北京航空航天大學
BEIHANG UNIVERSITY

Fundamental of Software Systems

Lab Class 1

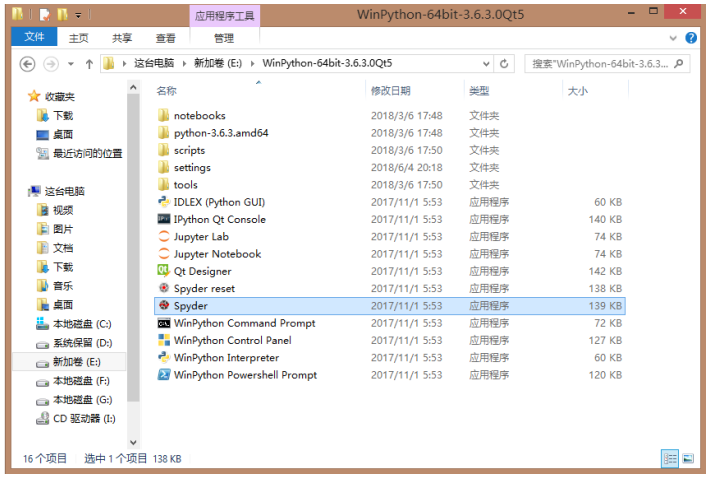
Beihang University

Outline

- Basic settings
- Introduction to Python
  - Execution of Python programs
  - Output and input
  - Variable assignment
  - Commenting source code

Task: Download and install WinPython

- Download the Installation file for WinPython from link
  - https://pan.baidu.com/s/1sSH3zbNK7pZmAFkM3fKlyw (keys: 5449)
  - Alternative: https://sourceforge.net/projects/winpython/files/
    - Select folder: WinPython 3.6.3.0
    - Select file: WinPython-64bit-3.6.3.0Qt5.exe
- Install the package in an appropriate folder.
- Go to the selected folder and double click “spyder”.

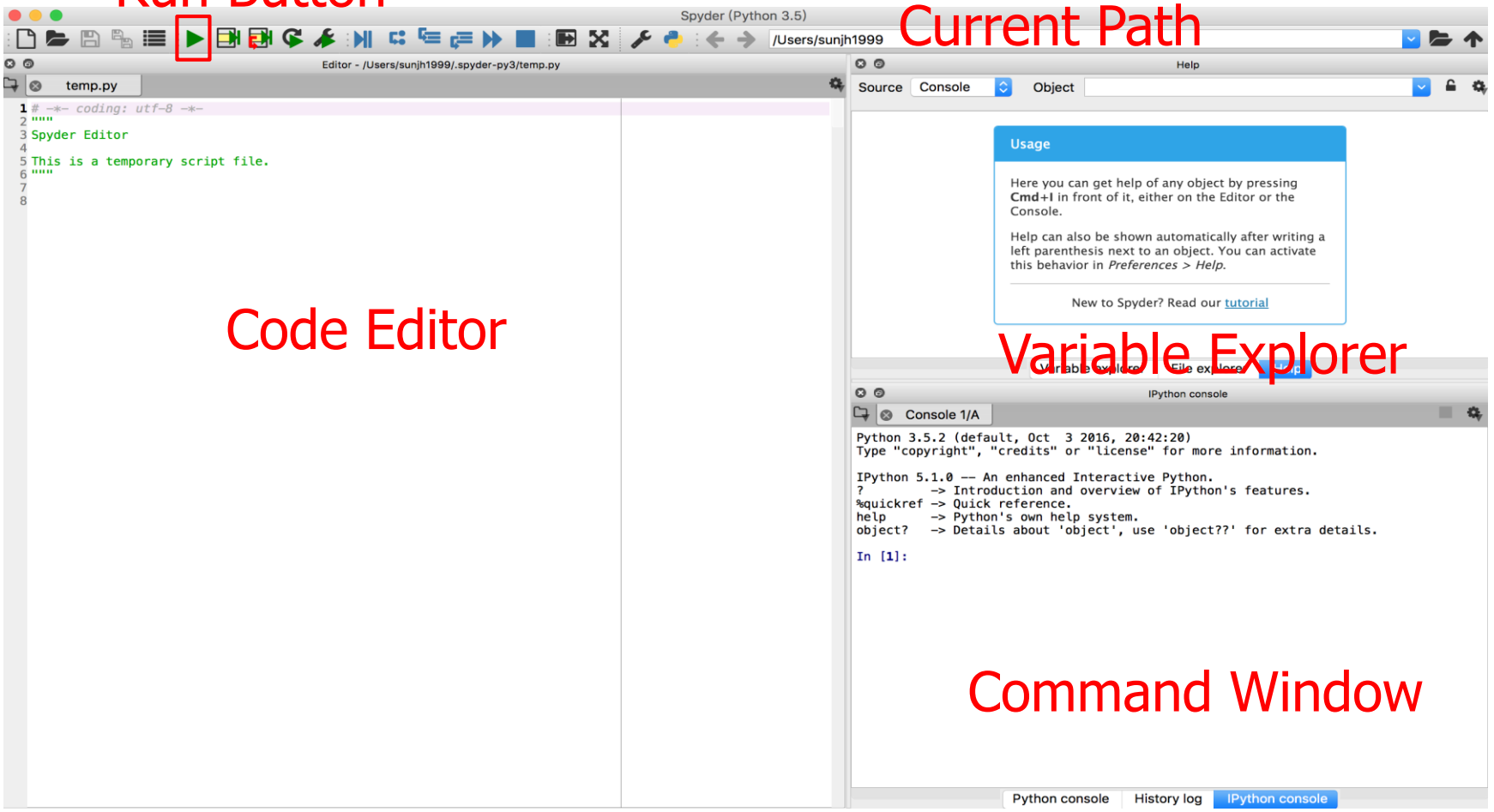


Execution of Python programs

- Two methods to execute a Python program:
  - Terminal (i.e., cmd in windows).
    - python3 abc.py, here abc.py is the name of Python file.
    - Simplest way for running a program one time.
  - Integrated Development Environment (IDE).
    - You have a graphical user interface.
    - Many assistants for writing code.
    - We will use the IDE Spyder.

