Tutorial problems – Wed 04 Dec and Fri 06 Dec

10min Ask whether there are any questions. Collect these by writing them on the board and decide with the whole group which of these to address in the 10 minutes available for question answering. The answering of the questions may also be put to the end of the tutorial.

20min The students should again work in small group of 2 or 3 to address the following problem:

Assume the `Customer` class from week 6 with fields `private String customerName`, `private String address`, and `private String telephoneNumber`. Assume the address contains the email address.

- Write a method

```
public static ArrayList<Customer>
   findLocalCostumers(ArrayList<Customer> allCustomers,
                      String areaCode)
```

  which takes the ArrayList of all customers and puts all those whose telephone number starts with the `areaCode` into the resulting ArrayList of customers. E.g., for Birmingham the `areaCode` would be `"0121"`.

  Discuss with the students the difference of modifying the existing ArrayList vs creating a new ArrayList. In this case a new ArrayList should be created since we do not want to lose the non-local customers.

- Write a method

```
public static void
    generateWelcomeEmails(ArrayList<Customer> localCustomers)
```

  that generates new files (named 1, 2, 3, ...) each containing an email to one of the local customers with the following content:

```
To: ...
From: ACME
Subject: Welcome to new local service
--------
Dear ...,
Welcome to our new local service.
```

  where the `...` after the "To:" is to be filled with the address and the `...` after the "Dear" with the name of the customer. Make use of the BufferedWriter as in `BufferedWriter out = new BufferedWriter(new FileWriter(filename))`.

p.t.o.

20min Assume that the distance between two adjacent grid lines is 10 pixels and that the left upper corner is at position $(0, 0)$. Write a method `public void start(Stage stage) throws Exception` that draws the stylized magnifying glass AND the 42 grid lines (21 horizontal lines and 21 vertical lines) as displayed below.