CSC 111
Introduction to Computer Science

Dominique Thiébaut
Fall 2015

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Today:

- Class **Web Page**: http://tinyurl.com/1112015
  - Syllabus
  - Piazza
  - Moodle
  - Python & Idle
  - Waiver forms & Registration
Introduction to Computer Science

Fall 2015

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Syllabus

- http://cs.smith.edu
- faculty
- D. Thiebaut
- more info
Please answer the Survey!

- Strongly agree
- Agree
- Disagree
- Strongly disagree
CSC111: Amount of Work

Level of Difficulty vs. Semester
CSC111: Amount of Work

Level of Difficulty vs. Semester

Your level
This week…

Level of Difficulty

Your level

Semester
Goals for this Week

• Learn the Rules for **Pair Programming**

• Learn how to use **Idle**

• Write simple programs that use **variables, for loops, and output** information

• **Install** Python and Idle on laptop (optional)

• Learn how to **submit** Python programs to **Moodle** (lab+homework)
Rule for Laptop Use in Class

- Laptops welcome for note-taking, accessing class Web page, and for running Python programs

- All other use is forbidden
Reading

• Read **Chapter 1** in John Zelle's *Python Programming*, up to Section 1.7 included
What is a Programming language?
Important Concepts…

• Syntax and keywords

and del from not while as elif global or with assert else if pass yield break except import print class exec in raise continue finally is return def for lambda try

• Algorithm
Rules for Pair Programming
https://www.youtube.com/watch?v=vgkahOzFH2Q
An Example Program
def main():
    print( "This program illustrates a chaotic function" )
    x = eval( input( "Enter a number between 0 and 1: " ) )
    for i in [ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 ]:
        x = 3.9 * x * ( 1 - x )
    print( x )

main()
# A simple program taken from Zelle, Chapter 1
# D. Thiebaut

def main():
    print("This program illustrates a chaotic function")
    x = eval(input("Enter a number between 0 and 1: "))
    for i in [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]:
        x = 3.9 * x * (1 - x)
    print(x)

main()
Integrated Development Environment = IDLE
Integrated Development Environment = IDLE
Integrated Development Environment = IDLE

(MAC)
Integrated Development Environment = IDLE (Windows)
# A simple program taken from Zelle, Chapter 1
# D. Thiebaut

def main():
    print( "This program illustrates a chaotic function" )
    x = eval( input( "Enter a number between 0 and 1: " ) )
    for i in [ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 ]:
        x = 3.9 * x * ( 1 - x )
        print( x )

main()
Registration Update
Concepts to Cover in Demo

• **Console vs. Edit window**

• **Variables**
  - numbers: *integers* and *floats*
  - text: *strings* of characters

• *print* function
Demo Programs To Play With…

age = 20
year = 2015
yearBorn = year - age

print( "you are", age )
print( "you were born in", yearBorn )

name = "Alex"
college = "Smith College"
print( name, "goes to", college )

for name in [ "Lea Jones", "Julie Fleur", "Anu Vias" ]:
    print( name )
    print( "—————" )
Demo Programs To Play With… (cont’d)

```python
for name in [ "Lea Jones", "Julie Fleur", "Anu Vias" ]:
    print( name, len( name ) )

print( "hello" * 4 )
print( "-" * 10 )
greetings = "hello"
dash = "-"
print( greetings * 4 )
print( dash * 10 )

longGreetings = greetings * 4
print( greetings )
print( longGreetings )
```

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Demo Programs To Play With… (cont’d)

```python
for name in [ "Lea Jones", "Julie Fleur", "Anu Vias" ]:
    bar = len(name) * "-"
    print( name )
    print( bar )
```

```python
print( "hello" * 4 )
print( "-" * 10 )

greetings = "hello"
dash = "-"
print( greetings * 4 )
print( dash * 10 )
```

```python
greetings = "hello"
longGreetings = greeting * 4
print( greetings )
print( longGreetings )
```
We stopped here last time...
Registering Wait-Listed Students

- Status as of 1/28/15
  (R=registered, NS=needs signature, WL=wait-listed)

- **Lab 01**: W 1-3: 21 R + 2 WL
- **Lab 02**: Th 1-3: 24 R + 1 WL (?)
- **Lab 03**: Th 3-5: 24 R + 4 WL
- **Lab 04**: W 3-5: 16 R + 0 WL
Registration Update

- 3 slots left
- Should be able to absorb wait-listed students
- No section transfer between Labs 1, 2, 3, or 4 unless you find somebody to transfer the other way
- Some seats left in Section 4 (Wed 1-3)
Plan

Review of the lab
Introduction to Homework #1
```
def block
```
Demo
Something fun…
Lab 1 Q&A
Understanding Moodle's Comments (1)

Expected Output

- Line 1
- Line 2
- Line 3
- Line 4
Understanding Moodle's Comments (1)

