Python Tutorial

Part I

Greg (mastergreg) Liras, John (nemo) Giannelos

foss.ntua

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Outline

What is Python?

Python is an easy to learn, powerful programming language. It has efficient high-level data structures and a simple but effective approach to object-oriented programming. Pythons elegant syntax and dynamic typing, together with its interpreted nature, make it an ideal language for scripting and rapid application development in many areas on most platforms.

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In a few words, Python,

- is *Scripting Language*
- is *Strongly Typed*
- is *Dynamic*
- is *Portable*
- is *Object Oriented*
- has *Vast Libraries*
- is *Simple and non-obtrucive*

Why?

- It is easy to remember

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- You can develop rapidly

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- You can develop rapidly
- Interface with C libraries

Must and Must Not

- Search first code less

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- Import only what you need

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- Import only what you need
- Run pychecker on your code

Outline

Numeric types

- int (up to 10^{308}!!!!)

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- float (53 bits precision)

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- int (up to 10^{308}!!!!)
- float (53 bits precision)
- complex $(1 + 2j)$

Operators

- $+$ (add)

Operators

- + (add)
- - (subtract)

Operators

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- = (assign)

Strings

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  - `>>> 'HelloWorld'[0]`
    `'H'`

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  -
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  -
```
>>> 'HelloWorld'[6:]
'orld'
```

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- Simple concatenation:

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- Slicing:
  -
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>>> 'HelloWorld'[0]
'H'
```
  -
```
>>> 'HelloWorld'[6:]
'orld'
```
- Unicode Strings:

```
>>> ur'Hello\u0020World !'
u'Hello World !'
```

Lists

- ```
  >>> a = ['spam', 'eggs', 100, 1234]
  >>> a
  ['spam', 'eggs', 100, 1234]
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  >>> a[:2] + ['bacon', 2*2]
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- Comprehension:
  ```
  for i in a:
      print i
  ```
  ```

Tuples

- Immutable (just as strings)

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- Indexed

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- Indexed
- Nested

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- Operators:
  - a - b (in a but not in b)
  - a | b (in a or in b)
  - a & b (in a and in b)
  - a ^b (in a or b but not in both)
  ```

Dictionaries

Maps of objects

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- Easy to create

```
>>> dict([('sape', 4139), ('guido', 4127), ('jack', 4098)])
{'sape': 4139, 'jack': 4098, 'guido': 4127}
```

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{'sape': 4139, 'jack': 4098, 'guido': 4127}
```

- Simple to use

```
>>> tel = dict([('sape', 4139), ('guido', 4127), ('jack', 4098)])
>>> tel['jack']
4098
```