
LUT
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CT60A9600

[LAHTI]

Discrete Models and Methods 2: Functional Programming

L1

Course Introduction

Iflaah Salman, PhD.

14.3.2023

About Me

I am the main responsible person for this course.

Present

Postdoctoral Researcher (Dept. of Software Engineering)
School of Engineering Science, LUT (Lahti)
[Aug 2022 to Present]

Past

- Postdoctoral Researcher - M3S Research Unit, University of Oulu, Oulu, Finland. [2020 to Jun 2022]
- Software Quality Assurance Engineer - i2c inc., Lahore, Pakistan. [2010 to 2012]
- Software Developer – University of the Punjab, Lahore, Pakistan. [2009 to 2010]

Iflaah Salman (PhD)

PhD, MSc (Information Processing Science)

BSc (Computer Science)

Abdul Qadir Ahmed Abbasi

TEACHING ASSISTANT

PRESENT

- Masters Thesis Worker (Elisa Viihde Service)
  Elisa Oyj Headquarters, Helsinki, Finland – [Jan 2023 to Present]
- Erasmus+ Scholar (Software Engineer for Green Deal Masters)
  Lappeenranta-Lahti University of Technology, Finland
  Vrije University Amsterdam, Netherlands
  University of L'Aquila, Italy – [2021 to 2023]

PAST

- Technical Project lead (Supersense Eco)
  Innotect Oyj, Espoo, Finland – [Mar to Jun 2022]
- Managing Consultant (Cloud & Emerging Technologies)
  Abacus Global, Islamabad, Pakistan – [May to Aug 2021]
- Software Engineer (Research & Development)
  Eureka WLL, Hidd, Bahrain – [2019 to 2021]
- Backend Developer (Software Development)
  Servup Pvt. Ltd., Lahore, Pakistan – [2017 to 2019]
- Bachelors (Computer Science)
  National University of Computer & Emerging Sciences, Pakistan
  Murray State University, Kentucky, USA – [2013 to 2017]

Contacting Us

Email addresses:

Main responsible person: iflaah.salman@lut.fi

Teaching assistant: abdul.qadir.ahmed.abbasi@student.lut.fi

Email subject must contain: "**CT60A9600**"

Email body must mention:

- Your Official Name
- Your student no.

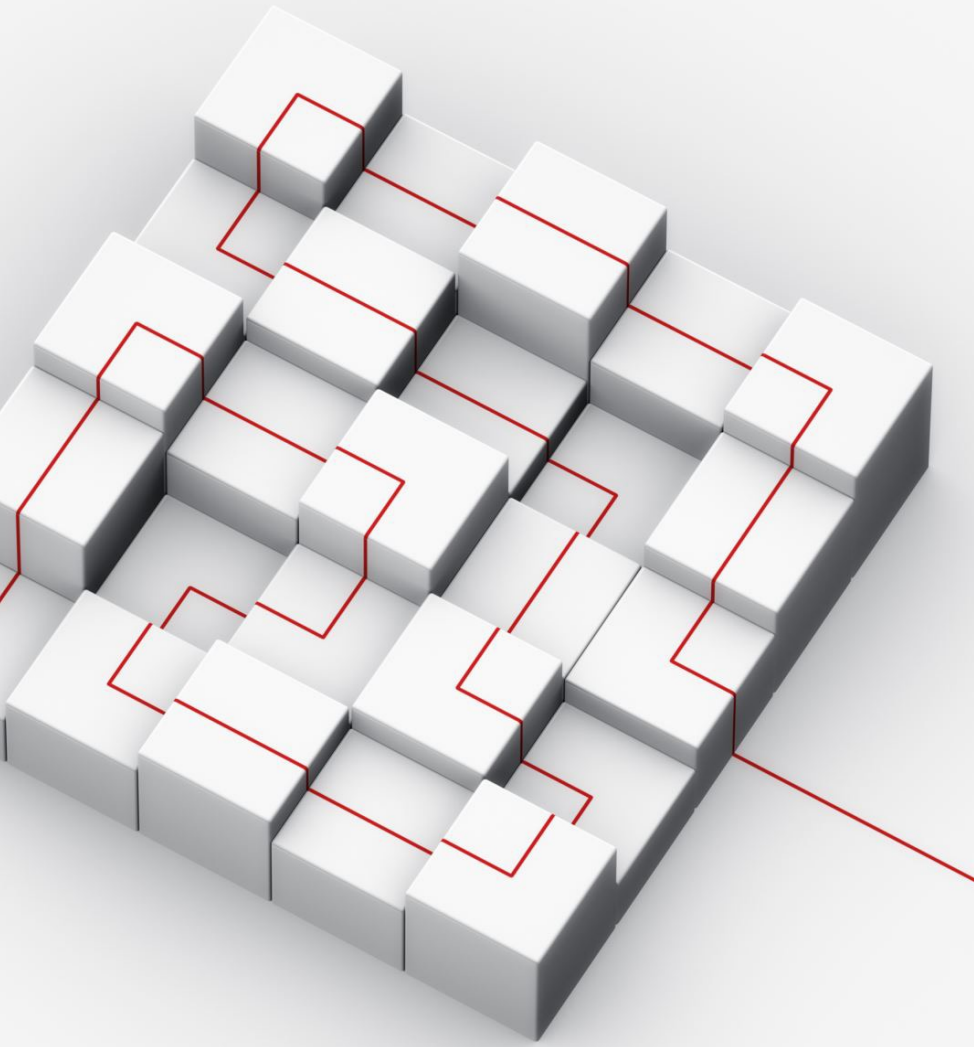
Meeting setup only via email!

