**Design Documentation**

Introduction

The Doubly Linked List and Spell Checker checks if a given text file’s words are spelled right. The words are compared to a dictionary text file that is read and put into a doubly linked list. The words spelt wrong are displayed to the console.

UML

|  |
| --- |
| Node |
| -item : ItemType  -next : Node<ItemType>\*  -prev : Node<ItemType>\* |
| + Node()  + Node( anItem : const ItemType& ) :  + Node( anItem : const ItemType&, nextNodePtr : Node<ItemType>\* ) :  + Node( anItem : const ItemType&, nextNodePtr : Node<ItemType>\*, prevNodePtr : Node<ItemType>\* ) :  + setItem( anItem : const ItemType& ) : void  + setNext( nextNodePtr : Node<ItemType>\* ) : void  + setPrev( prevNodePtr : Node<ItemType>\* ) : void  + getItem() : ItemType  + getNext() : Node<ItemType>\*  + getIPrev() : Node<ItemType>\* |

|  |
| --- |
| DoublyLinkedBag |
| -headPtr: Node<ItemType>\*  -itemCount : int  -getPointerTo(target : const ItemType& ) : Node<ItemType>\* |
| + DoublyLinkedBag() :  + DoublyLinkedBag( aBag : const DoublyLinkedBag<ItemType>&) :  + ~ DoublyLinkedBag() :  +getCurrentSize() : bool  +isEmpty() : bool  +add ( newEntry : const ItemType& ) : bool  +remove (anEntry : const ItemType& ) : bool  +clear () : void  +contains(anEntry : const ItemType& ) : bool  +getFrequencyOf(anEntry : const ItemType& ) : bool  +toVector() : vector<ItemType> |

Functions and its pseudocodes

The main program uses 2 main functions for the DoublyBag class, contains and add.

Contains checks to see if an item (a word) is in the doubly linked list.  
add, adds an item to the doubly linked list.

Structure chart of the main program

Main program

BagInterface

Node Class

DoublyLinkedBag

**Test Data**

|  |  |  |
| --- | --- | --- |
| **Explanation** | **Valid Inputs Values** |  |
| **Spell checked file is all spelt correctly** | Input: dict.txt (all the words remain)  Input: toBeSpellChecked.txt (all the words remain) |  |
|  | Expected output: no words display | No words display |
| **Spell checked file has multiple words spelt wrong** | Input: dict.txt (all words remain)  Input: toBeSpellChecked.txt (all the words remain) |  |
|  | Expected output: Displays the words spelt wrong | Displays the words spelt wrong |
|  |  |  |
|  | **Boundary input values** |  |
| **Dictionary is empty** | Input: dict.txt (empty)  Input: toBeSpellChecked.txt (all the words remain) |  |
|  | Expected output: All the words are spelt “incorrectly” because there is no dictionary. | (all the words display) |
| **Spell checked file is empty** | Input: dict.txt (all the words remain)  Input: toBeSpellChecked.txt (empty) |  |
|  | Expected output: Nothing | No words display because there is nothing to be checked |
|  |  |  |
|  | **Invalid Inputs Values** |  |
| **File name is not correct** | Input: dit.txt (all the words remain)  Input: toBeSpellChecked.txt () |  |
|  | Output: nothing | ERROR MSG |

**User Documentation**

Description of the problem to solve

Spell checking problem: a program reads a word and checks if it is spelt correctly. It compares a list of words against a dictionary to see what is spelt correctly.

File location on centOS

home/STCLOUDSTATE/it1032ao/CSCI301/Project4/part2

How to compile the program

Compiling the program is as simple as being in the file location on centOS and entering the following command “g++ main.cpp”.

How to run the program

After compiling the program, you are ready to run it. Type the command “./a.out”. This will run the spell checker and display any words that are spelt wrong.

For Example:

**If you input dictionary was** - a park beyond hill kid flew kite near river where frog jumped from lily Nearby under sun umbrella queen with red hat sipped lemon juice and read book about zebra The Lived on an island slept the shade of tree dreaming vast ocean fish echoed songs moons past to In

**and your file to be spell checked looked like this** - In a prak beyond a hill a kid flew a kite near a river where a frog jumped from lily to lily Nearby under a sun umbrella a queen with a rad hat sipped lemmon juice and read a book about a zebra The zebra lived on an island and slept under the shade of a tere draeming of a vast ocean where fish echoed songs of moons past  
  
**then you output to the console would be:**The following words in the file “toBeSpellChecked.txt” are not spelled correctly :

prak

rad

lemmon

tere

draeming