TND012/2017: Dugga 2 V1

Attention

This is an **individual** home dugga.

Books, notes, and internet material can be used.

If you find any open questions in some of the presented exercises then feel free to make your own decisions. However, your decisions should be reasonable and must not contradict any of the conditions explicitly written for the exercise. Please, write comments in the programs that clarify your assumptions/decisions, if any.

If you use Code::Blocks then follow the instructions given in the appendix of Lab 1. Remember that you should not ignore the compiler warnings, since they are usually an indication of serious problems in the code.

Course goals

This is an assessment of whether you can write programs using

- loops and
- arrays.

All the points above have been discussed in lectures 1 to 6, lessons 1 to 3.

Requirements for grade G

- Readable and well indented code.
- Use of good programming practices.
- Global variables cannot be used.
- Respect for submission instructions.
- Code copied from a web page should be clearly indicated through a commented line containing the web page address used as source, with exception for the material posted on the course website.
- Use of statements that are not part of the ISO C++ leads to automatically failing the dugga.
- Your programs must pass all test examples shown in this paper.
- Other criteria are listed in the feedback report document available from course website.

Note that there is no guarantee that your code is correct just because it passes all given test examples. Thus, you should always test your code with extra examples, you come up with.

Deadline

25 of September, 12:00.

Submission instructions

1. Create **one** source (`.cpp`) file for the exercise. The file must be named with your LiU login (e.g. `ninek007.cpp`).
2. Write your name and personal number at the beginning of the source code file.
3. Submit only the source code file (`.cpp`) through Lisam, without compressing it (i.e. neither `.zip` nor `.rar` files are accepted).

Remember that you should deliver only the source code file. Moreover, answers to the dugga exercises sent by email are ignored.

Duggor solutions submitted not accordingly the submission instructions are ignored.

Questions

The aim of the dugga is that you solve the exercise without help of other people. However, we give you the possibility to send us questions about the problem in this dugga by email. If you are a MT student then you should email Aida Nordman (aida.vitoria@liu.se). If you are an ED or KTS student then you should email Martin Falk (martin.falk@liu.se).

Only emails received from 12:00 to 20:00 on Friday will be answered. Emails received after 20:00 on Friday are not answered. The emails will be answered until Saturday at 12:00.

Your emails must have the course code in the subject (e.g. "`TND012:` ...").

Be brief and concrete. Emails can be written either in Swedish or English.

Please, indicate your dugga version (V1, V2, or V3) in the email

Note that you should not send emails related to Lisam system.

User support for Lisam

Help and support for Lisam system is available at helpdesk@student.liu.se and by calling the phone number 013-28 58 98.

Login and password to access the course material

All course material, like lecture slides and code examples, are available through the course website (**`http://weber.itn.liu.se/~aidvi05/courses/10/index.html`**). However, the material is password protected. Use the following login and password to access the material.

login: `TND012` password: `TND012ht2_12`

Lycka till!!

Exercise

Write a program that performs the following steps, by the indicated order.

1. Read the height (an integer) of each student in a school class. Assume the user only enters positive integers. Moreover, the user indicates the end of the list of pupils' heights by typing a non-numeric value (e.g. "`STOP`").
2. Display a table that shows the number of students of each height.
3. Display the average height with two decimals.
4. Display the percentage of students in the expected height range. Assume that the expected height range for the students' population is [165,175].

Note that no input validation is required for this exercise.

A couple of examples are given below. Values with green color are entered by the user.

The heights in the table may be presented in a different order from the one shown below.

Example 1

```
Enter the height of each student:
175 167 160 164 183 187 188 179 176 175
169 175 176 178 165 160 173 165 187 178 STOP

Height  Number of students
==========================
175         3
167         1
160         2
164         1
183         1
187         2
188         1
179         1
176         2
169         1
178         2
165         2
173         1

Average height = 174.00 cm
Percentage of students in the expected height range (165-175): 40.00
```

Example 2

```
Enter the height of each student: STOP
No input given!!
```