Think Python

- Chpater 0 preface
- Chapter 1 The way of the program
  - What is a program:input-output-math-conditionnal execution-repetition
  - Running Python:interpreter&prompt
  - The first program:print('hello,world')
  - Arithmetic operators:+;-;*;/;**
  - Values and types:integer/floating-point number/string
  - Formal and natural languages
    - formal language and nautral language have common in tokens,structure,syntax
  - Debugging
  - Exercise
- Chapter 2 Variables,expressions and statements
  - Assignment statements:create a new variable and gives it a value
  - Variable names
    - the first character can't be a number
    - notice these keywords:False/None/True
  - Expressions and statements
    - expresson:a combination of values,variables,and operators
    - statements:a unit of that has an effect
  - Script mode:interactive mode &script mode
  - Order of operations
    - PEMDAS(parentheses-exponentiation-multiplication/division/addition/subtraction
  - String operations:+/*
  - comments:#
  - Debugging:syntax error/runtime error/semantic error
- Chapter 3 Functios
  - function calls
    - int();convert to integers(chops off the fraction part)
    - float()
    - str()
  - composition
    - the argument of a function can be any kind of expression
    - the left side of an assignment statment has to be a variable name
  - add new functions
  - flow of execution
    - statements inside the function don't frn until the function is called

    - prarmeters and arguments
    - variable and parameters are local
    - stack diagrams
    - fruitful functions and void functions
- Chapter 4 Case study:interface design
    - the turtle module:an example of the use of turtle function
    - encapsulation/generalization/refactoring/docstring
- Chapter 5 Conditionals and recursion
    - floor division and modulus
        - floor division://
        - morulus operator:%;check whether one number is divisible by another/extract the right-most digit
    - boolean expressions:==
    - logical operators:and/or/not
    - conditional statements
        - conditional execution:if
        - alternative execution:if-else
        - chained conditional:elif
        - nested conditionals
    - recusion
    - keyboard input
- Chapter 6 Fruitful functions
- Chapter 7 Iteration
    - reassignment
    - the while statment
    - break
- Chapter 8 String
    - a string is a sequence
    - len()
    - traversal with a for loop
    - string slices
    - string methods
        - string.upper()
        - string.find()
    - the in operator
- Chapter 9 Case study:word play
- Chapter 10 List
    - a list is a sequence
    - lists are utable
    - traversing a list
    - list methods
        - most list methods are void

    - t=t.sort()----return None
- map,fileter and reduce
- deleting elements:s.pop()/s.remove()/del
- lists and strings
    - list():convert a string to a list of characters
    - s.split():break a string into words
- objects and values
- aliasing
- list arguments
    - the **append** method/**slice** operator modifies a list,the **+** operator creates a new list
- debugging
    - most list methods modify the argument and return **None**
    - **this is wrong:**t=t.sort()
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