KOENIG SOLUTIONS · COURSE OUTLINE

Python: Threading, Multiprocessing & Fuzzy Logic

Learn to write advanced Python covering data analysis, multiprocessing, threading and fuzzy logic implementation.

11
MODULES

45
TOPICS

COURSE OVERVIEW

This course begins with a Python refresher covering data types, functions, conditionals, loops and data structures, then moves into higher order functions, regular expressions, the date time module, exception handling and object oriented programming. It continues with data analysis using NumPy and Pandas, before addressing multiprocessing and threading and the differences between concurrency and parallelism. It closes with fuzzy logic implementation in Python using the skfuzzy library, and programmer tools such as PEP 8 guidelines, pylint, testing and profiling.

WHO THIS COURSE IS FOR

- **Python Developers**
- **Data Analysts**
- **Software Engineers**
- **Automation Engineers**

PREREQUISITES

- Basic knowledge of Python and any programming language

LEARNING OBJECTIVES

- Apply higher order functions such as map, filter and reduce
- Construct patterns for searching and matching with regular expressions
- Handle exceptions using try-except blocks and hierarchies
- Implement classes, methods and constructors in object oriented Python
- Analyse data using NumPy arrays and Pandas DataFrames
- Compare multiprocessing, threading, concurrency and parallelism
- Implement fuzzy logic systems using the skfuzzy library
- Apply PEP 8 guidelines and profile code for optimization

COURSE SYLLABUS

11 Modules, 45 Topics

01

Python Refresher

TOPICS

Introduction to Python · Data Types and Variables · Functions · Conditional Statements · Loops · Data Structures

02

Higher Order Functions

TOPICS

Map · Filter · Lambda · Reduce · Python Decorators · Generators · Iterators · Itertools

03

Regular Expression

TOPICS

Introduction to Regex · Syntax and Patterns · Searching and Matching

04

Date Time Module

TOPICS

Time Module · DateTime Module

05

Exception Handling

TOPICS

Try-Except Block · Exception Hierarchies

06

Object Oriented Python

TOPICS

Introduction to Object Oriented Python · Creating Classes, Methods and Objects · Using Constructor and Attributes

07

Python for Data Analysis - NumPy

TOPICS

Introduction of NumPy · NumPy Array · NumPy Array Indexing · NumPy Operations

08

Python for Data Analysis - Pandas

TOPICS

Introduction to Pandas · Series · DataFrames · Missing Data · Merging Joining and Concatenating · Operations · Data Input and Output

09

Multiprocessing and Threading

TOPICS

- Differences Between Multiprocessing, Parallelism, and Concurrency
- Using threading and multiprocessing Modules

10

Fuzzy Logic in Python

TOPICS

Basics of Fuzzy Logic · Applications of Fuzzy Logic · Implementing Fuzzy Logic in Python · Using skfuzzy Library

11

Programmer Tools

TOPICS

PEP 8 Guidelines · Using pylint · Testing code · Profiling for code optimization

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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