



NANO SCIENTIFIC RESEARCH CENTRE

An ISO: 9001:2008 Certified Company

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PYTHON

1. Python
2. How to install Python
3. Packages
4. How to install packages
5. Python 3
6. How to use Python
 - a. The interpreter
 - b. Scripting mode
7. Print statement
 - a. Values and its types
8. Variables
9. Keywords
10. Operators
 - a. Integers
 - b. Floats
 - c. Booleans
11. Control statements
 - a. If statements
 - b. Indentation
 - c. If-Else statement
 - d. For loops
 - e. While loops
 - f. Continue
 - g. Break
 - h. Pass
12. Functions
 - a. Simple example
 - b. Def
 - c. Body
13. Return
14. How to call a function
15. Everything is an object
16. Scope
17. Functions within functions
18. Global keyword
19. Default arguments

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20. More on default arguments

21. Docstring

22. Lambda functions

23. Data types

- a. Strings
 - i. Everything can be turned into a string!
 - ii. String formatting
 - iii. Split
 - iv. UPPER and lowercase
 - v. join
- b. Lists
 - i. Accessing elements
 - ii. Slicing and adding
 - iii. Multiplication
 - iv. Lists are mutable
 - v. Copying a list
 - vi. Functions modify lists
 - vii. Why does the list change, but variables do not?
 - viii. More control over lists
 - ix. Looping over elements
 - x. Map
 - xi. Filter
 - xii. List comprehensions
 - xiii. Implementing map using list comprehensions
- c. Tuples
 - i. Tuples are immutable
 - ii. Packing and unpacking
 - iii. Functions with multiple return values
- d. Dictionaries
 - i. Defining a dictionary
 - ii. No duplicate keys
 - iii. Access
 - iv. All keys, values or both
 - v. Small exercise
- e. Sets
 - i. Set comprehensions

24. Modules

- a. Importing a module
- b. Importing as
- c. In case we only need some part of a module

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- d. Import all from module
- e. Writing your own modules
- f. Only running code when main file

25. File input and output (I/O)

- a. The file object
- b. Opening a file
- c. with open() as f
- d. Reading files
- e. Writing to file
- f. More writing examples

26. Classes

- a. Defining our own objects
- b. Object Oriented Programming
- c. Simplest example
- d. Initializing an object
- e. Self
- f. Another example
- g. Class attributes
- h. Class hierarchy through
- i. Inheritance
- j. Base methods
- k. Example
 - i. Implementing Rational numbers
 - ii. Greatest common divisor
- l. Representing your class: Operator overloading
- m. Operator overloading: adding two Rational
- n. Operator overloading: Comparing
- o. More on Operator Overloading

27. Generator and Iterators

28. Exception handling

- a. Exception handling
- b. A naked except
- c. Try Except Else
- d. Raise
- e. Finally