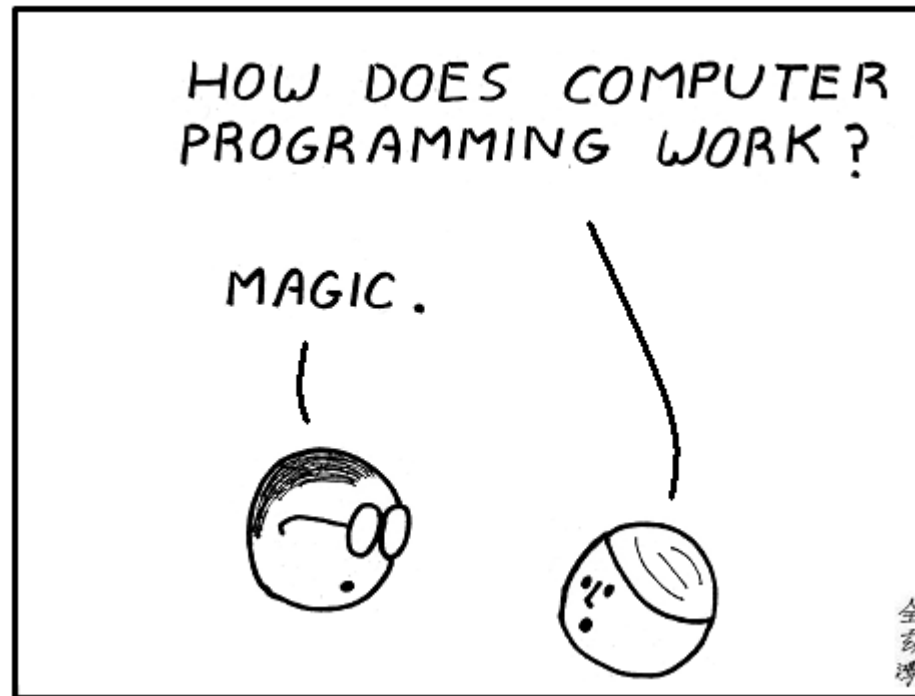


WELCOME TO COMPUTER PROGRAMMING



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WHAT ABOUT YOU?

Name?

What are you studying?

Where are you from?

Previous experience?



Why should we learn programming?

???

Course overview

Materials - <https://courses.cs.ut.ee/>

Tests, submission of exercises, points -
<https://moodle.ut.ee/>

Grading

<https://courses.cs.ut.ee/2017/nkp/fall/Main/Grading>

Tests

Homework + participation in the sessions

Project (formulation + solution)

Mid-term test

Exam (test on paper + programming exercise)

Sessions

- **Before:**
 - Video
 - Test
 - Homework

- **Sessions**
 - Wednesday
 - Thursday

Software

- Python 2 or Python 3
- IDLE or Notepad++
- CMD???

Questionnaire

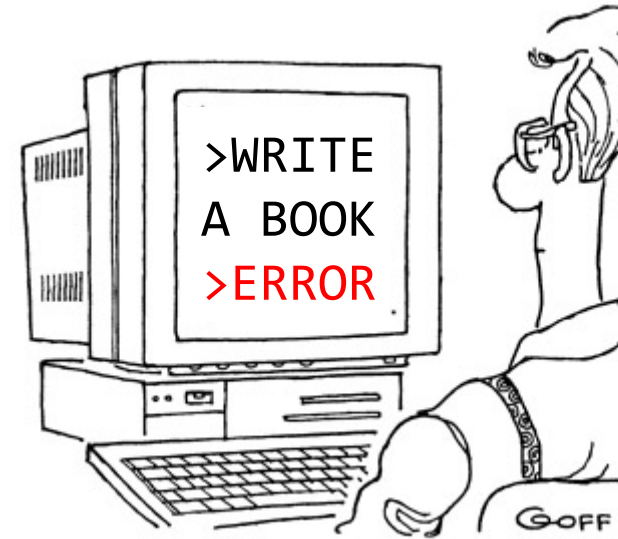
<https://goo.gl/forms/7oI4hpqhQjiOWMrU1>

By now...

- Independently covered 2 chapters of Charles Severance:
 - 2 videos lectures
 - 1 test

PROGRAMMING

- Computers want to be helpful
but we need to speak their language



- Programmers are people who know how to communicate with computers in a programming language.
They know how to write **programs**
- **Program** is a sequence of stored instructions (commands)
 - Programmers figure out the sequence and encode it

Python

- Python

- A programming language developed by Guido van Rossum in 1990
- A way to communicate with computers and encapsulate our instructions

Advice

At the beginning, the language is new. It is hardly possible to pick up a language over the night.

There will be lots of mistakes (e.g. *syntax error*):

- PC is not cruel nor making jokes
- It says: “**I don’t understand what you are saying.** I only know a few words. Please speak in Python.”
- Be ready that PC don’t correct you as teachers do. They can hardly listen or understand our awkward *Shakespearian* Python

Keep going, wondering throughout, editing, playing, understanding

- **It is easier for you to learn Python than to make computers understand English**

WHY PYTHON?

