

Лекция 01

Установка IDLE

Страница загрузки

<http://www.python.org/>



The image shows a screenshot of the Python.org website. At the top, there is a navigation bar with five tabs: Downloads, Documentation, Community, Success Stories, and News. The 'Downloads' tab is selected and expanded into a vertical menu on the left side of the page. This menu contains the following items: All releases, Source code, Windows, Mac OS X, Other Platforms, License, and Alternative Implementations. The 'Windows' item is highlighted. To the right of the menu, the main content area displays the heading 'Download for Windows'. Below this heading are two buttons: 'Python 3.4.2' and 'Python 2.7.8'. Underneath the buttons, there is a paragraph of text: 'Not the OS you are looking for? Python can be used on 21 different operating systems and environments.' followed by a link that says 'View the full list.'



GO

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Python Releases for Windows

- [Latest Python 2 Release - Python 2.7.8](#)
- [Latest Python 3 Release - Python 3.4.2](#)
- [Python 3.4.2 - 2014-10-13](#)
 - [Download Windows x86 MSI installer](#)
 - [Download Windows x86-64 MSI installer](#)
 - [Download Windows help file](#)
 - [Download Windows debug information files for 64-bit binaries](#)
 - [Download Windows debug information files](#)
- [Python 3.4.2rc1 - 2014-09-22](#)
 - [Download Windows x86 MSI installer](#)
 - [Download Windows x86-64 MSI installer](#)
 - [Download Windows help file](#)

