Sample Lab Quiz 1

```scala
object Q1 {

 def computeOnList(input: List[Int]): Int = {
   var result = 0
   for(value <- input){
     result += computeOnInt(value)
   }
   result
 }

 def computeOnInt(input: Int): Int = {
   if(input > 10){
     input - 3
   }else{
     input * 2
   }
 }

 def main(args: Array[String]): Unit = {
   val numbers: List[Int] = List(4,12,7)
   val result: Int = computeOnList(numbers)
   println(result)
 }

}
```

Q1(20 points): What is printed to the screen when this program is executed?

```scala
/**
 * Returns the longest String in the input list. If there is a tie, any of the longest
 * Strings may be returned
 */
def longestString(input: List[String]): String = {
 val longest = input.head
 for(word <- input){
   if(word.length > longest.length){
     longest = word
   }
 }
 longest
}
```

Q2(20 points): This method contains 2 errors. Identify and describe both errors

```
object Q3 {
 def main(args: Array[String]): Unit = {
   val worth: Double = 10000.0
   val theHeist: Heist = new Heist(new Loot(worth))
   theHeist.manageRisk()
   theHeist.manageRisk()
   println(theHeist.theTake.worth)
 }
}

class Heist(val theTake: Loot){
 def manageRisk(): Unit = {
   theTake.worth -= 1000
 }
}

class Loot(var worth: Double){}
```

Q3a(5 points): What is printed to the screen when this program is executed?

Q3b(25 points): Draw the state of the stack and heap immediately before the highlighted line is executed. Include all names and values of variables and specify which values are stored on the stack and which are stored on the heap.

```
object Q4 {

 def computeOnMap(input: Map[String, Int]): Int = {
   val cutoff: Int = 6
   var result: Int = -1
   for((key, value) <- input){
     if(value > cutoff){
       result = computeOnString(key)
     }
   }
   result
 }

 def computeOnString(input: String): Int = {
   val result: Int = input.length
   result
 }

 def main(args: Array[String]): Unit = {
   val mapping: Map[String, Int] = Map("seven" -> 7, "one" -> 1, "six" -> 6)
   val result: Int = computeOnMap(mapping)
   println(result)
 }
}
```

Q4a(5 points): What is printed to the screen when this program is executed?

Q4b(25 points): Draw the state of the stack and heap immediately before the highlighted line is executed. Include all names and values of variables and specify which values are stored on the stack and which are stored on the heap.