Amrita School of Engineering
Department of Computer Science and Engineering
19CSE313 – Principles of programming Languages

Lab-Evaluation-2

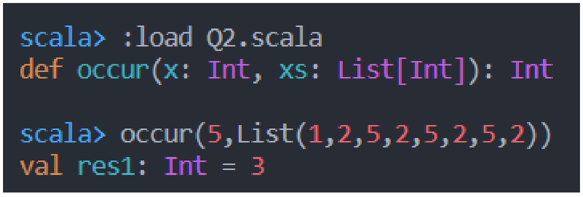
Date: 11/04/2022 **Topic: Scala** **Time: 1hrs**

2. **Write a functional Scala program occur that finds the number of occurrences of a given element in a given list. For example occur 5 (1,2,5,2,5,2,5,2) should return 3 as 5 occurs 3 times in the given list. It is expected that your function occur should work on nested lists too. So occur 5 ((1,2,5,2), (5,2),(5,2)) should still return 3!!**
   Logic:

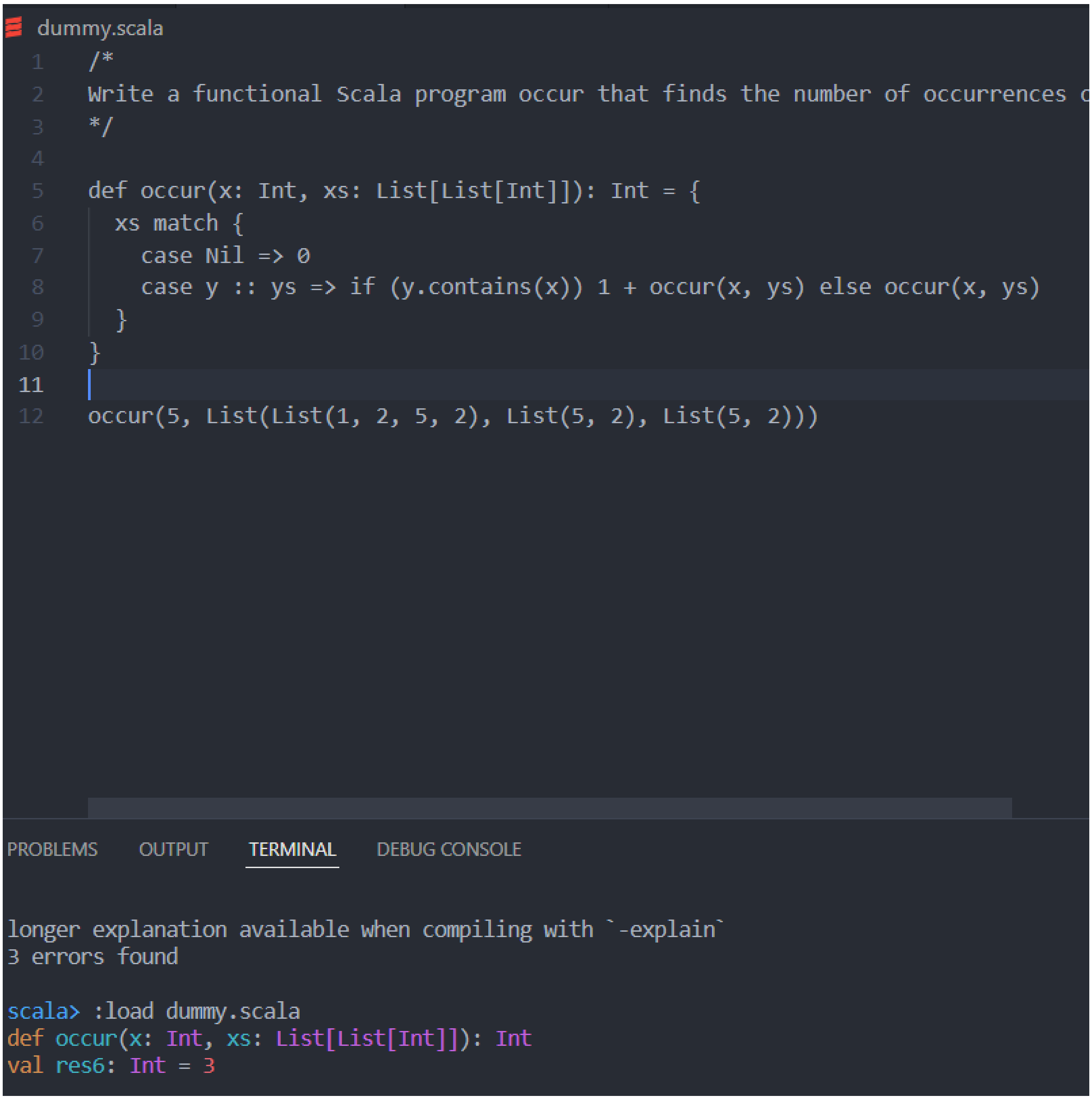
   Code:

```
def occur(x: Int, xs: List[List[Int]]): Int = {
  xs match {
    case Nil => 0
    case y :: ys => if (y.contains(x)) 1 + occur(x, ys) else
occur(x, ys)
  }
}

occur(5, List(List(1, 2, 5, 2), List(5, 2), List(5, 2)))
```