Pre-Requisites

- Introduction to Programming Course
- **Object Oriented Programming**

Course Contents

Topic	Date
L1: Course Introduction + Introduction to Functional Programming	14.3.2023
L2: Functional Programming in Scala	21.3.2023
L3: Higher Order Functions	28.3.2023
L4: Immutable Collections	4.4.2023
EASTER HOLIDAYS	
L5: Types and Pattern Matching	12.4.2023
L6: Exception Handling: A Functional Approach	18.4.2023
L7: Advanced Concept(s)	25.4.2023

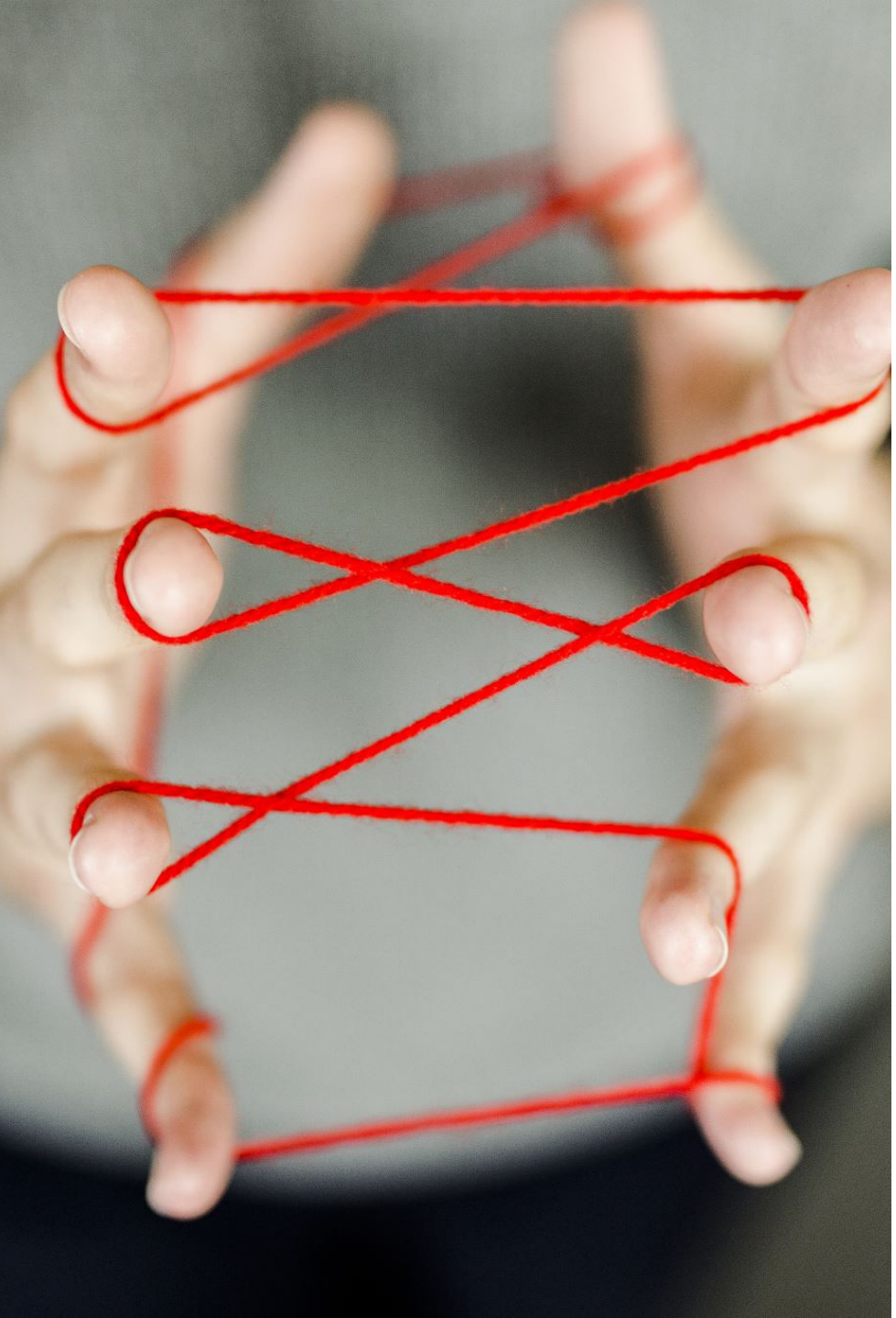


Learning Outcomes

1. Programming in Scala.
2. Programming in Functional paradigm in Scala language.
3. Theoretical understanding and practical implementation of FP concepts:
    1. pure functions
    2. recursion
    3. Immutability
4. Collections
5. Exception handling

Course Material

- Lecture Slides and Recording
- Exercise Material
  - Instructions
  - Tools
- (possible) Additional Material Uploaded to Moodle
- Reference Books
  - Hunt, J. (2018). A Beginner's Guide to Scala, Object Orientation and Functional Programming. In *A Beginner's Guide to Scala, Object Orientation and Functional Programming*. Springer International Publishing. https://doi.org/10.1007/978-3-319-75771-1
  - Chiusano, P., & Bjarnason, R. (2014). *Functional Programming in Scala*. Manning publications.



Course Schema 1

- Lectures
  - Onsite and Recorded
- Exercise:
  - Exercise Sessions (on-site, virtual)
  - Exercise deliverables
- Project:
  - Programming
  - Done in a group of 2-3 persons.
  - A possibility to earn extra/bonus (max 3) points if the work is outstanding.
- Exam
  - During the exam weeks
  - Assessment of theoretical and practical aspects

Course Schema 2

Grading

Module	Task	QTY	Points [100]	Min to Pass Points
M1	Lecture Sessions	7	8	5
M2	Exercise Sessions	7	7	17 out of 35
	Exercise Deliverables	7	28	
M3	Project	1 (in group)	40	20
M4	Exam	1	17	8

You pass when M1+M2+M3+M4 >= 50 pts.
OR
You pass when M2 + M3+ M4 >=55 pts., which means M1(Lectures) < 5 pts.

Grading and Passing

Points	Final Grade
0-49	0 [FAIL]
50-60	1
61-70	2
71-80	3
81-90	4
91-100	5

Moodle Page Demo!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