python™

Tech Talk
Honors Enrichment Contract

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Prepared by:
Hashim Al-Assi

Origin

- Implementation was started in December 1989
- Created by Guido van Rossum while at CWI in the Netherlands
- Successor to the ABC language
- Python was the original working name and is inspired by Monty Python's Flying Circus

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The Zen of Python

- Beautiful is better than ugly
- Explicit is better than implicit
- Simple is better than complex
- Complex is better than complicated
- Readability counts

Vision

- In 1999, van Rossum defined his goals as
  - An easy and intuitive language just as powerful as major competitors
  - Open source
  - Code that is as understandable as plain English
  - Suitability for everyday tasks, allowing short dev times

Versions

- Python 2.0 was released on October 16, 2000
  - Included a full garbage collector
  - Support for Unicode
  - Development process became more transparent and community-backed

- Python 3.0 was released on December 3, 2008
  - Backwards-incompatible release
  - Many of its major features have been backported to Python 2.6 and 2.7, which are backwards-compatible

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Advantages

- Design philosophy emphasizes code readability
- Syntax allows programmers to express concepts in fewer lines of code than C++ or Java
- Supports multiple programming paradigms (object-oriented, imperative, functional programming

Advantages

- Can be compiled into other languages easily
  - Pyjamas compiles Python to JavaScript
  - Shed Skin compiles Python to C++
  - Cython and Pyrex complie to C

Advantages

- Dynamic type system
- Automatic memory management
- Large standard library
- Interpreters available on most operating systems
- Can be packaged as stand alone executable programs

Advantages

- Highly extensible
  - You can extend Python by adding new modules, which come bundled up in packages (pip command)

Examples

- "elif" instead of else-if
- "and", "or", "not" instead of &&, ||, !
- Uses whitespace indentation, rather than curly braces or keywords, to delimit blocks ("off-side rule")

Who uses Python?

- Google
- Yahoo!
- CERN
- NASA

Languages influenced by Python

Introducing Swift

"I wanted a scripting language that was more powerful than Perl, and more object-oriented than Python. That's why I decided to design my own language."
    -Yukihiro Matsumoto,
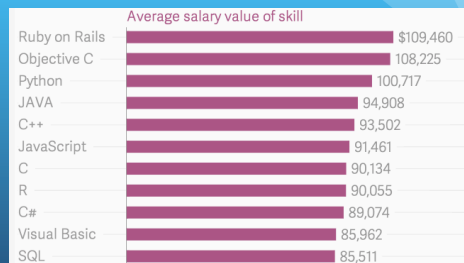   Creator of Ruby

Ruby
A Programmer's Best Friend

Virtualenv

- Only need if you work on more than one python project
- Allows the use of different packages and even different version of packages
  - Ex. Use Flask on one app and Django on another

Why should you care?

Average salary value of skill

Ruby on Rails	$109,460
Objective C	108,225
Python	100,717
JAVA	94,908
C++	93,502
JavaScript	91,461
C	90,134
R	90,055
C#	89,074
Visual Basic	85,962
SQL	85,511

Demo

- Start with simple "Hello World" App
- Create simple web site
- Add basic form function
- Show memory feature

Questions?