Python for Beginners.

Classes for 10 to 110!

What is Programming?

- Set of **Instructions** for a computer.
- **Logic** and **Language**.
- **Algorithms**, aka repetitive solutions
- Programs are given to a computer that processes them.

What is a Computer?

- Hardware
  - CPU, RAM, Hard Drive, Input/Output Devices.
- Software
  - Operating Systems, Browsers, Word Processors
- **Programmable**
- Defined as a thing which does math
- With our powers combined...

Its a Computer!?

← Seriously, THIS is a computer!

Jacquard's Loom

The Loom could be **programmed** by punched cards which would let the loom mechanically **repeat a process** that would make the job of weaving complex patterns simpler!

Amazing!

Logic, Not just for Vulcans.

- The process of making **valid statements**.
- A=B=C, then A=C.
- Evaluated to **True** or **False**
- Computers can't solve illogical problems! (yet!)

Parlez Vous le Computer?

- Since Logic evaluates to **True** or **False**…
- Computer language has two 'letters', 1(**True**) and 0 (**False**)
- This language is called **Binary**.

BINARY

10001010101010100011

- A language composed entirely of 1's and 0's
- Different patterns count to different numbers, which can mean different things.
- Too boring and complex to program this way all the time, so we invented...

Computer Languages

- Over 4000 languages, each with their own advantages/disadvantages.
- All of them create instructions in **Binary** either through **Interpretation**, or **Compiling**
- So we learn less complex languages which help us write **Logical** programs for computers.

Python

- Is a computer language
- Is interpreted by the computer into **Binary**
- Very easy to learn, and very powerful to use!
  - Google uses Python a lot in their applications.
  - Good documentation.
  - Everything from Video Games to Accounting software!
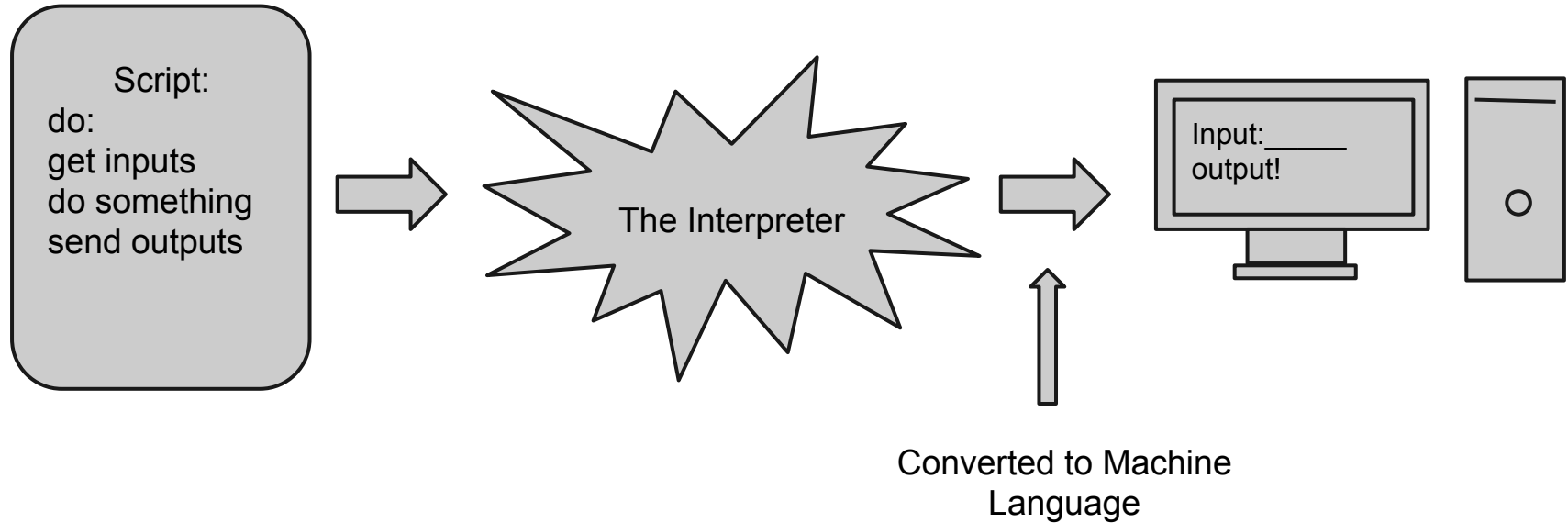- Its a good place to start

Installing Python

Download Python 2.7.6 from: http://www.python.org/getit/

Install this on your computer.

In the mean time, http://www.trypython.org/

● Python runs in your Console or Command Prompt. For windows, Start-> search(cmd) ->cmd->type(cd ../.. /Python27) -> type(Python)

How does Python Work?

Variables

- A representation of some value.
- A **name** represents them in the program
- Several types in python:
  - **Integers** (whole numbers).
  - **Floats** (decimals).
  - **Strings** (words).
  - **Data Structures**.

First Variable

variableName = 42

The name of a Variable

The value assigned.

print variableName

This command tells the computer to print out a message. It is then told to print out the variable, variableName.

Integers

- Only whole numbers. decimals are **<u>truncated</u>**
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