

Programming Fundamentals & Unit Testing

Course Introduction



SoftUni Team
Technical Trainers



SoftUni

Software University

<https://softuni.bg>

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Course Objectives and Scope

Course Goals



- Develop a strong foundation in **programming concepts** and **techniques**, enabling students to confidently write code and solve problems
- Understand the significance of **unit testing** and how to use it effectively to **validate code functionality** and ensure **software reliability**
- Cultivate **critical thinking** and **problem-solving skills** through various coding challenges, exercises, and projects

Course Scope



- Fundamental **concepts of programming**, including data types, variables, expressions, and simple calculations
- Using **conditional statements**, such as if-else and switch-case
- Using while and for **loops**, including nested loops, for more complex problem-solving
- Working with **arrays** and **lists** for efficient data handling and processing

Course Scope

- Understanding the concept of **methods** and how to write and call them
- Essential knowledge of **unit testing** and using **NUnit** to verify the correctness of the code

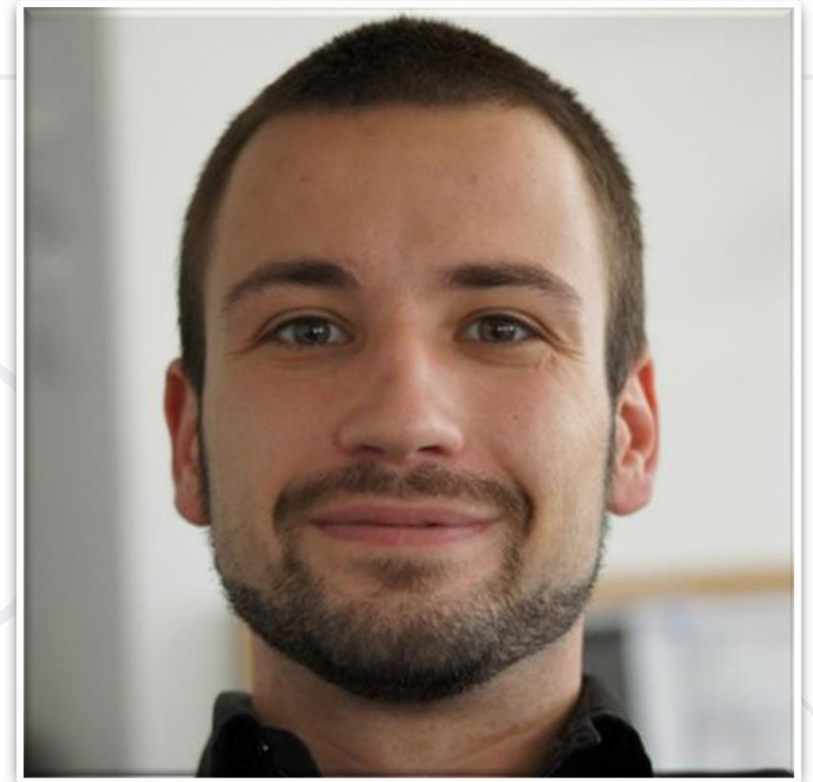




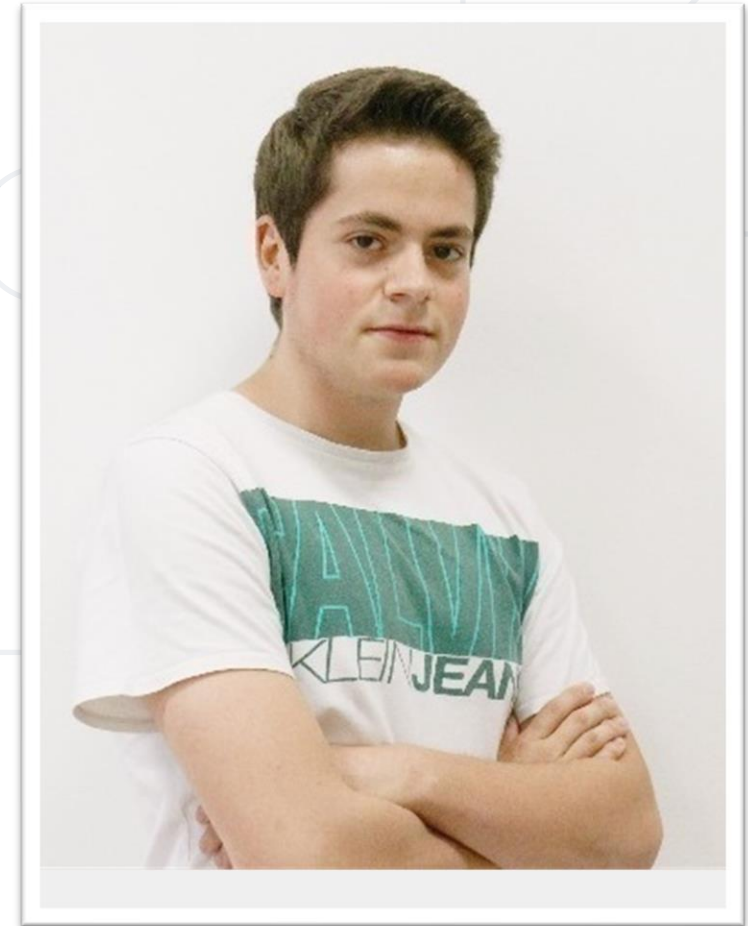
The Team

Your Trainers and Mentors

- **Learning Innovation Manager @ SoftUni**
- 15+ years of experience as a **Technical Trainer** and a **Product Presenter**
- Founder and Business OWL at **Znam.be**
- Fluent in Java, C#, HTML / CSS, JavaScript, Python, PHP, SQL



- **Top Student @ SoftUni**
- **Technical Trainer @ SoftUni**
- **Student @ Technical University of Sofia**
- Interests include mechanics and electronics
- **Automotive Software Development**
- Interested in coding with **C#, Python, C++**





Course Organization

Programming Fundamentals and Unit Testing

Course Timeline

8-Jan-2024

2-March-2024

16-April-2024

