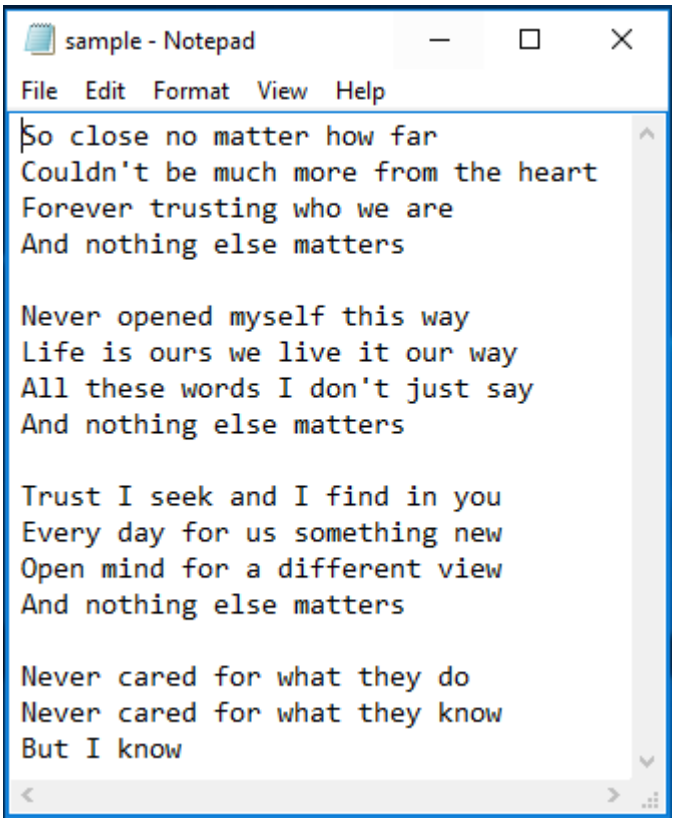
CSE 2105 – Data Structures
2021 – 2022 Fall Semester Project

1. Write a Java program that takes a sequence of integer values and when the user enters a number that already given before, the program stops, otherwise it continues to get numbers. (i.e., the program runs endlessly if all the numbers are distinct from each other).

2. Given two sorted lists L1 and L2, write a Java program to generate a third list which contains all nodes of L1 and L2 in sorted order. (i.e., the third list is sorted too). Same values in lists should be retrieved only once i.e., union set of lists should be created (You can assume that the lists contain only integer values).

3. Suppose you are given a list of String values. Write a Java program with an efficient approach for removing all duplicates from this collection (i.e., only one of each value should remain).

4. Implement a Java application that finds distinct word size in a text file. Ignore the case (i.e., consider "The" and "the" as the same word). For example, if the user gives sample file below to your application, your application should print **62** to the screen as distinct word size.



5. Implement a Java application that finds how many from each word in a text file. For example, if the user gives sample file above (the same with the first question) to your application, your application should print something like below (for each 62 words):

```
a=1, all=1, and=4, are=1, be=1, but=1, cared=2, close=1, couldn't=1,
day=1, different=1, do=1, don't=1, else=3, every=1, far=1, find=1,
for=4, forever=1, ……
```

!!! Your implementations should be **efficient** as possible. Write your own algorithms! Write test classes to try your programs and show that they are working correctly.

P.S.: You can prepare your project yourself (single person) or as **at most three** people groups. (It means you cannot work as a four/five-people group !) You have to submit a **report (very important !)**, and Java code (your classes) of your program. (You can use any IDE you want.) Please upload your compressed(zip/rar) file(that includes your report and Java source code files – not project files) to the **Microsoft Teams** page of the course to the appropriate area(projects that are sent via e-mail or other different ways of sending, will not be accepted !) before **28 December 2021, Tuesday.** One of the group member's project upload is sufficient, but please write your numbers and names to your report and in Java source code files.