Expected Output

Line 1
Line 2
Line 3
Line 4

Your Program Output

Line 1
Line 2
Line 3
Line 4
Understanding Moodle's Comments (1)

Expected Output

Line 1
Line 2
Line 3
Line 4

Your Program Output

Line 1
Line 2
Line 3
Line 4
Understanding Moodle's Comments (2)

Expected Output

Line 1
Line 2
Line 3
Line 4
Understanding Moodle's Comments (2)

Expected Output

Line 1
Line 2
Line 3
Line 4

Your Program Output

Line 1
Lines 20
Line 3
Line 4
Understanding Moodle's Comments (2)

Expected Output

Line 1
Line 2
Line 3
Line 4

Your Program Output

Line 1
Lines 20
Line 3
Line 4

Line 1
- Lines 20
?   -   -
+ Line 2
Line 3
Line 4
Understanding Moodle's Comments (3)

Expected Output

<table>
<thead>
<tr>
<th>Line 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line 2</td>
</tr>
<tr>
<td>Line 3</td>
</tr>
<tr>
<td>Line 4</td>
</tr>
</tbody>
</table>
Understanding Moodle's Comments (3)

Expected Output

- Line 1
- Line 2
- Line 3
- Line 4

Your Program Output

- Line 1
- Line 3
- Line 4
Understanding Moodle's Comments (3)

Expected Output

- Line 1
- Line 2
- Line 3
- Line 4

Your Program Output

- Line 1
- Line 3
- Line 4

Line 1
+ Line 2
Line 3
Line 4
Understanding Moodle's Comments (4)

Expected Output

Line 1
Line 2
Line 3
Line 4
Understanding Moodle's Comments (4)

Expected Output

Line 1
Line 2
Line 3
Line 4

Your Program Output

Line 1
Line 2
Extra Line
Line 3
Line 4
Understanding Moodle's Comments (4)

Expected Output

Line 1
Line 2
Line 3
Line 4

It will depends!

Your Program Output

Line 1
Line 2
Extra Line
Line 3
Line 4
Practice Python!
Beginning of the Semester
AFTER ONE SEMESTER
Computer Science Major
Variables

age
Variables

age = 23
Variables

age = 23

assignment
Variables

name = "Smith"

name = "Smith"
Variables

rate = 21.34
Variables & Expressions

age = 23
newValue = 10
Variables & Expressions

age = 23
newValue = 10
age = newValue
Variables & Expressions

age = 23
newValue = 10
age = newValue
Variables & Expressions

age = 23
newValue = 10
age = newValue
age = age + 2
Variables & Expressions

\[
\begin{align*}
\text{age} & = 10 \\
\text{newValue} & = 10 \\
\text{age} & = \text{newValue} \\
\text{age} & = \text{age} + 2
\end{align*}
\]
Variables & Expressions

age = 23
newValue = 10
age = newValue
age = age + 2

10+2

10

age

10

newValue
Variables & Expressions

10 + 2 \rightarrow 12

age = 23
newValue = 10
age = newValue
age = age + 2
Variables & Expressions

- \( \text{age} = 23 \)
- \( \text{newValue} = 10 \)
- \( \text{age} = \text{newValue} \)
- \( \text{age} = \text{age} + 2 \)

\[ 10 + 2 \rightarrow 12 \]
Exercise

\[ a = 10 \]
\[ b = 20 \]
\[ c = 30 \]

\[ a = b \]
\[ \# a = ? \]
Exercise

a = 10
b = 20
c = 30

a = b  # a = 20
b = a  # a = ?  b = ?
Exercise

\[
\begin{align*}
a &= 10 \\
b &= 20 \\
c &= 30 \\
a &= b & \# a = 20 \\
b &= a & \# a = 20 \quad b = 20 \\
c &= c \times 2 & \# c = ?
\end{align*}
\]
Exercise

\[
\begin{align*}
a &= 10 \\
b &= 20 \\
c &= 30 \\
a &= b & \# a = 20 \\
b &= a & \# a = 20, b = 20 \\
c &= c \times 2 & \# c = 60 \\
d &= d - 10 & \# d = ?
\end{align*}
\]
Exercise

a = 10
b = 20
c = 30

a = b # a = 20
b = a # a = 20    b = 20
c = c * 2 # c = 60
d = d - 10 # NameError:
            # name 'd' is not defined
Naming Variables

- a
- age
- delta
- name1
- name2
- R2D2
- aVeryLongName
- 1tooMany

CamelCase
Naming Variables

- a
- age
- delta
- name1
- name2
- R2D2
- aVeryLongName
- 1tooMany
Naming Variables

this_is_good_too
but
we Prefer
thisIsGoodToo

lambda
for
def
Exercise 1

***
Mae
******
Alice
*******
Felicia
Exercise 2

*  
Mae  
******
Alice  
****
Felicia  
**