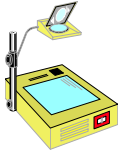




CpSc 372 Getting started with Python



Introduction

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Summary

- It's OO: polymorphism, operator overloading, multiple inheritance, dynamic typing
- It's free, but supported
- It's portable: Linux, Windows, Mac, Amiga, etc.
- Powerful: large toolset
- Lots of library utilities
- Automatic memory management
- Mixable: C, C++ or Java
- Easy to use
- Easy to learn

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Python on the job

- System utilities
- GUIs: TK, Tkinter, Qt
- Rapid prototyping
- Internet scripting: use with CGI
- Numeric programming: NumPy
- Database programming: Pickle module & SQL

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Python in Commercial Products

- Red Hat uses Python in its install tools
- Microsoft has shipped a product partially written in Python
- Infoseek uses Python in web search products
- Yahoo uses Python in internet services
- NASA uses Python for mission-control system implementation
- Lawrence Livermore Labs for numeric processing
- Industrial Light & Magic for commercial grade animation

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Compared to other languages

- Perl, Tcl, Java, C++:
 - Cleaner syntax than perl and much easier to read
 - More powerful than Tcl
 - Doesn't compare to Java & C++:
 - They are general purpose systems languages
 - Python is for scripting & rapid prototyping

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How to run Python

- Interactively (it's interpreted)
- As unix-style script files
- Embedded in another system
- Platform-specific launching methods

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Interactive command line

```
C:\WINDOWS\System32\cmd.exe - python
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\malloy>python
Python 2.2.2 (#37, Oct 14 2002, 15:02:14) [MSC 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print "Hello world!"
Hello world!
>>> x = 7
>>> print x
7
>>> =
```

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dir() function

```
C:\WINDOWS\System32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\malloy>type names.py
a = 'dead'
b = 'justice'
c = 'society'

C:\Documents and Settings\malloy>python
Python 2.2.2 (#37, Oct 14 2002, 15:02:14) [MSC 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> import names
>>> dir(names)
['_builtin_', '_doc_', '_file_', '_name_', 'a', 'b', 'c']
>>> Z

C:\Documents and Settings\malloy>
```

dir() is a system function that returns all the names in the Current namespace. E.g., `__name__` is current module.

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builtins

```
C:\WINDOWS\System32\cmd.exe - python
C:\Documents and Settings\malloy>python
Python 2.2.2 (#37, Oct 14 2002, 15:02:14) [MSC 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> dir(__builtin__)
['_abs_', 'abs', 'apply', 'bool', 'buffer', 'callable', 'chr', 'cmp', 'compile', 'complex', 'copyright', 'credits', 'delayed', 'dict', 'dir', 'divmod', 'eval', 'execfile', 'exit', 'file', 'filter', 'fileopener', 'getattr', 'globals', 'hasattr', 'hash', 'help', 'hex', 'id', 'input', 'int', 'intern', 'isinstance', 'issubclass', 'iter', 'len', 'license', 'list', 'local', 'long', 'map', 'max', 'min', 'object', 'oct', 'open', 'ord', 'pow', 'property', 'quit', 'range', 'raw_input', 'reduce', 'reload', 'repr', 'round', 'setattr', 'slice', 'staticmethod', 'str', 'super', 'tuple', 'type', 'unicode', 'unicode', 'vars', ' xrange', 'zip']
>>>
```

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Environment variables

- **PATH**: lists a set of directories that the operating system searches for executable programs. Should include directory where python interpreter lives
- **PYTHONPATH**: where the module files live when you import them into a program. Directories that Python searches
- **PYTHONSTARTUP**: code that gets executed automatically when start python interpreter

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