# Lab: Inheritance

Problems for in-class lab for the [Python OOP Course @SoftUni](https://softuni.bg/courses/python-oop). Submit your solutions in the SoftUni judge system at <https://judge.softuni.bg/Contests/1940>

# Part I: Inheritance

## Single Inheritance

Create two classes named Animal and Dog.

Animal with a single public method eat() that returns: **"eating…"**

Dog with a single public method bark() that returns: **"barking…"**

Dog should inherit from Animal.

## Multiple Inheritance

Create three classes named Person, Employee and Teacher.

Person with a single public method sleep() that returns: **"sleeping..."**

Employee with a single public method get\_fired() that returns: **"fired..."**

Teacher with a single public method teach() that returns: **"teaching..."**

Teacher should inherit from Person and Employee.

## Hierarchical Inheritance

Create three classes named Animal, Dog and Cat.

Animal with a single public method eat() that returns: **"eating..."**

Dog with a single public method bark() that returns: **"barking..."**

Cat with a single public method meow() that returns: **"meowing..."**

Dog and Cat should inherit from Animal.

## Mixin Inheritance

Create two classes named Student and Employee. Upon initialization Student will get **name**, **age** and **grades** (empty list) and **Employee** will get **name**, **age** and **daily\_working\_hours** (empty list).

Create a mixin named **CalculateAverageMixin** which should have a method named **get\_average()** and will calculate the average grade for the students and the average working hours for the employees. Round the result to the closest lower integer number.

# Part II: Reusing Classes

## Random List

Create a RandomList class that has all the functionality of a List.

Add additional function that **returns** and **removes** a random element from the list.

* Public method: get\_random\_element()

## Stack of Strings

Create a class Stack which can store **only strings** and has the following functionality:

* Public field: **data: list**
* Public method: push(item)
* Public method: pop()
* Public method: peek()
* Public method: is\_empty(): returns boolean

Override the string method to return the stack data.