. | |
| **Parameters** | Node thisNode | Node to be cut from parent |
| **Return value** | void |  |

**Class KeywordCounter**

|  |  |  |
| --- | --- | --- |
|  | **void main(String[] args)** | |
| **Description** | Main method accepts the command line inputFile argument. | |
| **Parameters** | String[] args | InputFile meeds to be the absolute path of the file. |
| **Return value** | void |  |
|  | **void readFile(File file)** |  |
| **Description** | Processes the input file |  |
| **Parameters** | File file | File to be read |
| **Return value** | void |  |
|  | **int processLine(String line)** |  |
| **Description** | Processes each line and returns 1/0/-1 | |
| **Parameters** | String line | Each line of input file |
| **Return value** | int returned | 1 – When the line processed successfully but is not stop  0 – When the the last line is processed (Stop)  -1 – When the processes line was invalid. |
|  | **void writeOutputFile()** | |
| **Description** | Writes the StringBuffer output to the output file | |
| **Parameters** | - |  |
| **Return value** | void |  |