Старт инсталляции



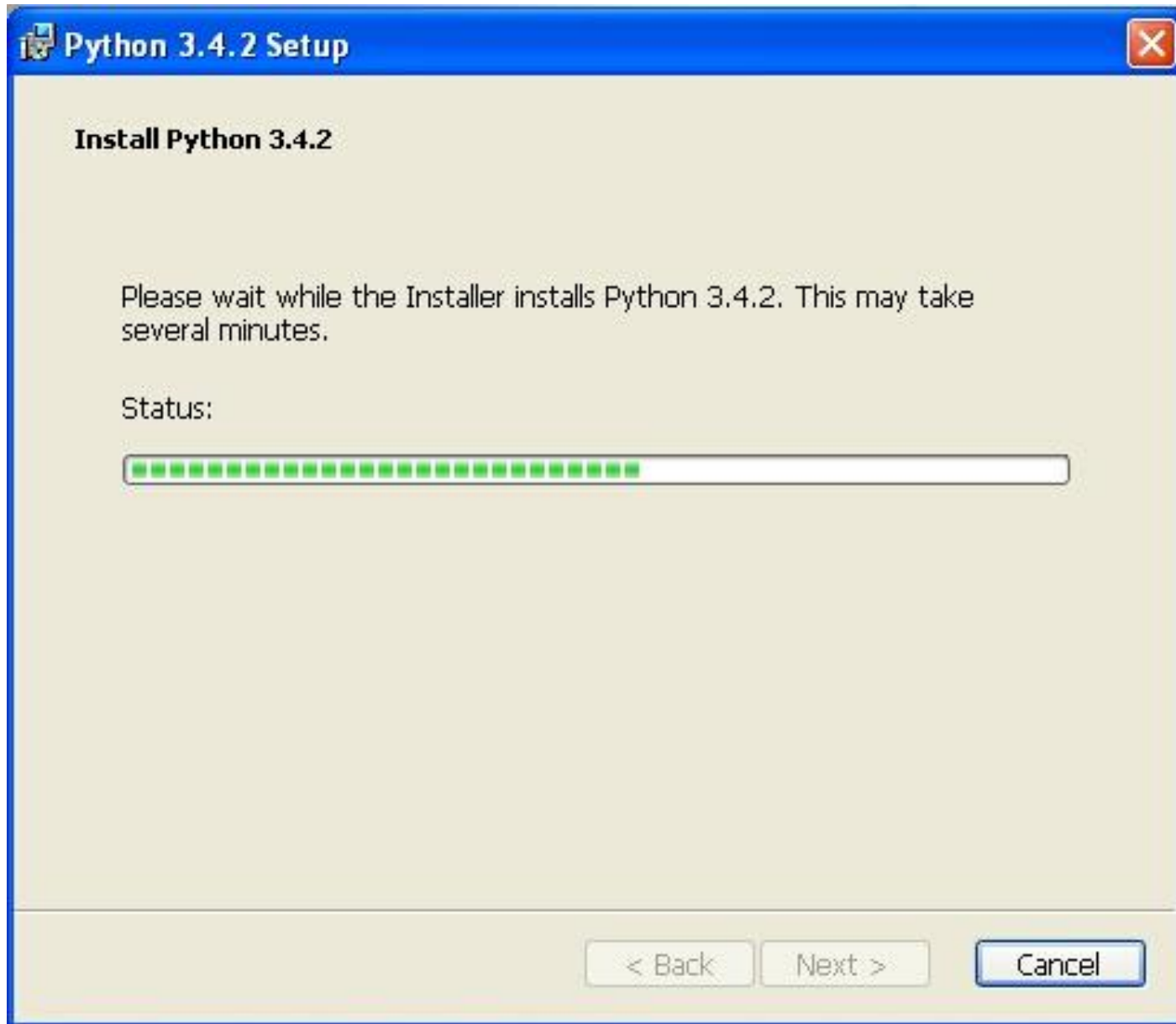
Указываем каталог инсталляции



Выбор устанавливаемых компонентов



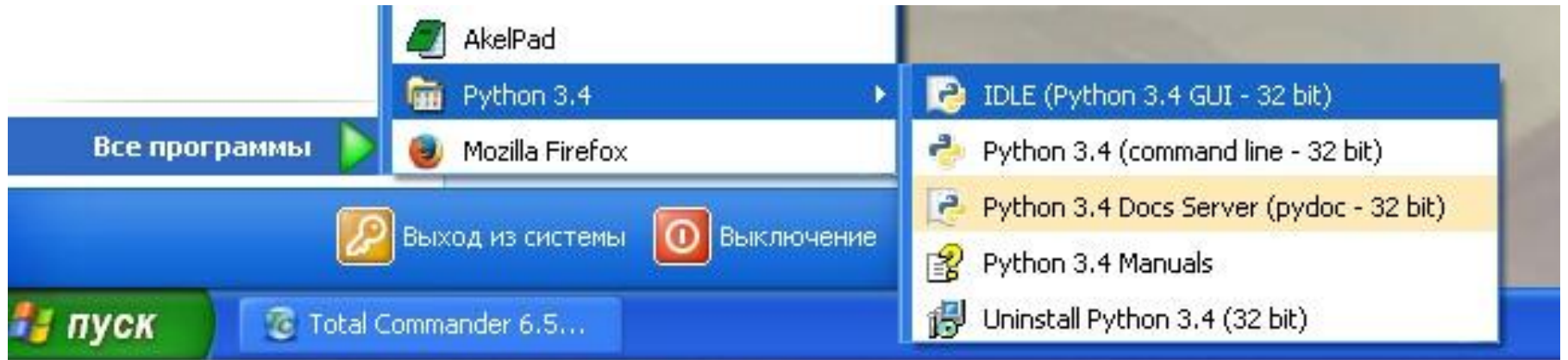
Продолжение инсталляции



Завершение инсталляции



Программная группа Python



