



Dalarna University

GIK29B: Python- and R-programming 7.5 Credits

Lab - Classes and Object-Oriented Programming

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## Formalities

Solve the exercises and present the code verbally and *independently* by a recording. See below.

Present both exercises with a voice recording, max 5-7 minutes. Explain the logic of the code and run the code. The following site can be used, which is easy to get started with:

- Apowersoft - Free Online Screen Recorder
  - the files can be stored in different formats but **store the file as a .mp4-file**

## Deadline

See information in Learn

## Resources

Tips on resources or help:

- the course literature
- w3schools - Classes/Objects

## Exercises

In each exercise, make sure to comment your code

### Exercise 1: Personal Information Class

Design a class that holds the following *personal* data:

- name
- address
- age
- phone number

Write appropriate accessor and mutator methods. Also, create a program that creates three instances of the class. One instance should hold your information, and the other two should hold your friends' or family members' information.

### Exercise 2: Pet Class

Write a class named Pet, that has the following data attributes:

name (for the name of a pet)

- \_\_animal\_type (for the type of animal that a pet is. Example values are "Dog", "Cat", and "Bird")
- age (for the pet's age)

The Pet class should have an \_\_init\_\_ method that creates these attributes. It should also have the following methods:

- set\_name (This method assigns a value to the name field)
- set\_animal\_type (This method assigns a value to the animal\_type field)
- set\_age (This method assigns a value to the age field)
- get\_name (This method returns the value of the \_\_name field)
- get\_animal\_type (This method returns the value of the \_\_animal\_type field)
- get\_age (This method returns the value of the \_\_age field)

Once you have written the Pet Class: write a program that can create objects of the class and prompts the user to enter the name, type, and age of his or her pet. See some more info below....

- ask user *how many pets* that should be entered
- enter data about each pet
- create object for each pet entered

- the data about each pet should be stored as the object's attributes
  - use i.e. set-methods in the class
- store each pet-object created in a "list"
- let the user have an option to choose if
  - *all* pet's should be listed
  - or
  - just all pets of a *certain type*
- use a loop to go through, iterate, the list and display the requested data according to the option chosen by user, all or just specific type of pets.

## Hand-in

The hand-in is done in Learn with,

- your Python files and a report zipped together as a **.zip**-file.

The report should be *short*, max one A4 page, where you reflect on how the lab went. I.e., did you encounter any obstacles? How did you overcome them? Was the lab hard or easy?

and...

- a link to your recorded presentation or an .mp4 file included in the hand-in  
In the recording, explain the code and demonstrate the programs by running them.

Good luck 😊