Scala SCS 2204
Functional Programming
Scala Tutorial – 10

1. Implement a Data Structure for Rational Number and create a method neg to class Rational that is used like this:

   x.neg // evaluates to -x

2. Create a method sub to subtract two rational numbers and find an answer x y-z where

   x=3/4, y=5/8, z=2/7.

3. Implement a Data Structure for Account and create a method transfer which transfers the money from this account to a given account.

   Basic functions: Deposit, Withdraw, Transfer

4. A Bank is defined as a List of Accounts. So, implement the following functions:

   4.1 List of Accounts with negative balances

   4.2 Calculate the sum of all account balances

   4.3 Calculate the final balances of all accounts after applying the interest function as follows:

   If balance is positive, deposit interest is .05 and if balance is negative, overdraft interest is .1

5. Write a Scala function called countLetterOccurrences that takes a list of words as input and uses the map function to transform the words into their respective lengths (number of letters), and then uses the reduce function to calculate the total count of letter occurrences in all the words combined.

   Example: Input: ["apple", "banana", "cherry", "date"]

   Output: Total count of letter occurrences: 21

   Implement the countLetterOccurrences function using the map and reduce methods.