

Software Workshop – Exercises

6 October 2015

Submissions must be made using Canvas, in the following format.

SUBMISSIONS NOT COMPLYING WITH THESE GUIDELINES WILL HAVE 2 MARKS DEDUCTED.

Uploaded file must be: studentid.zip
in the zip format. Rar or tar.gz will not be accepted.

Archive must contain: Question1.java, Question2.java, etc.
Only .java files should be submitted, with classes named Question1, Question2... unless specified otherwise in the question. They should be zipped directly, not placed in any directories or similar.

All submissions must be made by midnight on the Sunday the exercise is due.
Submissions after this time **WILL NOT BE MARKED** and will receive **ZERO**.

For each question, assume your main method begins as follows:

```
public static void main(String[] args)
{
    Scanner in = new Scanner(System.in);

    ArrayList<String> list = new ArrayList<String>();

    System.out.println("Enter a string (enter stop to finish)");
    String s = in.nextLine();

    while(!s.equals("stop"))
    {
        list.add(s);

        System.out.println("Enter a string (enter stop to finish)");
        s = in.nextLine();
    }
}
```

Question 1 [4 marks]

Complete the program so that it prints out the longest string in **list**.
For example, a run of the program might look like this:

```
Enter a string (enter stop to finish)
banana
Enter a string (enter stop to finish)
apple
Enter a string (enter stop to finish)
pineapple
Enter a string (enter stop to finish)
stop
The longest string was pineapple
```

Question 2 [4 marks]

Complete the program so that the order of the strings in **list** is reversed. Print out the strings to verify this.
For example, a run of the program might look like this:

```
Enter a string (enter stop to finish)
banana
Enter a string (enter stop to finish)
apple
Enter a string (enter stop to finish)
pineapple
Enter a string (enter stop to finish)
stop
pineapple
apple
banana
```

Question 3 [4 marks]

Complete the program so that all strings in **list** which contain more than three characters are replaced with just their first three characters. Print out the strings to verify this. For example, a run of the program might look like this:

```
Enter a string (enter stop to finish)
banana
Enter a string (enter stop to finish)
apple
Enter a string (enter stop to finish)
pineapple
Enter a string (enter stop to finish)
stop
ban
app
pin
```

Question 4 [6 marks]

Complete the program to create a new ArrayList which contains each string from list exactly once. Print out the strings to verify this. For example, a run of the program might look like this:

```
Enter a string (enter stop to finish)
banana
Enter a string (enter stop to finish)
apple
Enter a string (enter stop to finish)
banana
Enter a string (enter stop to finish)
pineapple
Enter a string (enter stop to finish)
stop
banana
apple
pineapple
```

Question 5 [6 marks]

Complete the program so that it finds the string that occurs most often in the list, and prints it out.

For example, a run of the program might look like this:

```
Enter a string (enter stop to finish)
banana
Enter a string (enter stop to finish)
apple
Enter a string (enter stop to finish)
banana
Enter a string (enter stop to finish)
pineapple
Enter a string (enter stop to finish)
stop
The most frequent string was banana
```