CODE BASICS

Python Basics: Functions, Dictionaries, Tuples, File Handling

TAKEAWAYS

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Functions

1 Functions in Python are defined using the **def** keyword, followed by a function name and parentheses, which may include parameters.

2 Parameters allow functions to receive inputs, making them flexible and reusable for different data inputs.

3 The **return** statement is used to send a function's result back to the caller, exiting the function and optionally passing back a value.

4 Default parameters in function definitions provide default values for arguments, simplifying function calls and enhancing flexibility.

Functions

5 Python supports both positional and keyword arguments, giving more control over how functions are called and how arguments are passed to them.

6 lambda is a quick way to define a function in a single line

Dictionary and Tuples

1 Tuples are immutable data structures in Python, which means once a tuple is created, its elements cannot be changed, added, or removed.

2 Dictionaries in Python are mutable data structures that store key-value pairs, allowing fast data retrieval by key.

3 Dictionary is a Python-specific implementation of a hashmap data structure.

4 **Keys in dictionaries must be unique and immutable types, such as strings, numbers, or tuples, ensuring that each key maps distinctly to its value.**

5 **Both tuples and dictionaries support various methods and operations such as accessing elements, iterating over them, etc for efficient data manipulation and retrieval.**

Modules and pip

1 Modules in Python allow you to organize and reuse code across multiple programs.

2 You can import built-in modules like **math** and external modules which are available on https://pypi.org/

3 Use **import module_name** to bring a module into your current script.

4 The **pip** tool is used to install and manage external Python packages.

5 Use **pip install package_name** to add new packages to your Python environment.

File Handling

1 The key function for working with files in Python is the **open()** function. The **open()** function takes two parameters; filename, and mode.

2 There are four different methods (modes) for opening a file:

- "r" – Read – Default value. Opens a file for reading, error if the file does not exist
- "a" – Append – Opens a file for appending, creates the file if it does not exist
- "w" – Write – Opens a file for writing, creates the file if it does not exist
- "x" – Create – Creates the specified file, returns an error if the file exist

3 It is good practice to use the **with** keyword when dealing with file objects. The advantage is that the file is properly closed after its suite finishes, even if an exception is raised at some point.