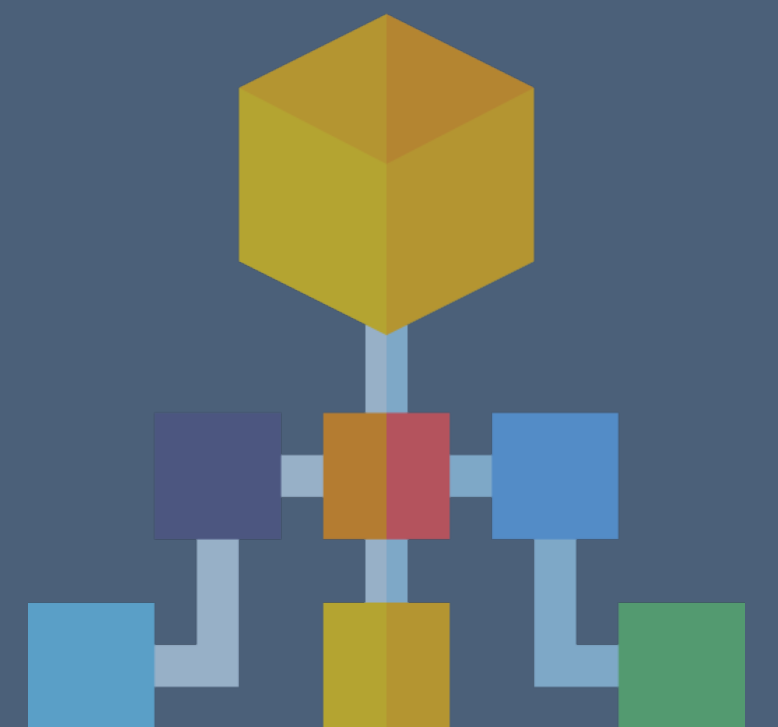


# Data Structures Design

Course Presentation

Dr. Lilia SFAXI



# Know your Instructor

## Course Presentation



- **Dr. Lilia Sfaxi**

- Assistant Professor in Software Engineering
- Researcher in Big Data and Decisional Architectures
- PHD from University of Grenoble (France) & Faculty of Sciences in Tunis (Tunisia)
- Software Engineering degree from INSAT (Tunisia)

- *Contact INFO*



[lilia.sfaxi@efrei.fr](mailto:lilia.sfaxi@efrei.fr)



<https://liliasfaxi.wixsite.com/liliasfaxi>



<https://www.youtube.com/c/TechWall>

# Course Overview

## Course Presentation



- **Title :** Data Structures Design
- **Duration :** 50 hours
- **Format :** Fully Online, Project-based
- **Tools and Technologies :** Python, GitHub, Markdown, Unit Test
- **Collaboration Tool:** Microsoft Teams

# Project Overview

## Course Presentation




- **Part 1** : Create the Software Toolbox
  - Implement the main data structures
  - Implement the primary methods to manipulate them
  - Test and validate with me
- **Part 2** : Develop Advanced Features
  - Develop more complex algorithms
  - Design and implement the graphical interface
  - Test and validate with me
- **Part 3** : Optional Extra Features
  - Additional functionalities for extra points

# Course Schedule

## Course Presentation



June 2025				
Monday 23	Tuesday 24	Wednesday 25	Thursday 26	Friday 27
<div><div> Course Presentation and Recall</div><div>Lesson</div></div>	<div><div> Completing Part 1 : Building the Software Toolbox</div><div>Project Step</div></div>			
<div><div> Preparation of the Dev. Environment</div><div>Project Step</div></div>				<div><div> Mid-Project Assessment</div><div>Assessment</div></div>
July 2024				
Monday 30	Tuesday 1	Wednesday 2	Thursday 3	Friday 4
<div><div> Completing Part 2 - Advanced Features</div><div>Project Step</div></div>				
				<div><div> Final Project Assessment</div><div>Assessment</div></div>
				<div><div> Presentation of the work</div><div>Presentation</div></div>

# Deliverables

## Course Presentation



### **Source Code**

Well-documented, organised, versioned on GitHub



### **Report**

Markdown files documenting design decisions, algorithms, challenges, solutions



### **Presentation**

Showcasing functionality, analysis, simulation results

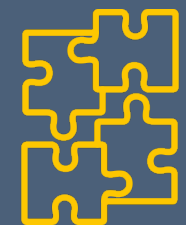
# Evaluation Criteria

## Course Presentation



### **Correctness & Efficiency**

The implemented data structures and algorithms should function correctly and efficiently. The solutions must handle edge cases and optimize performance to meet the project requirements.



### **Code Organization & Clarity**

The source code should be well-organised and easy to understand. Clear and consistent naming conventions, proper indentation, and thorough documentation are essential for readability and maintainability.



### **Coverage and Relevance of Unit Tests**

The unit tests should cover all critical functionalities and edge cases of the implemented data structures and algorithms. The tests must be relevant, demonstrating that the code works as intended under various conditions.



### **Usability and Aesthetic of the Graphical Interface**

The graphical interface should be user-friendly and visually appealing. The interface should facilitate easy interaction with the application, providing a seamless user experience.



### **Creativity and Usefulness of Additional Features**

Any additional features implemented should be creative and add value to the project. These features should demonstrate innovative thinking and practical application beyond the core requirements.



### **Quality and Clarity of the Documentation and Presentation**

The documentation should clearly explain the design decisions, algorithms used, challenges faced, and how they were overcome. The presentation should effectively showcase the functionality of the system with examples of analysis and simulation results.



# Project Milestones

## Course Presentation



- **Day 5:** Complete Part 1 - Toolbox

- Design (15/50)
- Implementation (10/50)
- Respect of Best Practices (15/50)
- Role in Team (10/50)

- **Day 10:** Final Submission

- Implementation (20/50)
- Respect of Best Practices (10/50)
- Role in Team (10/50)
- Report & Presentation (10/50)





# Interaction and Participation

## Course Presentation



### **Cameras ON**

When in the private rooms, you should always keep your cameras ON. Let's make it feel like an in-person course!



### **Ask Questions**

Be as annoying as you want when asking questions!



### **Group Work**

Discuss, decide on design, divide work, integrate.



### **Frequent Check-ins**

I will frequently barge in into the rooms, so be prepared!

# Instructor Role

## Course Presentation



- What I am required to do
  - **Support:** Design making, principles
  - **Explanation:** Course notions, project objectives
  - **Validation:** Advancement, milestone checks



- What I am NOT supposed to do
  - Correct technical issues
  - Code with you
  - Check and correct compilation problems

祝你好运

*Bonne Chance*