Интерактивная справка

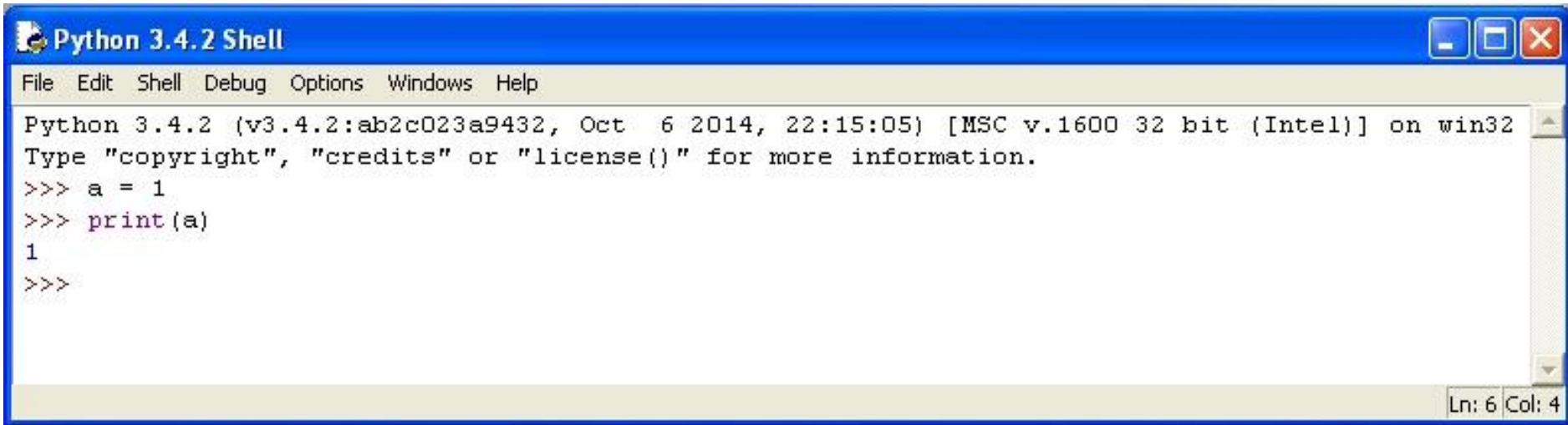
The screenshot displays a web browser window titled "Pydoc: Index of Modules" running on a local server. The browser's address bar shows "localhost:2548". The page content includes the following elements:

