Introduction to Programming and Numerical Analysis

Exercise Class 7
Exercise 2

Jonas Theodor Ø. Schmidt

UNIVERSITY OF COPENHAGEN

Today's Program

- 15:15 – 15:30: Practical Information and Classes
- 15:30 – 16:00: Work on DataCamp
- 16:00 – 16:15: Break
- 16:15 – 16:55: Work on DataCamp
- 16:55-17:00: Round off

Practical Information

- Your DataCamp courses must be completed by February 25
- The Inaugural Project will be accessible starting February 27 and will (most likely) require a basic understanding of classes
- The Inaugural Project is due by March 24, with peer feedback required by March 31
- I have posted my solution to the 2023 Inaugural Project on GitHub: https://github.com/mcp656/Class-7
- Finally, if you are without a group, you can find one on Padlet. Cross-class collaboration is allowed (if necessary) but must be coordinated with a TA. Link to Padlet: https://padlet.com/hms467/introprog-group-generation-pyzusiexceuhvnme

Introduction to Classes

- Classes are “blueprints” for creating objects

- Classes contain data and functions:
  - Data accessed as attributes
  - Functions are class-specific methods

- Attributes are specific variables associated with the class
- Methods define behaviors or actions that objects of the class can perform

- Classes allow for multiple instances
  - Each instance has access to its own set of attributes and methods

Class Cheatsheet

- Define a class by ‘class ClassName:’
  - Initialize the class by ‘def __init__(self, attributes):’ (‘self’ represents the instance of the class)
    - Set attributes by ‘self.attribute = attributes’
  - Define one or more methods by ’def method(self):’
- Create an instance of the class ‘object_name = ClassName(attributes)’
- Access attributes and methods of the specific class instance ‘object_name.attribute

  object_name.method() ’

Lots More to Explore!

- Special methods, inheritance, encapsulation, and much more!

- A simple example 'Cars', accessible on Github: https://github.com/mcp656/Class-7/tree/main/Presentation%20Slides/Exercise%202

Work on DataCamp

- I am here to provide assistance with DataCamp

- Remember, completion of your DataCamp courses is required by February 25

Break

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Questions & comments?