# Programming Fundamentals & Unit Testing

## Course Introduction



**SoftUni Team**

**Technical Trainers**

Software University

SoftUni

**Software University**

# Table of Contents

**Software University**

# sli.do

# #prgm-for-qa

# SoftUni Diamond Partners

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 (1)

- 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 (2)

- 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

- Knowledge of **object-oriented programming** by defining simple classes and using built-in classes

# **The Team**

Your Trainers and Mentors

# Theodor Kurtev

- **Senior Software Engineer** at **Moteefe**

- 10+ years experience with MEAN
  and .NET ecosystems

- Expert in Node.js, React,
  and Amazon Web Services

- Values quality programming
  and all related to software quality
  improvements

# Doncho Angelov

- **15+ years** of experience as a **developer**

- **10+ years** as a **team leader** in
international companies:
SEGA, VMware, Pliant.io,
and Musala Soft

- Extensive experience in ensuring
the quality of software solutions

# Course Organization

# Programming Fundamentals and Unit Testing Course Timeline

**11-Sep-2023**

**21-Oct-2023**

**20-Dec-2023**

**Programming Fundamentals and Unit Testing**

6 weeks * 3 times / week
12 credits

Start: 11-Sep-2023

Exam Regular: 21-October-2023
Theoretical Exam Regular: 21-October-2023

Exam Retake: 20-December-2023
Theoretical Exam Retake: 20-December-2023

# SoftUni Certificate

Practical Exam 100%

Evaluation

Homework 5% (bonus)

# CPE Certificate



Practical Exam

Evaluation

Theoretical Exam

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**: 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 Objects**: The exam will include testing scenarios where students are required to verify the functionality of methods involving lists and objects 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**

# Homework Assignments & Exercises

- 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**

# Learn to Search in Internet

- 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/4256/programming-fundamentals-and-unit-testing-september-2023**
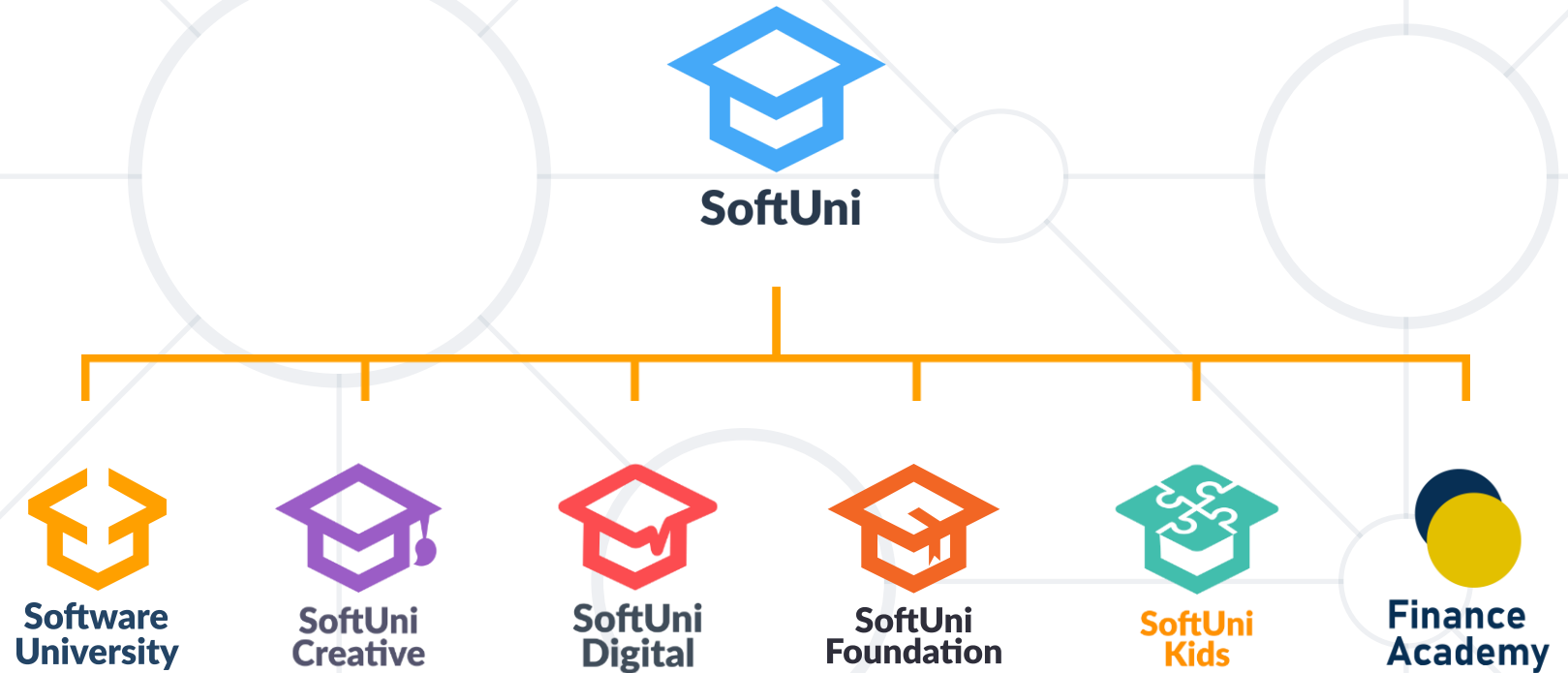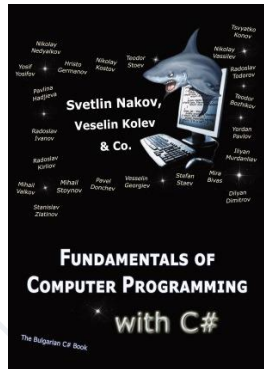
- Official discussion forum:

  **https://softuni.bg/forum/**

- Official Facebook group:

  **https://www.facebook.com/groups/ProgrammingforQASeptember2023**

# Questions?

# The Free C# Fundamentals Textbook



- "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**

# Trainings @ Software University (SoftUni)

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