```
1  import java.util.function.*;
2
3  interface NumberCategory {
4      boolean checkNumberCategory(int
           number1, int number2);
5  }
6
7  class NumberCategoryUtility {
8      public static NumberCategory
           checkAmicable() {
9          return (number1, number2)
               -> {
10             int sum1 = 0, sum2 = 0;
11             for (int i = 1; i <=
                   number1 / 2; i++) {
12                 if (number1 % i ==
                       0)
13                     sum1 += i;
14             }
15             for (int i = 1; i <=
                   number2 / 2; i++) {
16                 if (number2 % i ==
                       0)
17                     sum2 += i;
18             }
19             return sum1 == number2
```

```
18          }
19          return sum1 == number2
                && sum2 == number1;
20      };
21  }
22
23      public static NumberCategory
            checkPalindrome() {
24          return (number1, number2)
                -> {
25              int product = number1 *
                    number2;
26              String productStr =
                    String.valueOf
                    (product);
27              StringBuilder
                    reverseStr = new
                    StringBuilder
                    (productStr
                    ).reverse();
28              return productStr
                    .equals(reverseStr
                    .toString());
29          };
30      }
```

```
31  }
32
33  public class UserInterface {
34      public static void main
            (String[] args) {
35          java.util.Scanner sc = new
                java.util.Scanner
                (System.in);
36          System.out.println("Enter
                the first number:");
37          int number1 = sc.nextInt();
38          System.out.println("Enter
                the second number:");
39          int number2 = sc.nextInt();
40
41          NumberCategory
                amicableChecker =
                NumberCategoryUtility
                .checkAmicable();
42          NumberCategory
                palindromeChecker =
                NumberCategoryUtility
                .checkPalindrome();
43
44          boolean areAmicable
                amicableChecker
```

```
44      boolean areAmicable =
            amicableChecker
            .checkNumberCategory
            (number1, number2);
45      boolean isPalindrome =
            palindromeChecker
            .checkNumberCategory
            (number1, number2);
46
47      if (areAmicable) {
48          System.out.println
                (number1 + " and "
                + number2 + " are
                amicable numbers");
49      } else {
50          System.out.println
                (number1 + " and "
                + number2 + " are
                not amicable
                numbers");
51      }
52
53      if (isPalindrome) {
54          System.out.println
                ("Their Pro
                (number1 * number2)
```

```
49          } else {
50              System.out.println
                    (number1 + " and "
                    + number2 + " are
                    not amicable
                    numbers");
51          }
52
53          if (isPalindrome) {
54              System.out.println
                    ("Their Product " +
                    (number1 * number2)
                    + " does produce a
                    Palindrome");
55          } else {
56              System.out.println
                    ("Their Product " +
                    (number1 * number2)
                    + " does not
                    produce a
                    Palindrome");
57          }
58
59          sc.close();
60      }
61  }
```

```
java -cp /tmp/6KIIIdVKWb/UserInterface
Enter the first number:
150
Enter the second number:
237
150 and 237 are not amicable numbers
Their Product 35550 does not produce a
    Palindrome

=== Code Execution Successful ===
```