Python:

```
print "Hello, world!"
```

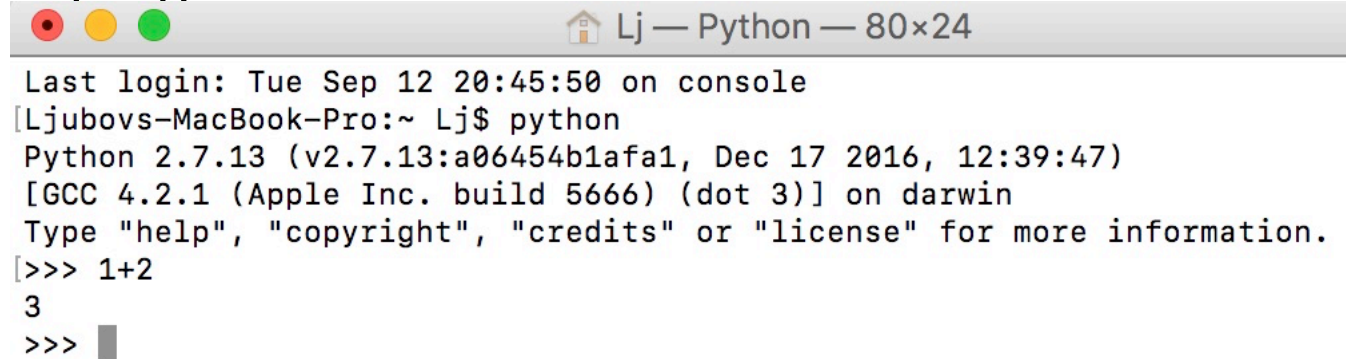
Java:

```
public class HelloWorld {  
    public static void main (String[] args) {  
        System.out.println("Hello, world!");  
    }  
}
```

Interactive or Script

• Interactive Python

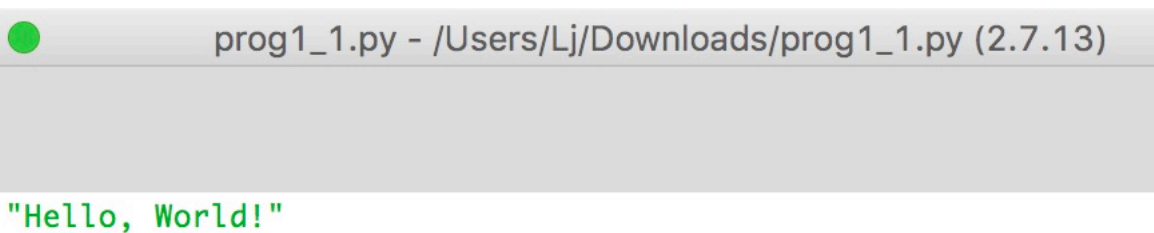
- You type directly one line at a time and Python responds
- Is good for experiments and programs of 3-4 lines



```
Ljubovs-MacBook-Pro:~ Lj$ python
Python 2.7.13 (v2.7.13:a06454b1afa1, Dec 17 2016, 12:39:47)
[GCC 4.2.1 (Apple Inc. build 5666) (dot 3)] on darwin
Type "help", "copyright", "credits" or "license" for more information.
[>>> 1+2
3
>>> █
```

• Python Script

- You enter a sequence of statements (lines) into a file using a text editor and tell Python to execute the statements in the file
- add `.py` as the suffix on the end of these files to indicate they contain Python



```
prog1_1.py - /Users/Lj/Downloads/prog1_1.py (2.7.13)
"Hello, World!"
```

Chapter 2 - Expressions

Variables

- *mnemonically* named place in the memory where a programmer can store data and later retrieve data using the variable name
 - Must start with a letter or underscore _
 - Must contain letters, numbers or underscore
 - **Case sensitive**

Constants

- Numbers, letters, and string are constants
- They do not change their value
 - 123 98.6 'Hello, world' "Hello, world"
- `type()`
 - Types `int` `float` `str`
 - Type conversion `int()` `float()` `str()`

Expressions

- **Assignment statement**

- e.g. `x = 2`

- *Hey, Python, go and find a place called 'x' and store there 2*

- **Assignment with expression (e.g. `x = x + 2`)**

- **Operators**

- Addition +

- Substracion -

- Multiplication *

- Division /

Truncated division `450 / 100` result is 4
vs `450.0 / 100` result is 4.5

- Power **

- Remainder or moder % (`450 % 100` result is 50)

Order of evaluation (operator precedence) () ** * / % +- left to right

Expressions

- Reserved words (e.g. `print`, `for`, `elif`, `while`)
- User input `raw_input('Hello')`
- Comments `#`

Test1

Questions?