Programming Fundamentals and Unit Testing

**8 weeks * 3 times / week
12 credits**

Start: 8 January 2024

**Practical Exam Regular: 2 March 2024
Theoretical Exam Regular: 2 March 2024**

**Practical Exam Retake: 16 April 2024
Theoretical Exam Retake: 16 April 2024**







Exam

Practical Exam Overview

- Practical exam tests the following skills:
 - **Loops**: Students will be tested on their ability to utilize loops, to perform repetitive tasks and handle iterations in their programs
 - **Lists / Arrays**: The exam will assess students' proficiency in working with lists and arrays, to manage data and solve list-related problems
 - **Unit Testing Methods**: Students will demonstrate their understanding of unit testing by writing test cases to verify the correctness of individual methods
 - **Unit Testing Lists and Arrays**: The exam will include testing scenarios where students are required to verify the functionality of methods involving lists and arrays to ensure overall code reliability



Theoretical Exam

- You will have **30 minutes** once you enter
 - **10** questions
 - Multiple-choice with **1** correct answer
 - English
- Automated quiz system
- Available during the **practical** exam and **30 minutes after it**
 - You can submit your answers just **one time**
 - Advice: Start it when you **finish** the **practical exam**



- Your **homework** is mainly work in class
 - **Lesson days** → slides + live demos + exercises
 - **Exercise days** → only exercises
- How to submit your homework?
 - Submit it in the **judge system**
- Do your homework when it's due
 - **Assignments pile up quickly**



- The course assignments require to **search in Internet**
- This is an important part of the learning process
- Some exercises intentionally have no hints
- Learn to find solutions!
- Quality Assurance includes **everyday searching and learning**
- No excuses, just **learn to study!**
- QAs learn new technologies, tools, languages every day!



