TU Delft Delft University of Technology

FACULTY OF TECHNOLOGY, POLICY AND MANAGEMENT
ENGINEERING SYSTEM AND SERVICES SECTION
ICT TRACK

TB141 – ICT System Engineering and Rapid Prototyping
Formative Assignment 3 - Programming Languages

Jacopo De Stefani - Laura Smit - Shounak Paul - ChatGPT

February 12, 2024

Learning Objectives

- Recall the most common programming languages categories and examples of languages belonging to them
- Recall the most common programming paradigms and examples of languages belonging to them
- Compare and contrast the most commonly used programming languages
- Illustrate the findings through a presentation

Introduction

Programming languages are a fundamental component of modern software development. They provide the means to write code that can be executed on computers, enabling us to automate tasks, build applications, and solve complex problems. There are countless programming languages in use today, each with its own unique syntax, features, and intended applications.

In this assignment, you are going to collaboratively explore different programming languages, their syntax, features, and application domains, as well as the importance of code quality and hygiene in software development.

As a group of 5 to 6 people, you will be preparing on the aforementioned aspects and delivering a presentation on a specific programming language during the classes of 06/03 and 08/03, with a flipped classroom approach.

By working together, at the end of this assignment, you will have gained a basic understanding of different programming languages, which will help you to better appreciate the diversity and richness of the software development landscape.

Assignment

The assignment is mandatory and your participation will earn you a bonus grade of 0,25 to be added to your final grade for the theoretical exam part.

For this assignment you will need to:

1. **Form a group**
    - Groups are composed of 5 to 6 people

- Each group will focus on a specific language:

Language	# Groups
Python	3
Java	3
SQL	2
C	1
C++	1
R	1
Javascript	1
Matlab/Octave	1

- You will be selecting the language on a first come, first served basis by self-enrolling in a group corresponding to the language of interest.
- You are allowed to come up with a creative name for your group!

2. **Research the content of the presentation**

   - All sources are allowed (including ChatGPT), but you will need to appropriately cite your sources for the presentation.
   - The course material of the previous year as well as a recording of the lecture is made available in case you would like to delve deeper on certain concepts
   - Rosetta Code is an excellent repository of simple problems solved using many different languages.

3. **Prepare the presentation according to the following structure:**

   - Language categorization (1 slide)
     - How could you classify this language?
     - What paradigms does the language support?
   - Short code example in the given language: Averaging a collection of numbers (1 slide)
   - Example of applications/domains of application (2 slides)
     - In which domains is the language used?
     - What are examples of commercial/free applications using this language?
   - What is code hygiene/code quality? (1 slide)
   - What are best practices for good code quality in the considered language? (1 slide)

4. **Upload the presentation on Brightspace**

5. **Perform the presentation**

   - The time slot allocated to your group is 10 minutes: 5-7 minutes presentation + 3-5 minutes questions
   - You will be presenting live during the course sessions of **06/03 and 08/03.**
   - **The presence of all the students is required for the whole duration of the two sessions.**

6. **Fill the shared form, available here with a summary of your presentation**

   - The student answers will be collected and curated by the course lecturer.
   - The curated collection of answers will be used as study material for the theoretical exam.

Contact person

The contact person for the assignment is Jacopo De Stefani (J.deStefani@tudelft.nl).

J. De Stefani
L. Smit
S. Paul

Rules for the assignment delivery

To be read carefully !

1. The assignment must be developed in groups of 6 students.
2. The assignment must include **your name** and **student id**.
3. The assignment must be submitted in **Brightspace** as a **PDF report**.
4. You have to comply with the following instructions:
   - Upload of a file `TB141IC_FA3_LanguageName_GroupName.pdf` on the course Brightspace.
   - Date: **Monday 6 March 2023**
   - Time: **Before 00:00**

Licensing