Output:



```
scala> :load Q2.scala
def occur(x: Int, xs: List[Int]): Int

scala> occur(5,List(1,2,5,2,5,2,5,2))
val res1: Int = 3
```



```scala
/*
Write a functional Scala program occur that finds the number of occurrences o
*/

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    case y :: ys => if (y.contains(x)) 1 + occur(x, ys) else occur(x, ys)
  }
}

occur(5, List(List(1, 2, 5, 2), List(5, 2), List(5, 2)))
```
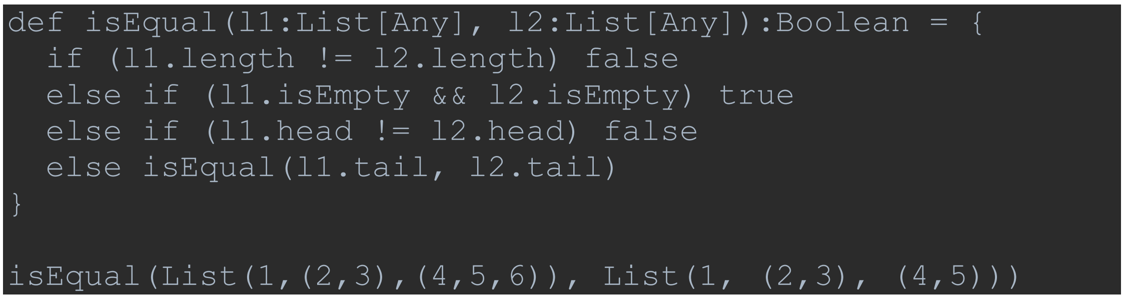

```
longer explanation available when compiling with `-explain`
3 errors found

scala> :load dummy.scala
def occur(x: Int, xs: List[List[Int]]): Int
val res6: Int = 3
```

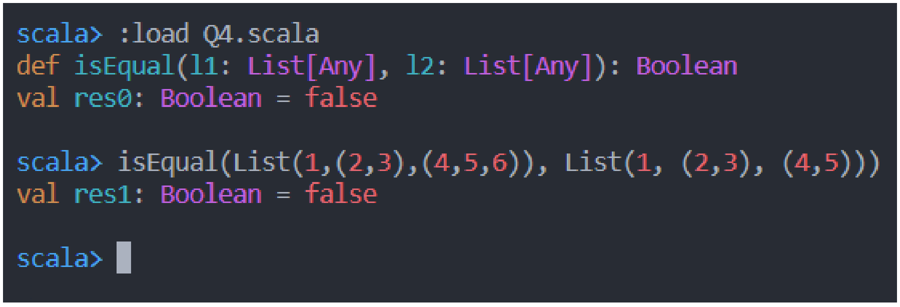
4. **You are aware of the == that checks the equality of two lists. Write a functional Scala program isEqual that accepts two lists (may even contain nested list elements!!) and checks whether the two lists are equal? For example isEqual (1,(2,3),(4,5,6)) (1, (2,3), (4,5)) should return False.**

Code:



```
def isEqual(l1:List[Any], l2:List[Any]):Boolean = {
  if (l1.length != l2.length) false
  else if (l1.isEmpty && l2.isEmpty) true
  else if (l1.head != l2.head) false
  else isEqual(l1.tail, l2.tail)
}

isEqual(List(1,(2,3),(4,5,6)), List(1, (2,3), (4,5)))
```

Output:



```
scala> :load Q4.scala
def isEqual(l1: List[Any], l2: List[Any]): Boolean
val res0: Boolean = false

scala> isEqual(List(1,(2,3),(4,5,6)), List(1, (2,3), (4,5)))
val res1: Boolean = false

scala> 
```