

Review: Chapter 2 Programming

2.11 Methods

```
4 public static boolean isAPrefix(String prefix, String s) {
5
6     // Check to make sure the given String s
7     // isn't shorter than the prefix
8     if (s.length() < prefix.length())
9     {
10         return false;
11     }
12
13     // Loop through the first x chars as given by the preix length
14     for (int index = 0; index < prefix.length(); index++)
15     {
16         // If they don't match return
17         if (s.charAt(index) != prefix.charAt(index))
18         {
19             return false;
20         }
21     }
22
23     // If we didn't return false then it must be true
24     return true;
25 }
```

2.11 Output

c:\Users\wes\github-repos\cs2420_summer2023\Chapter2\Assignment_02_11 - VS Code Console

```
Starting tests
Ending tests: No red output in eclipse means success
Press any key to continue . . .
```

Review: Chapter 2 Programming

2.14 & 2.15 Methods

```
4 public static int sum(int [] a) {
5
6     // This is the total sum
7     int sumValue = 0;
8
9     // Use an enhanced for loop to sum everything
10    for (int value : a)
11    {
12        sumValue += value;
13    }
14
15    return sumValue;
16 }
17 public static int sum(int [][] a) {
18     // This is the total sum
19     int twoSumValue = 0;
20
21     // Use an enhanced for loop to call the
22     // single dimensional array sum method
23     for (int[] values : a)
24     {
25         twoSumValue += sum(values);
26     }
27
28     return twoSumValue;
29 }
30
31 public static int average(int [] a) {
32     // Return the sum of everything divided by the length
33     return sum(a) / a.length;
34 }
35 public static int average(int [][] a) {
36     // length is the total amount of items
37     // sum will be the final sum
38     int length = 0;
39     int sum = 0;
40
41     // add the amount to length
42     // then add up the sums
43     for (int[] values : a)
44     {
45         length += values.length;
46         sum += sum(values);
47     }
48
49     return sum / length;
50 }
```

2.14 & 2.15 Output

c:\Users\wes\github-repos\cs2420_summer2023\Chapter2\Assignment_02_14_15 - VS Code Console

```
Starting tests
Ending tests: No red output in eclipse means success
Press any key to continue . . .
```

Review: Chapter 2 Programming

2.34 Classes

```
1  public class Entry {
2      public String name;
3      public int age;
4
5      public Entry(String _name, int _age)
6      {
7          this.name = _name;
8          this.age = _age;
9      }
10 }
```

2.34 Methods

```
12  public static ArrayList<Entry> oldest(String filename, boolean single)
13  {
14      ArrayList<Entry> oldest = new ArrayList<>();
15
16      int oldestAge = 0;
17
18      ArrayList<Entry> entries = readFile(filename);
19
20      // Loop through the entries to find the oldest
21      for (Entry entry : entries)
22      {
23          // We found an older one
24          if (entry.age > oldestAge)
25          {
26              oldest.clear();
27              oldest.add(entry);
28              oldestAge = entry.age;
29          }
30          // We found one just as old
31          else if (entry.age == oldestAge)
32          {
33              oldest.add(entry);
34          }
35      }
36
37      // Allows the method to work for part a and b
38      if (oldest.size() != 1 && single)
39      {
40          Random rand = new Random();
41          oldest.clear();
42          oldest.add(entries.get(rand.nextInt(entries.size())));
43          return oldest;
44      }
45      else
46      {
47          return oldest;
48      }
49  }
```

Review: Chapter 2 Programming

```
51 public static ArrayList<Entry> readFile(String filename)
52 {
53     // This will be the list of entries in the file
54     ArrayList<Entry> ret = new ArrayList<>();
55
56     FileInputStream inputStream = null;
57     BufferedInputStream input = null;
58
59     try
60     {
61         inputStream = new FileInputStream(filename);
62         input = new BufferedInputStream(inputStream);
63
64         String data = new String(input.readAllBytes());
65
66         String[] lines = data.split(regex:"\\r\\n");
67
68         for (String line : lines)
69         {
70             // Split each line of the file and add as an entry
71             String[] contents = line.split(regex:" ");
72             String name = String.format(format:"%s %s", contents[0], contents[1]);
73             int age = Integer.parseInt(contents[2]);
74
75             ret.add(new Entry(name, age));
76
77             //System.out.format("%s %d\\n", name, age);
78         }
79
80         input.close();
81     }
82     catch (IOException e)
83     {
84         System.err.println(e.getMessage());
85     }
86
87     return ret;
88 }
89
```

```
93 public static void outputNames(ArrayList<Entry> oldest)
94 {
95     // Print some stars and then loop through
96     // the oldest list and print
97     System.out.println(starLine());
98     for (Entry entry : oldest)
99     {
100         System.out.format(format:"%4s-%20s :%d\\n", ...args:"", entry.name, entry.age);
101     }
102     System.out.format(format:"%s\\n\\n", starLine());
103 }
104
105 public static String starLine()
106 {
107     // draw a line of stars
108     String stars = String.format(format:"%20s", ...args:"");
109     stars = stars.replace(target:" ", replacement:"*");
110     return stars;
111 }
112
```

Review: Chapter 2 Programming

2.34 Output

```
c:\Users\wes\github-repos\cs2420_summer2023\Chapter2\Assignment_02_34 - VS Code Console
Testing 2.34a for small file
*****
-   Alain Deslauriers :81
*****

Testing 2.34b for small file
*****
-   Carleen Compeau :116
-   Milena Woltmann :116
*****

Testing 2.34a for large file
*****
-   Milena Woltmann :116
*****

Testing 2.34b for large file
*****
-   Carleen Compeau :116
-   Milena Woltmann :116
*****

Press any key to continue . . .
```