- Page Title:** Index of Modules
- Navigation:** Links for "Module Index", "Topics", and "Keywords". A search box with a "Get" button and a "Search" button is present.
- Section:** "Built-in Modules" (highlighted in pink).
- Module List:** A grid of 32 links to built-in Python modules, arranged in four columns:

ast	json	symtable	marshal
bisect	locale	thread	math
codecs	lsprof	tracemalloc	mmap
codecs_cn	md5	warnings	msvcrt
codecs_hk	multibytecodec	weakref	nt
codecs_iso2022	opcode	winapi	parser
codecs_jp	operator	array	signal
codecs_kr	pickle	atexit	sys
codecs_tw	random	audioop	time
collections	sha1	binascii	winreg
csv	sha256	builtins	xxsubtype
datetime	sha512	cmath	zipimport
functools	sre	errno	zlib
heapq	stat	faulthandler	
imp	string	gc	
io	struct	itertools	

The taskbar at the bottom shows the following open applications: "пуск", "Total Commander 6.5...", "Python 3.4 Docs Serv...", and "Pydoc: Index of Mod...". The system tray on the right indicates the time is 20:24.

Интерпретатор команд IDLE

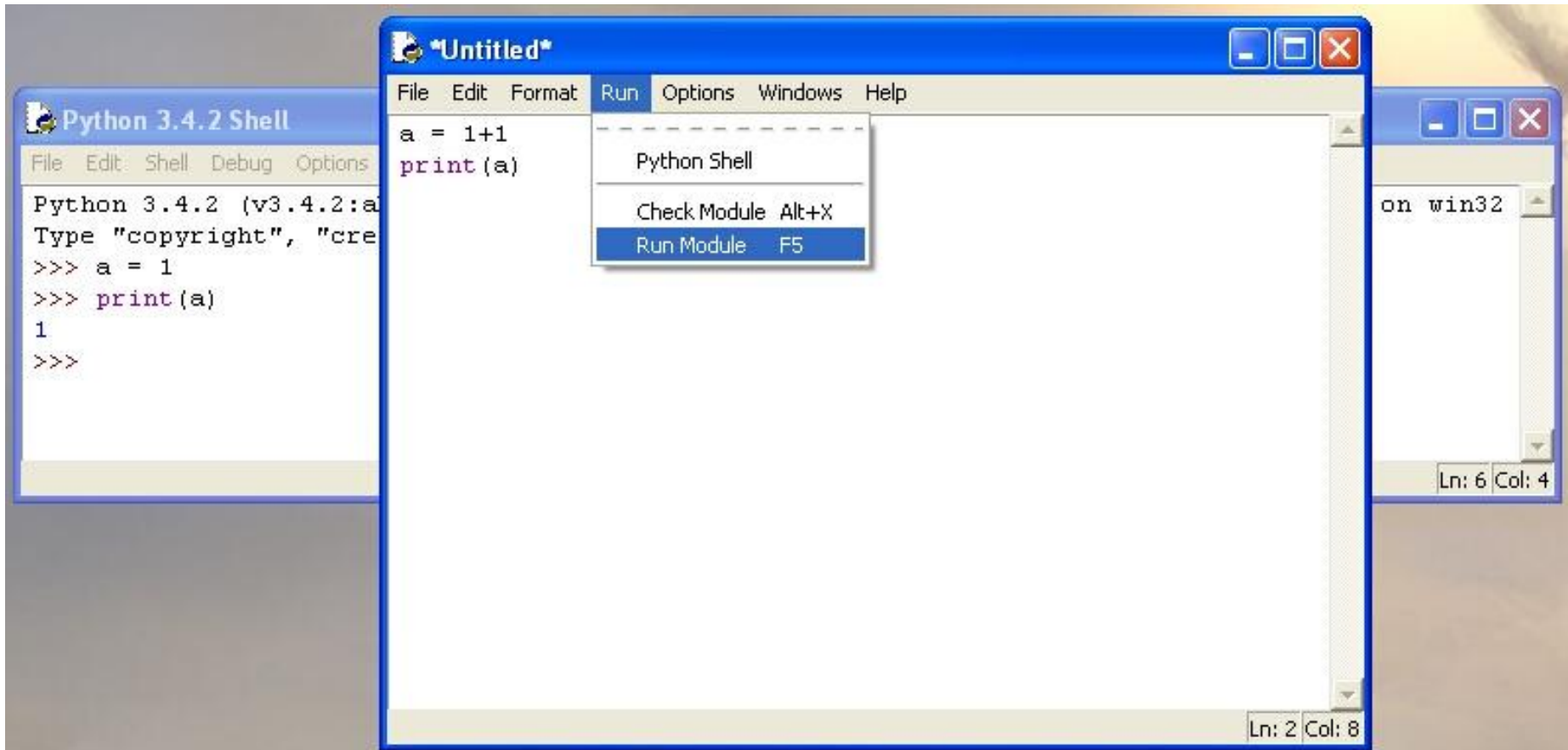


The image shows a screenshot of the Python 3.4.2 Shell window. The window title is "Python 3.4.2 Shell". The menu bar includes "File", "Edit", "Shell", "Debug", "Options", "Windows", and "Help". The main text area displays the following content:

```
Python 3.4.2 (v3.4.2:ab2c023a9432, Oct 6 2014, 22:15:05) [MSC v.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> a = 1
>>> print(a)
1
>>>
```

The status bar at the bottom right indicates "Ln: 6 Col: 4".

