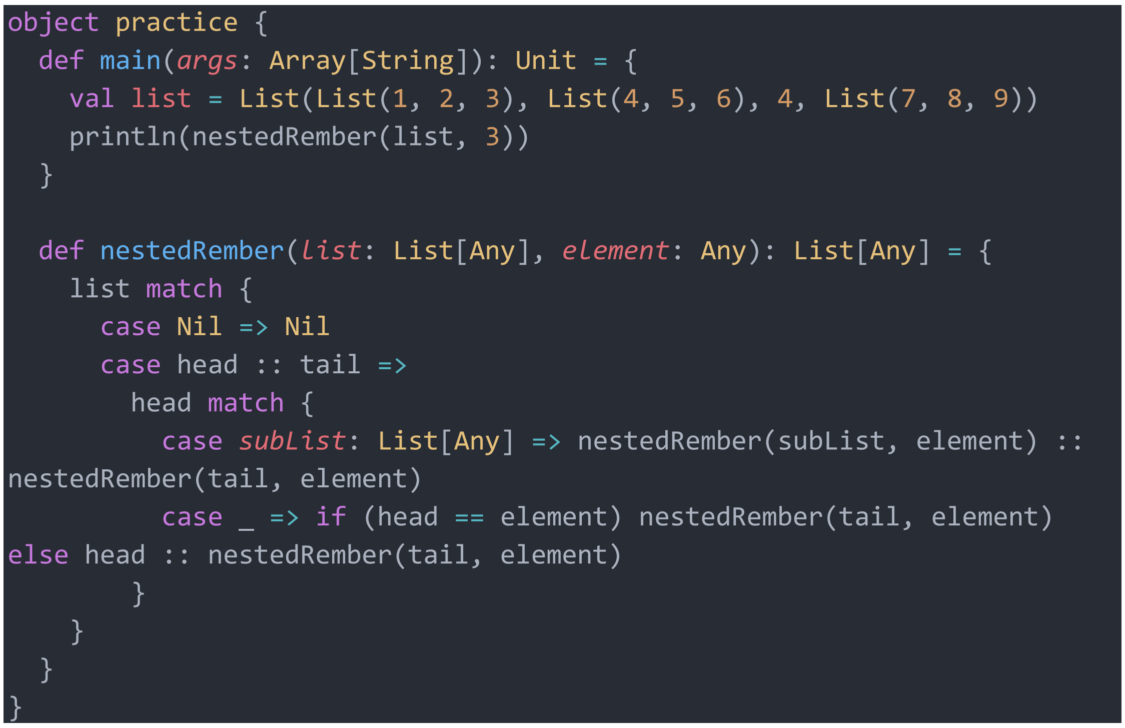
Amrita School of Engineering
Department of Computer Science and Engineering
19CSE313 – Principles of programming Languages

Practice Assignment

Date: 25/04/2022 **Topic: Scala**

1. **Write a functional Scala program nestedRember to remove a given element in a nested list. The function should remove all occurrences of the element even if it is inside a sub-list.**

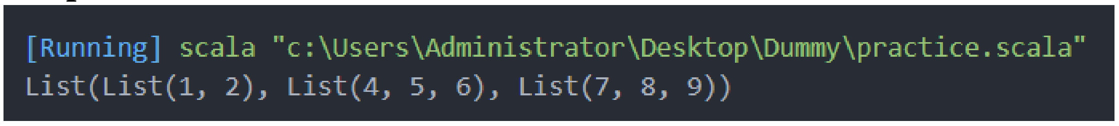
Code:



```scala
object practice {
  def main(args: Array[String]): Unit = {
    val list = List(List(1, 2, 3), List(4, 5, 6), 4, List(7, 8, 9))
    println(nestedRember(list, 3))
  }

  def nestedRember(list: List[Any], element: Any): List[Any] = {
    list match {
      case Nil => Nil
      case head :: tail =>
        head match {
          case subList: List[Any] => nestedRember(subList, element) ::
nestedRember(tail, element)
          case _ => if (head == element) nestedRember(tail, element)
else head :: nestedRember(tail, element)
        }
    }
  }
}
```

Output:



```
[Running] scala "c:\Users\Administrator\Desktop\Dummy\practice.scala"
List(List(1, 2), List(4, 5, 6), List(7, 8, 9))
```

2. **The interleave function interleaves two given lists like the following. interleave((1,2,3), (-1,-2,-3)) returns (1,-1,2,-2,3,-3). Write a functional Scala program nestedInterleave that accepts nested lists and returns interleaved sub-lists.**
   Code:

```scala
def nestedInterleave(l1: List[Any], l2: List[Any]): List[Any] = {
  (l1, l2) match {
    case (Nil, Nil) => Nil
    case (Nil, _) => l2
    case (_, Nil) => l1
    case (h1::t1, h2::t2) => h1::h2::nestedInterleave(t1, t2)
  }
}
```

3. **NestedSetUnion:**
   Code:

```scala
def nestedSetUnion(list1: List[Any], list2: List[Any]): List[Any] = {
  (list1, list2) match {
    case (Nil, _) => list2
    case (_, Nil) => list1
    case (x :: xs, y :: ys) =>
      if (x == y) nestedSetUnion(xs, ys)
      else x :: nestedSetUnion(xs, ys)
  }
}

println(nestedSetUnion(((1,2),3,4), ((1,2),(3,4))))
```