Vanier College
Computer Science Department

Programming 2

LAB 9

Q1: Write a program that finds the word with the most consecutive double letters in an input text file "word.txt" which is included in the folder *Lab9*.

Q2: a) Write a program that will create a binary file called Lab9Q2.dat containing integers. Prompt the user for the integers and write them to the file.

b) Write a program that will search the binary file you created in part a) of this question and will write the largest and smallest numbers to the screen.Your program should make sure that there is at least one integer in the file. If the file is empty, it should display a message to that effect and terminate the program.

Q3: Write a program that will count the total occurrences of the number '10' in a text file of strings representing numbers of type int and will show the value of the count on the screen once the whole file is read. The file contains the following numbers separated by space.
10 4 7 8 10 34 11 10 15 6 10

Q4: Write a program that takes its input from a text file of strings representing numbers of type double and outputs the average of the numbers in the file to the screen. The file contains nothing but strings representing numbers of type double, one per line.

Q5: Write a program that takes its input from a text file of strings representing numbers
of type double. The program outputs to the screen the average and standard deviation of the numbers in the file. The file contains nothing but strings representing numbers of type double, one per line. The standard deviation of a list of numbers $n1$, $n2$, $n3$, and so forth is defined as the square root of the average of the following numbers:

$(n1 - a)2$, $(n2 - a)2$, $(n3 - a)2$, and so forth.

The number a is the average of the numbers $n1$, $n2$, $n3$, and so forth.
Hint: Write your program so that it first reads the entire file and computes the average of all the numbers, then closes the file, and then reopens the file and computes the standard deviation. You will find it helpful to first do Q4 and then modify that program in order to obtain the program for this question.

Q6: The text files `boynames.txt` and `girlnames.txt`, which are included in the in the lab folder, contain a list of the 1,000 most popular boy and girl names in the United States for the year 2003 as compiled by the Social Security Administration.

These are blank-delimited files, where the most popular name is listed first, the second most popular name is listed second, and so on, to the 1,000th most popular name, which is listed last. Each line consists of the first name followed by a blank space and then the number of registered births using that name in the year. For example, the girlnames.txt file begins with

```
Emily 25494
Emma 22532
Madison 19986
```

This indicates that Emily was the most popular name with 25,494 registered namings, Emma was the second most popular with 22,532, and Madison was the third most popular with 19,986.

Write a program that reads both the girl and boy files into memory using arrays. Then, allow the user to input a name. The program should search through both arrays. If there is a match, then it should output the popularity ranking and the number of namings. The program should also indicate if there is no match. For example, if the user enters the name “Justice,” then the program should output

```
Justice is ranked 456 in popularity among girls with 655 namings.
Justice is ranked 401 in popularity among boys with 653 namings.
```

If the user enters the name “Walter,” then the program should output

```
Walter is not ranked among the top 1000 girl names.
Walter is ranked 356 in popularity among boys with 775 namings.
```