Запуск скриптов внутри IDLE



Инсталляция в среде Linux на примере Ubuntu

Проверка установки Python:

```
python -V
```





Центр инсталляции ПО Ubuntu



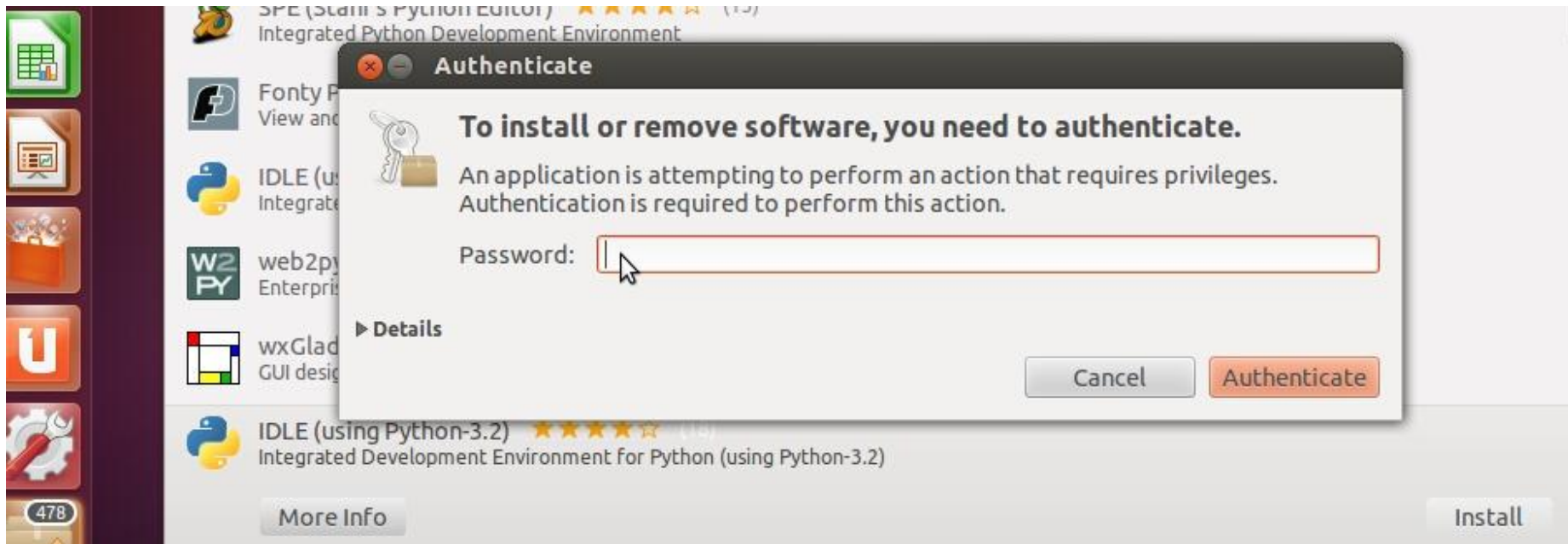
Поиск подходящего программного пакета



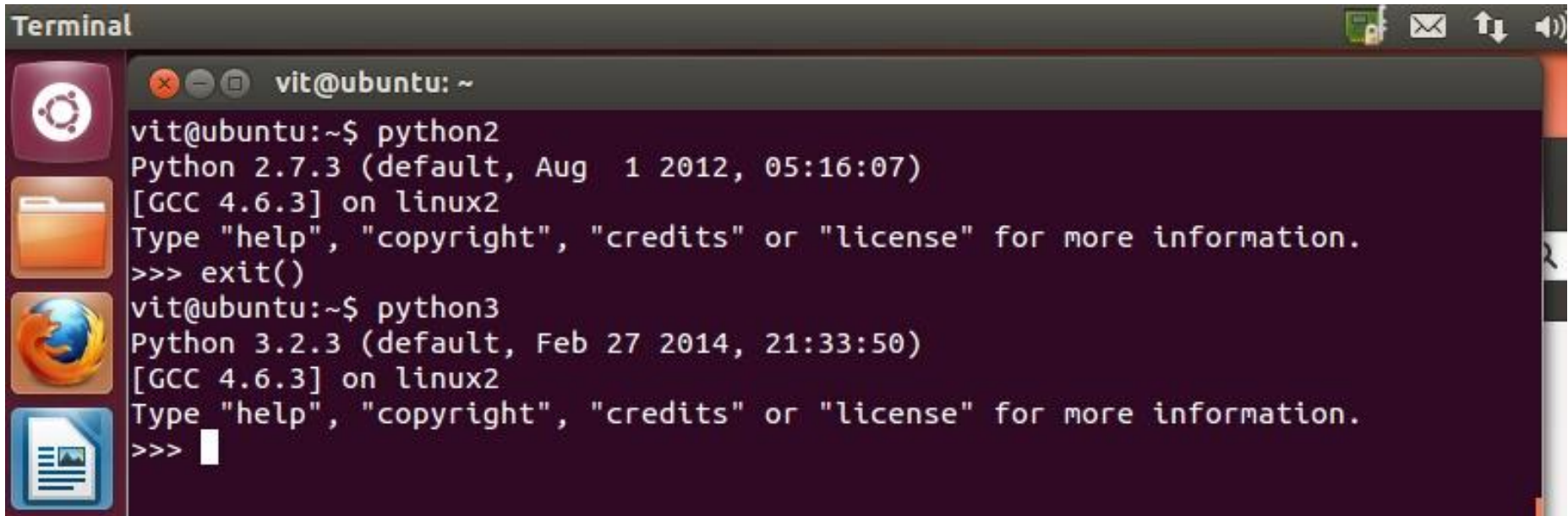
The screenshot shows the Ubuntu Software Center interface. At the top, there is a search bar containing the text "python". Below the search bar, the "All Software" tab is selected. The main content area displays a list of software packages. Each entry includes an icon, the package name, a star rating, the number of reviews, and a brief description.

