Assignment 14

Task 1:

Given a list of strings - List[String] (“alpha”, “gamma”, “omega”, “zeta”, “beta”)

- Find count of all strings with length 4.

- Convert the list of string to a list of integers, where each string is mapped to its corresponding length.

- Find count of all strings which contain alphabet ‘m’.

Find the count of all strings which start with the alphabet ‘a’

Ans:

Note: The _ acts as a placeholder for parameters in the anonymous function. Here the _ refers to the parameter.

e.g. foreach(**print(_)**) and foreach(**a => print(a)**) are same .

```
scala> var str_list = List("alpha", "gamma", "omega", "zeta", "beta")
str_list: List[String] = List(alpha, gamma, omega, zeta, beta)

scala>
```

Here we are storing a list of strings within variable str_list.

1. Find count of all strings with length 4.

str_list.**count**(**_.length**==4)

//str_list.**filter**(_.length==4).length

Exp: (This can be done by two ways as listed above. Can count the the length of each item within list to be equal to 4 & select those items //
or filter the list based on item length equal to 4 & find the length of the returned list**).**

```
scala> str_list.count(_.length==4)
res0: Int = 2

scala> str_list.count(_.length==4)
res1: Int = 2

scala> str_list.filter(_.length==4)
res2: List[String] = List(zeta, beta)
```

2. Convert the list of string to a list of integers, where each string is mapped to its corresponding length.

Ans: val count_str = str_list**.map(str=>(str,str.length))**

Explanation: Here Iterating through the entire list & using map function fetching the particular item & it's length in order to store into a new list called count_str**.**

```
scala> val count_str = str_list.map(str=>(str,str.length))
count_str: List[(String, Int)] = List((alpha,5), (gamma,5), (omega,5), (zeta,4), (beta,4))
```

```
scala> val count_str = str_list.map(_.length)
count_str: List[Int] = List(5, 5, 5, 4, 4)
```

3.Find count of all strings which contain alphabet 'm'

```
scala> str_list.count(_.contains("m"))
res4: Int = 2
```

4. Find the count of all strings which start with the alphabet 'a'.

str_list**.count(_.startsWith("a"))**

```
scala> str_list.count(_.startsWith("a"))
res5: Int = 1
```

Task 2
Create a list of tuples, where the 1st element of the tuple is an int and the second
element is a string.
Example - ((1, 'alpha'), (2, 'beta'), (3, 'gamma'), (4, 'zeta'), (5, 'omega'))
- For the above list, print the numbers where the corresponding string length is 4.
- find the average of all numbers, where the corresponding string contains alphabet 'm'
or alphabet 'z'.

Ans: We can solve this in following ways:

var x = 0 // Declaring an Int var x & initialising it to zero.

```
scala> var x=0
x: Int = 0
```

```
scala> var lst_tup = List((1, "alpha"), (2, "beta"), (3, "gamma"), (4, "zeta"), (5, "omega"))
lst_tup: List[(Int, String)] = List((1,alpha), (2,beta), (3,gamma), (4,zeta), (5,omega))
```

Saving the count of all those tuples whose string length is equal //count within y.

”_” fetches the items from the list &

//**“._2”** fetches the second item within the tuple.

```
scala> var y = lst_tup.filter(_._2.length==4).length
y: Int = 2
```

//Iterating through the list of tuples till the upper count that was calculated earlier
while (x<y) {

//Printing all the numbers from tuples by selecting them using ._1 where
//corresponding String length is 4
and //incrementing value of x by 1 after each iteration

```
scala> while(x<y){
     | println(lst_tup.filter(_._2.length==4)(x)._1)
     | x+=1
     | }
2
4
```

Alternatively we can use
a pattern matching anonymous function: `{ case (param1, param1) => ... }

```
scala> lst_tup.filter{case(number,string)=> string.length==4}.map{case(number,string)=>number}
res3: List[Int] = List(2, 4)
```

Or

```
scala> lst_tup.filter(_._2.length==4).map(_._1)
res0: List[Int] = List(2, 4)
```

2. find the average of all numbers, where the corresponding string contains alphabet ‘m’ or alphabet ‘z’.

var i = 0 // Declaring an Int var i & initialising it to zero.
var sum = 0 // Declaring an Int var sum & initialising it to zero.

```
scala> var i=0
i: Int = 0

scala> var sum=0
sum: Int = 0
```

// Saving the count of all those tuples whose string contains letter “m” or “z” using //“||”(OR) Boolean Operator & saving the count within upper_limit. ”_” fetches //the items from the list & **“._2”** fetches the second item within the tuple.

var upper_lmt = lst_tup.**filter**(x=>x._2.**contains**("m")
|| x._2.**contains**("z")).**length**

//Iterating through the list of tuples till the upper count that was calculated

earlier. while (i< upper_lmt) {

//Adding all the numbers from tuples by selecting them using ._1 where //corresponding String contains letter “m” or “z” using “||”(OR) Boolean Operator & //saving the count within variable sum

sum+=lst_tup.**filter**(x=>x._2.**contains**("m") || x._2.**contains**("z"))(i)._1

//incrementing value of i by 1 after each iteration.

i += 1

}

//Calculating the avg by dividing total sum from length & Printing the Avg

println("Avg is : "+sum/upper_lmt)

```
scala> var upper_lmt = lst_tup.filter(x=>x._2.contains("m") || x._2.contains("z")).length
upper_lmt: Int = 3

scala>  while (i< upper_lmt) {
     | sum+=lst_tup.filter(x=>x._2.contains("m") || x._2.contains("z"))(i)._1
     | i+=1}

scala>  while (i< upper_lmt) {
     | sum+=lst_tup.filter(x=>x._2.contains("m") || x._2.contains("z"))(i)._1
     |  i+=1}

scala> println("Avg is : "+sum/upper_lmt)
Avg is : 4
```