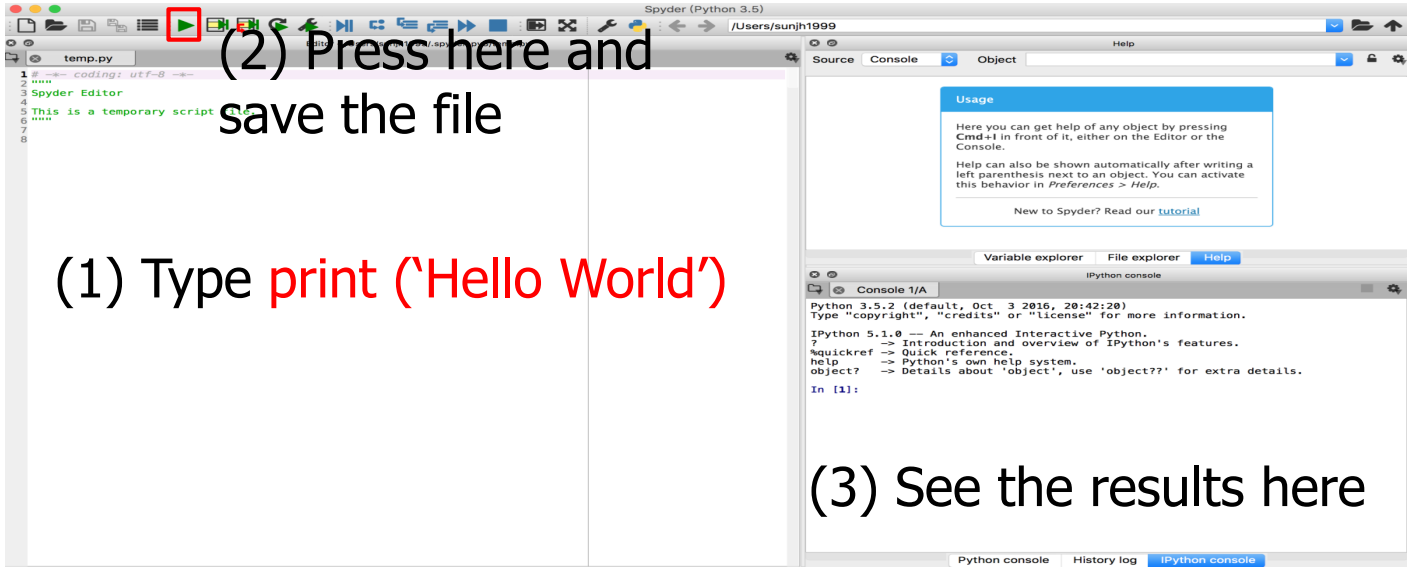
```
people = 20
cats = 30
dogs = 15


if people < cats:
  print "Too many cats! The world is doomed!"


if people > cats:
  print "Not many cats! The world is saved!"


if people < dogs:
  print "The world is drooled on!"


if people > dogs:
  print "The world is dry!"

```

The interface of spyder



Output: printing

- (1) Type print ('Hello World') in the **Code Editor**.
- (2) Press the **Run Button**, then save the file.
- (3) See the results in the **Console**.



Input: read from keyboard

- The program will use the data which is input by you.
- Type the following statements line by line:

```
a= input('input a number:')
print (a)
```

- Run the program and type whatever you want in the command window.
- See the results.

```
input a number: b
b
```

Variable assignments

- Type the following statements line by line and see the difference.

```
abc='def'
print ('first output:',abc)
print ('second output:','abc')
```

```
first output: def
second output: abc
```

Variable assignments

- Type the following statements line by line and see the results.

```
a=3
b=7
print ('a=',a,',b=',b)
a-=1
b+=1
print ('a=',a,',b=',b)
```

```
a= 3 ,b= 7
a= 2 ,b= 8
```

Commenting source code

- It's a good habit to add some comment to explain your codes using '#'
- Cooperation between programmers are very important.
  - It is difficult for other people to maintain your code if they cannot understand the code.
- Of course, you do not need to write comments for those very simple code. Like this:

```
abc='def'      #variable assignment
print ('first output:',abc)      #print variable abc
print ('second output:','abc')     #print string 'abc'
```

Task: Print a 'C' using Python

- (1) Print an unlovely 'C' as follows:

```
print ("print C")
print ("*"*9)
print("*")
print("*")
print("*")
print("*")
print("*")
print("*")
print ("*"*9)
```

```
print C
*********
*
*
*
*
*
*
*********
```

Task: Print a 'C' using Python

- (1) Print an unlovely 'C' as follows:

```
print ("print C")
print ("*"*9)
print("*")
print("*")
print("*")
print("*")
print("*")
print("*")
print ("*"*9)
```

```
print C
*********
*
*
*
*
*
*
*********
```

- (2) How to print a beautiful 'C' like this?

```
print C
  *********
 *         *
*
*
*
*
*
 *         *
  *********
```