Course Web Site, Forum and FB Group

- Official web site:

<https://softuni.bg/trainings/4385/programming-fundamentals-and-unit-testing-january-2024>

- Official discussion forum:

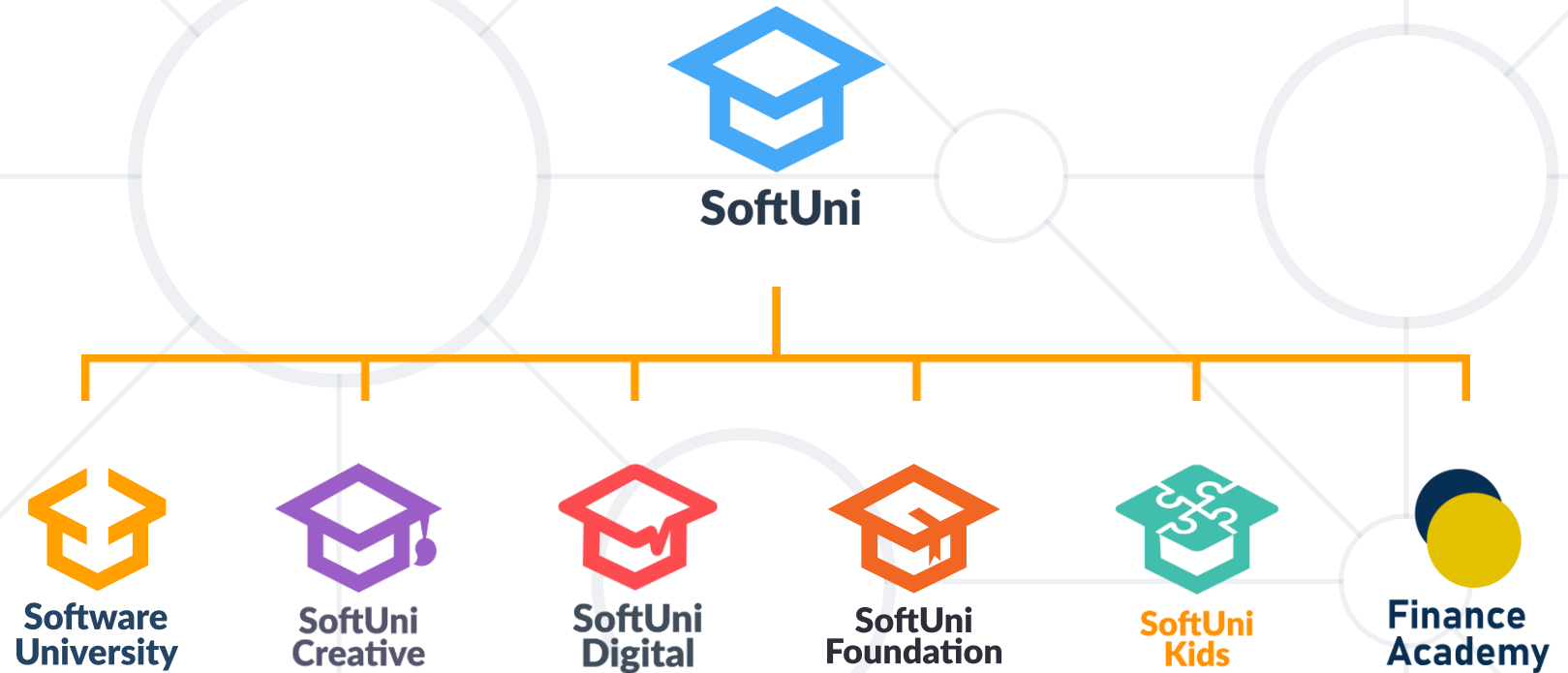
<https://softuni.bg/forum/>

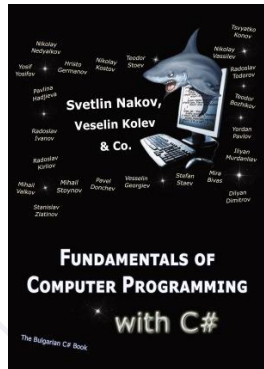
- Official Facebook group:

<https://www.facebook.com/groups/ProgrammingforQAJanuary2024>



Questions?





- "Fundamentals of Computer Programming with C#", by Svetlin Nakov & Co., 2018, ISBN 9786190007784
- English and Bulgarian versions (as PDF, ePub, ...)
- Freely downloadable from:

www.introprogramming.info

- Software University – High-Quality Education, Profession and Job for Software Developers

- softuni.bg, about.softuni.bg

- Software University Foundation

- softuni.foundation

- Software University @ Facebook

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