Icon	Package Name	Rating	Reviews	Description
	Full featured Python IDE	★★★★★	17	Full featured Python IDE
	SPE (Stani's Python Editor)	★★★★☆	15	Integrated Python Development Environment
	Fonty Python Font Manager	★★★★☆	8	View and temporarily install all kinds of fonts
	IDLE (using Python-2.7)	★★★★★	18	Integrated Development Environment for Python (using Python-2.7)
	web2py	★★★★☆	11	Enterprise web development framework using Python
	wxGlade	★★★★☆	6	GUI designer written in Python with wxPython
	IDLE (using Python-3.2)	★★★★☆	18	Integrated Development Environment for Python (using Python-3.2)

Подтверждение прав



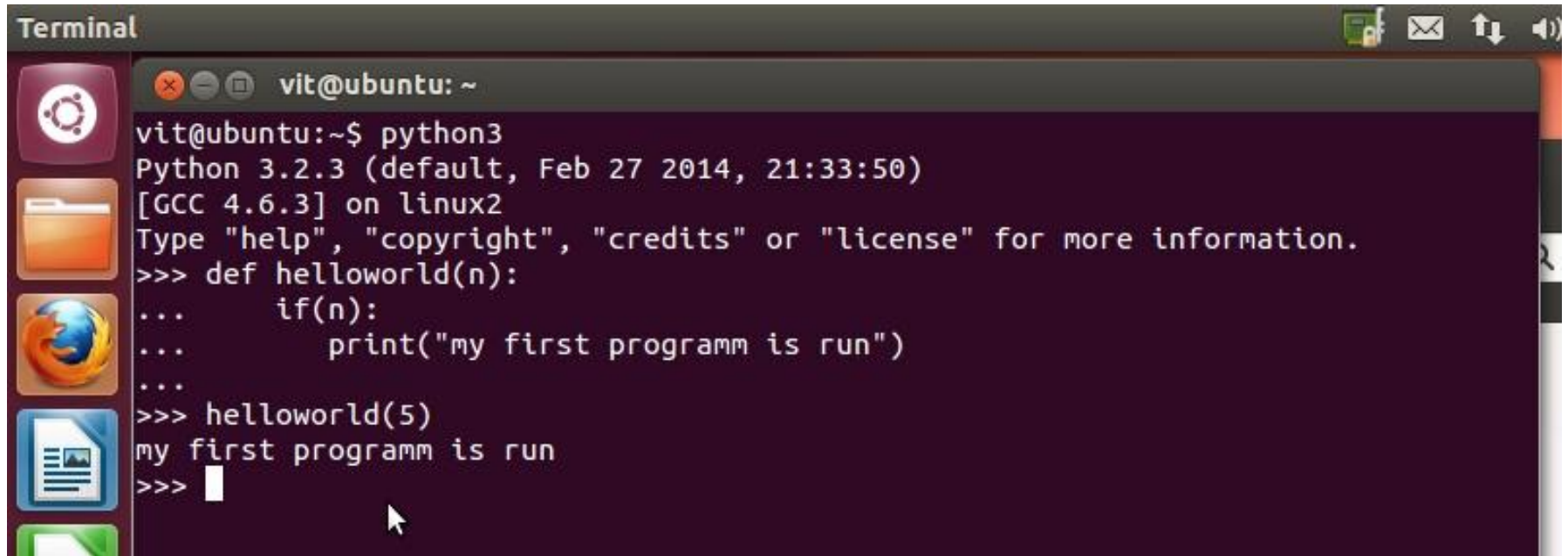
Консольный режим



The image shows a terminal window titled "Terminal" with a dark background. The window contains the following text:

```
vit@ubuntu: ~  
vit@ubuntu:~$ python2  
Python 2.7.3 (default, Aug 1 2012, 05:16:07)  
[GCC 4.6.3] on linux2  
Type "help", "copyright", "credits" or "license" for more information.  
>>> exit()  
vit@ubuntu:~$ python3  
Python 3.2.3 (default, Feb 27 2014, 21:33:50)  
[GCC 4.6.3] on linux2  
Type "help", "copyright", "credits" or "license" for more information.  
>>> |
```

