

IN MORE DETAIL

1. Introduction
 1. Overall goals and structure of course
 2. Introduction to algorithms
 3. Languages, types, variables
 4. The python console
2. Control flow
 1. Basic types in Python
 2. Comparison operations
 3. Branching
 4. while, for loops
 5. Break
3. Strings, simple algos
 1. String indexing and slicing
 2. string mutability
 3. Exhaustive search
 4. Bisection search
4. Functions, tuples, lists
 1. Functions, abstraction, decomposition, reuse
 2. functions in Python; variable scope, functions as arguments, visibility
 3. Tuples; defining, immutability, unpacking, operations
 4. Lists; defining, mutability, indexing, iterating, operations

1. Dictionaries
 1. keys, values
 2. Operations
 3. Iterating
2. OOP 1
 1. OOP concepts
 2. Creation, destruction
 3. Class attributes, methods
 4. Querying types
 5. Special methods
3. OOP 2
 1. Why use objects?
 2. getter and setter methods
 3. information hiding
 4. hierarchies, inheritance
 5. Class variables
4. Program efficiency
 1. Definition of efficiency
 2. Best, average, worst case
 3. Big-O notation
 4. Law of addition and multiplication in Big-O
 5. Complexity classes
 6. Linear, Binary search
 7. Merge sort