

## **Automatic checker for a programming course**

### **Background**

In a programming course, most students will submit codes that work for sample input and output given in the assignment description. However, the codes may not work for other inputs, outside those listed in the assignment description (for example, students often forget to test the codes for non-valid input).

To help students test their codes in a more comprehensive way, it is useful to have an automatic checker that could test student's codes and give feedback to the students. This will also help teachers and teaching assistants to focus on giving feedback on issues that cannot be easily checked with an automatic checker.

### **Project description**

The main goal of this project is to design and implement such an automatic checker for a programming course. The project will start with a brief survey about existing automatic checkers, among others to learn about what are available, the common functionalities of such tools, the architecture of such tools, how such tools are usually implemented, in which programming language, in which environment, if there are module(s) that can be reused, etc. Knowing the results from the literature review and the user requirements, the team should then propose a design of a possible solution and how this should be implemented.

The expected results of this project include:

- a report that describes the results of the survey of existing automatic checkers for programming courses, the design and architecture of an automatic checker, including all issues that should be taken into account (e.g., functionalities, security), and
- the automatic checker codes for some example tasks
- a demo that the system works for some example tasks.

### **Suggested reading material :**

<https://www.youtube.com/watch?v=6tNS--WetLI>

**Target group :** DV, D and IT

### **Special prerequisites :**

Knowledge of Python, software testing, and Object-Oriented Programming is a merit.

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