Ввод программы в консольном режиме

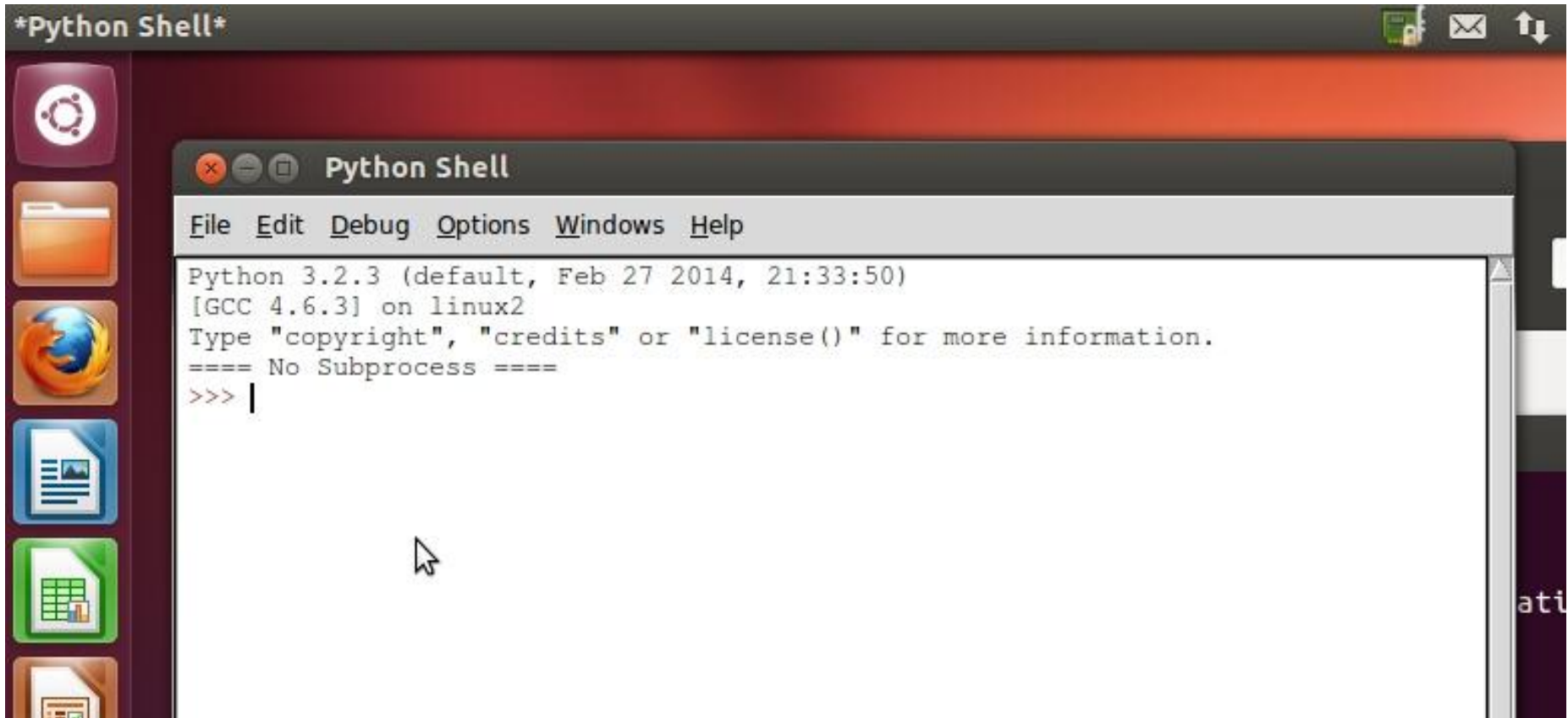
A screenshot of a Linux terminal window titled "Terminal". The window shows a user named "vit" at a machine named "ubuntu" in the home directory. The user has executed the command "python3", which has started the Python 3.2.3 interpreter. The interpreter displays version information and a prompt. The user has then defined a function "helloworld(n)" that prints "my first programm is run" if "n" is non-zero. Finally, the user has called "helloworld(5)", and the output "my first programm is run" is displayed. The terminal window has a dark background and a light-colored text. The window title bar shows standard Linux window controls (close, maximize, minimize) and system tray icons (network, mail, volume).

```
Terminal
vit@ubuntu: ~
vit@ubuntu:~$ python3
Python 3.2.3 (default, Feb 27 2014, 21:33:50)
[GCC 4.6.3] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> def helloworld(n):
...     if(n):
...         print("my first programm is run")
...
>>> helloworld(5)
my first programm is run
>>>
```

