Report on s1709906's revision attempt at Inf1OP Programming Exam (sitting 2)

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Question 1

Part 1all

Compiling PremiumCustomer.java with the basic tests given to students in the exam succeeded.

Passed all 0 basic tests.

Compiling the submitted PremiumCustomer.java with the test file worked fine.

Passed all 0 tests.

Marks for this part: 50 / 50

Submitted PremiumCustomer.java

```
1
2  public class Lucas {
3
4      private static long[] lucas;
5      private static double phiPlus = (Math.sqrt(5) + 1) / 2;
6      private static double phiMinus = (Math.sqrt(5) - 1) / 2;
7
8      public static void upto(int n) {
9          lucas = new long[n];
10         lucas[0] = 2L;
11         lucas[1] = 1L;
12
13         if (n > 2) {
14             for (int i = 2; i < n; i++) {
15                 lucas[i] = lucas[i-1] + lucas[i-2];
16             }
17         }
18
19 //         String out = "";
```

```
20 //         for (int i = 0 ; i < lucas.length; i++) {
21 //             out += lucas[i] + " ";
22 //         }
23 //
24 //         out = out.substring(0, out.length()-1);
25 //         System.out.println(out);
26     }
27
28     public static boolean isPrime(long x) {
29         for (int i = 2; i < x; i++) {
30             if ((x % i) == 0) {
31                 return false;
32             }
33         }
34         return true;
35     }
36
37     public static void primes() {
38         for (int i = 0; i < lucas.length; i++) {
39             if (isPrime(lucas[i]) && lucas[i] > 1) {
40                 System.out.println("L(" + i + ")=" + lucas[i
   ] );
41             }
42         }
43     }
44
45     public static double maxDiffClosedForm() {
46         double[] closed = new double[lucas.length];
47         for (int i = 0; i < lucas.length; i++) {
48             closed[i] = Math.pow(phiPlus, i) + Math.pow(-1 *
    phiMinus, i);
49         }
50
51         double maximum = 0;
52         for (int i = 0; i < lucas.length; i++) {
53             double n = Math.abs(lucas[i] - closed[i]);
54             if (n > maximum) {
55                 maximum = n;
56             }
57         }
58         return maximum;
59     }
60
61     public static void main(String[] args) {
62       int n = Integer.parseInt(args[0]);
63         upto(n);
64         primes();
65         System.out.println(String.format("%.15f", Lucas.
   maxDiffClosedForm()));
66     }
```

```
67 }
```

Marks for Question 1: 50/50

Question 2

Part 2all

Compiling Lucas.java with the basic tests given to students in the exam succeeded.

Passed all 0 basic tests.

Compiling the submitted Lucas.java with the test file worked fine.

Passed all 0 tests.

Marks for this part: 50 / 50

Submitted Lucas.java

```
1  import java.util.HashMap;
2  import java.util.Map;
3
4  class PremiumCustomer extends Customer {
5
6      private Map<String, String> freeGifts = new HashMap<
   String,String>();
7      private String name;
8
9      public PremiumCustomer(String name, Map<String, String>
   freeGifts) {
10         super(name);
11         this.freeGifts = freeGifts;
12     }
13
14     public void giftsFrom(String item, int quantity) {
15         if (freeGifts.containsKey(item)) {
16             System.out.print(freeGifts.get(item) + "␣x␣" +
   quantity);
17         }
18     }
19
20     @Override
21     public String toString() {
22         String s = super.toString() + "\nFree␣gifts:";
23         for (String key : freeGifts.keySet()) {
24             s = s + "\n" + freeGifts.get(key) + "␣on␣
   ordering␣" + key;
```

```
25          }
26
27          return s;
28      }
29
30      public int chocolateGifts() {
31          int count = 0;
32          for (String value : freeGifts.values()) {
33              if (value.contains("chocolate")) {
34                  count++;
35              }
36          }
37          return count;
38      }
39
40      public static void main(String[] args) {
41          Map<String, String> h1 = new HashMap<String,String
    >();
42          h1.put("printer␣cartridge", "chocolate␣bar");
43          h1.put("box␣of␣paper", "biscuits");
44          PremiumCustomer pc1 = new PremiumCustomer("Charles",
    h1);
45  //          pc1.giftsFrom("printer cartridge", 3);
46          System.out.println(pc1.toString());
47  //          System.out.println(pc1.chocolateGifts());
48      }
49  }
```

Marks for Question 2: 50/50

Total marks: 100 / 100