

Welcome to today's meeting



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Programming

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Breitner

Prelude
Recapitulation

Python
Comments
Variables
User input
Calculation

```
220 mail-server.soshgic.edu.gh WebShield ↵
      SMTP V4.5 MR1a Network Associates, Inc.↵
      . Ready at Mon Sep 11 13:59:38 2006
HELO hacker.gh
250 mail-server.soshgic.edu.gh Welcome ↵
      hacker.gh
MAIL FROM:the@hacker.gh
250 the@hacker.gh ... OK
RCPT TO:bill@gates.com
250 bill@gates.com ... OK
DATA
354 Enter mail, end with "." on a line by↵
      itself
```



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Obroni Computer Club – More Programming in Python

Joachim Breitner

SOS Hermann Gmeiner International College

September 12th 2006



- 1 Prelude
 - Review of the last meeting
- 2 My second Python program(s)
 - Making Comments in your Code
 - Using variables
 - Reading information from the user
 - Using python to calculate stuff



1 Prelude

- Review of the last meeting

2 My second Python program(s)

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Do you still remember?



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Last week, we started programming in python, after watching a cheesy love story about that.

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Last week, we started programming in python, after watching a cheesy love story about that.

We got far enough to print strings to the screen.

Do you still remember?



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Last week, we started programming in python, after watching a cheesy love story about that.

We got far enough to print strings to the screen.

This is not much, so today, we will advance a bit.

My second Python program(s)



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Comments



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If you write code, it should be understandable even for someone else, or for you after a while. Therefore, you need:

Comments

Comments are parts of the source code that are ignored by the system. In Python, everything from a `#` to the end of the line is a comment.

Comments



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If you write code, it should be understandable even for someone else, or for you after a while. Therefore, you need:

Comments

Comments are parts of the source code that are ignored by the system. In Python, everything from a `#` to the end of the line is a comment.

Example:

```
1 | #!/usr/bin/python
2 | # Hello World program. ©2006 Joachim Breitner
3 |
4 | # This prints a nice greeting to the user
5 | print 'a_nice_greeting_to_the_user'
6 |
7 | # End of program
```

What are variables?



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When programming, most of the time you are moving data around. The places where data is stored are called “variables”, and you give them a name in the program.

What are variables?



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When programming, most of the time you are moving data around. The places where data is stored are called “variables”, and you give them a name in the program.

In Python, you don't need to declare variables, you just use them. But you must stick to certain rules on how they can be named (what their *identifier* can be):

Python identifiers

- 1 must consist of letters, digits and the underscore (`_`).
- 2 must not begin with a digit.
- 3 are case sensitive (`input` is not `Input` is not `INPUT`).

What do we do with variables?



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- Assign them: `who = 'World'`
- Use them in statements (no quotes!): **print** `who`
- Copy the content `var1 = var2`

You can also calculate with variables:

```
1 | x = 2
2 | y = 20*x + x # now y is 42
3 |
4 | # + can also be used to put strings together
5 | who = 'World'
6 | greeting = 'Hello_' + who
```

Exercise: Using variables



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Write a Hello World program that uses a variable to remember who it is speaking to, and uses that variable to greet and say goodbye.

Exercise: Using variables



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Write a Hello World program that uses a variable to remember who it is speaking to, and uses that variable to greet and say goodbye.

```
1 | #!/usr/bin/python
2 |
3 | who = 'World'
4 | print 'Hello_' + who + '!'
5 | print 'Good_bye,_' + who + '.'
```

Getting interactive



Of course, programs are no fun if they do the same thing all the time. We need interaction!

The analogous to **print** is `raw_input`. It is used like here:

```
1 | #!/usr/bin/python
2 |
3 | print 'I am a parrot!'
4 | input = raw_input('gurr?_')
5 | print input + '_arr_' + input
6 | input = raw_input('gurr?_')
7 | print input + '_arr_' + input
8 | input = raw_input('gurr?_')
9 | print input + '_arr_' + input
10| print 'I am a bored parrot, good bye!'
```

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Exercise: User input



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Write a program that asks the user for his name, then says hello, asks how he is and wishes him farewell, using his name.

Exercise: User input



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Write a program that asks the user for his name, then says hello, asks how he is and wishes him farewell, using his name.

```
1 | #!/usr/bin/python
2 |
3 | name = raw_input('Now, who are you?')
4 | print 'Pleasure to meet you,' + name + '!'
5 | raw_input('Who are you today?') # ignoring the result
6 | print 'That is nice. Good by,' + name + '.'
```

to compute means to calculate



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Computers were mostly created to do calculations. So let's use them for that. In Python, you can easily calculate:

```
1 | a = 10 ; b = 20 # multiple operations on one line: use ;
2 | c = a + b      # should be 30
3 | d = c - 40    # should be -10
4 | e = a * b      # should be -100
5 | a = 8         # does not change c,d,e or f
6 | g = b % a     # modulus calculation: should be 4
```

Strings to Numbers and back



To use a variable that contains a number as a string, use “str”:

```
1 | a = 1; b = 2
2 | print a+b           # will print "3"
3 | print str(a) + str(b) # will print "12"
4 | print 'a_is_' + a    # does not work
5 | print 'a_is_' + str(a) # correct
```

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Strings to Numbers and back



To use a variable that contains a number as a string, use “str”:

```
1 | a = 1; b = 2
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4 | print 'a_is_' + a    # does not work
5 | print 'a_is_' + str(a) # correct
```

Similarly, to use a string as a number, use “int”:

```
1 | a = int('1')         # same as a = 1
2 | b = raw_input('?_') # b is a string
3 | c = int(b)           # c is a number
4 | d = int(raw_input('?_')) # directly a number
5 | e = a + c + d        # adding, not concatenating
6 | print 'Result_is_' + str(e) # see above
```

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Exercise: Calculations



Write a program that lets the use input two numbers, and then prints their sum, their difference, their product, their quotient, their modulus (both ways).

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Exercise: Calculations



Write a program that lets the user input two numbers, and then prints their sum, their difference, their product, their quotient, their modulus (both ways).

```
1  #!/usr/bin/python
2
3  a = int(raw_input(' First number, please: '))
4  b = int(raw_input(' Second number, please: '))
5  sum  = a+b; diff  = a-b
6  prod = a*b; quot = a/b
7  m1   = a%b; m2   = b%a
8  print ' Results are: '
9  print ' Sum: ' +str(sum)+' , Difference: ' +str( diff )
10 print ' Product: ' +str(prod)+' , Quotient: ' +str(quot)
11 print ' a mod b: ' +str(m1)+' , b mod a: ' +str(m2)
```

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Any Questions?

Please remove the OCC ads from the notice boards,
thanks!

Good bye 'till next time



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```
.  
250 Mail accepted  
RSET  
250 Reset Complete  
QUIT  
221 mail-server.soshgic.edu.gh closing Connection
```