# PCS2 Exam

**Date: June 21, 2013.**

**Time: 9:35 – 11.35 (2 hours).**

**Admitted resources:**

* You are allowed to use everything on paper (books, notes, etc.) and on your laptop, but only what you bring in: you are not allowed to borrow something from someone else.
* During the exam it is not allowed to use the network. You should make the exam yourself: so no communication with msdn or google for help and no communication with other students, like facebook, e-mail, skype, gsm or whatever.

Way of working during the exam and handing in your exam: see document "Unimpeded testing (Rustig toetsen) Step by Step".

Remark: the remaining time, as shown at "the finish flag of Rustig toetsen" is not correct.

**Grading**

The exam contains several assignments which can earn you points. You can earn a total of 90 points and you get 10 points bonus. So the maximal total score is 100 points.

# The assignments

You are going to develop parts of an application for a musicians agency. The agency administrates information about musicians. A musician is someone who plays one or more instruments (for instance guitar, or piano, or the human voice, or . . .).

Please run “PCS2ExamAppDEMO.exe”.

You see a DarkGray part, that belongs to “panelAgencyOwner”, and a LightGray part, that belongs to “panelMusician”.

The DarkGray part:

If you click on “cmbAORelevantInstruments” you will see the current set of relevant instruments for this agency, guitar, drums and piano.

If the AgencyOwner types an instrument in “tbAORelevantInstrument” and then clicks on “add relevant instrument”, instrument will be added to this current set.

For instance typing “human voice” will in the end result in the set: guitar, drums, piano and human voice.

Notice: If you click on “cmbAORelevantInstruments” once more, you will see the ‘new’ current set of relevant instruments.

Notice: trying to add “guitar” to the set once more will not change the set and therefore in the end result in: guitar, drums, piano and human voice .

The LightGray part:

If a musician types his/her name in “tbMName”, his/her age in “tbMAge”, chooses his/her instrument with some clicks on “cmbMRelevantInstruments” and after that, clicks on the button “ad me”, the musician will be added to the current set of musicians.

Notice: this new musician is immediately visible in “lbMAllMusicians”, and the agency has automatically added a unique “idNr” to her/him.

If a registered musician types his/her idNr in “tbMIdNr”, chooses a ‘new’ instrument with some clicks on “cmbMRelevantInstruments” and after that, clicks on the button “ad an instrument”, the information of this musician in the current set of musicians will be updated.

Notice: “lbMAllMusicians” is immediately updated with this new information.

At the left side of the LightGray part you see some nice graphics (a composition of some red (vertical) rectangles).

**Startup project**

The startup project contains three classes which are partly finished. These are the classes “Musician”, “MusiciansAgency” and a user interface (“Form1”).

### Assignment 1: The “Musician” class (16 points)

The class “Musician” has some data-fields, some properties, some methods and a constructor. The constructor and two methods are not implemented yet.

**Assignment 1a:**

Implement the constructor (8 points)

**Assignment 1b:**

Implement the method AddInstrument(… ) (4 points)

**Assignment 1c:**

Implement the method CanPlay(… ) (4 points)

### Assignment 2: The “MusiciansAgency” class (44 points)

The “MusiciansAgency” class has some data-fields, some properties, some methods and a constructor. Some methods are not implemented yet

**Assignment 2a:**

Implement the method getMusicianWithIdnr(… ) (11 points)

**Assignment 2b:**

Implement the method AddMusician( … ) (11 points)

**Assignment 2c:**

Implement the AddInstrumentToMusician( … ) (11 points)

**Assignment 2d:**

Implement the method getMusiciansAbleToPlay … ) (11 points)

Notice: Even though this method is never used, you have to implement it.

### Assignment 3: The “Form1” class (30 points)

**Assignment 3a:**

Implement the method btMAddMe\_Click(… ) (6 points)

**Assignment 3b:**

Implement the method btMAddAnInstrumentToMyList\_Click(… ) (12 points)

**Assignment 3c:**

Complete the method panelMusician\_Paint(… ) (12 points)