CENG 211

PROGRAMMING FUNDAMENTALS

HOMEWORK- 6

Due Date: 08 January 2017, 23:55

You are required to write a Java program for simulating poem analyzer and draw UML diagram for this application.

Firstly, you should read "poems.txt" and build two structures:

- Building a structure so that maps each unique word to the list of word positions in the given file.

  → For indexing , give negative index for the beginning word of the each line as it is shown in the following example from "A Birthday Poem":

  Just(-1) past(2) dawn(3), the(4) sun(5) stands(6)
  with(-7) its(8) heavy(9) red(10) head(11)

  .....

- Building a structure so that maps each unique word to the list of poems that the word exists.

***** You should have poem class that contains;

- title,

- number of words,

- order in the "poems.txt". (e.g. The order of "A Birthday Poem" is 1.)

***** You should create a menu on the console that accomplishes following tasks:

1-) **Adding a new poem by giving file path**: This option should take the path as an input from the user and add the new poem to the end of the "poems.txt" and update corresponding maps.

2-) **Finding the poem that has maximum occurrence of the word:** This option should take the word as an input from the user and finds the poem that has the maximum occurrence of the word.

3-) **Top-10 popular words:** This option should list top-10 most frequent words.

4-) **Find poems that begins with the given word:** This option should list title of the poems that begins with the given word.

5-) **Find Acrostics:** This option should search acrostic(s) for a given word and if exist they should be displayed on the console.

Example: For input “Tom” your application should give following output:

Trustworthy and kind

One in a million you are,

My most precious friend

IMPORTANT NOTES:

- You should define at least following classes: Poem.java, Operation.java, Menu.java, DataAccessLayer.java, PoemApplication.java.
- You should use **HashMap** as a data structure.

SUBMISSION RULES:

- You should create your Java project as **ID1_ID2_HW6** and export as **ID1_ID2_HW6.zip**
- You should upload your zip file **ID1_ID2_HW6.zip** to the CMS which should contain your Java project and UML diagram(**ID1_ID2_HW6_UML.(pdf, jpg, png**).
- One of the group members is sufficient to upload homework to the CMS.
- You should add an author comment to the top of each class that you implement.