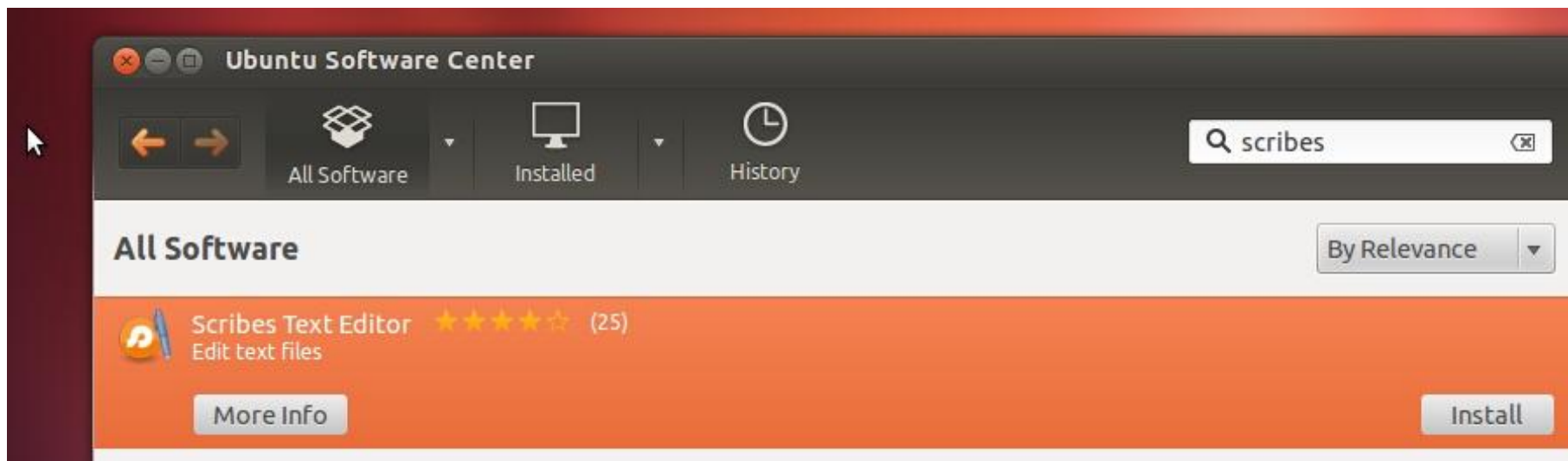
IDLE в среде Linux



Okho IDLE



Установка Scribes



Общая структура программы

- `# -*- coding: cp1251 -*-`
- `#!/usr/bin/python`
- `#!/usr/local/bin/python`
- `#!/usr/bin/env python`

Отсутствие операторных скобок, код C++

```
if ( a >= b)
{
    cout << a << " >= " << b;
} else
{
    cout << a << " <= " << b;
}
```

Отсутствие операторных скобок, код Python

```
if a >= b :  
    print (a + ">=" + b)  
else:  
    print (a + "<=" + b)
```

Такой код выдаст ошибку:

```
if a >= b :  
    print (str(a) + ">=" + str(b))  
else:  
    print (str(a) + "<=" + str(b))
```



Обозначение «;»

$a = 1; b = 2; c = 3$

Переносы строк

Вариант 1:

$$a = 1 + 2 \backslash \\ + 3$$

Вариант 2:

$$a = (1 + 2 \\ + 3)$$

Комментарии

это офигенно длинный комментарий

""""

Это очень

Длинный и многословный комментарий,
располагающийся

На нескольких строках """"

Особенности работы в IDLE

Однострочный режим работы можно использовать в качестве калькулятора:

```
>>> 1 + 2
```

```
3
```

```
>>> _ + 10
```

```
13
```


Горячие клавиши

- <Ctrl> + <Пробел> - выбор из списка
- <Alt> + </> - завершение ввода
- <Alt> + <N> - предыдущая команда
- <Alt> + <P> - последняя команда

Ввод и вывод результатов работы

Сигнатура оператора print:

```
print([Объекты], [sep= ' '] [, end='\n'] [, file=sys.stdout])
```

Примеры:

```
print ("str1", "str2")
```

```
print ("str1", "str2", sep="")
```

```
>>> print ("str1","str2",end="@"); print(); print("str3", end='@')
```

```
str1 str2@
```

```
str3@
```

```
>>>
```

Ввод данных с консоли, сигнатура функции input

```
[<переменная> = ] input([<Какое-то сообщение>])
```

Пример:

```
>>> usermessage = input("Я вас внимательно слушаю! \n"); \
      print("Вы сказали:",usermessage)
```

Я вас очень внимательно слушаю!

Привет!

Вы сказали: Привет!

```
>>>
```

```
input("Для выхода из программы нажмите\nлюбую клавишу")
```

Массив argv

```
#-*- coding: utf-8 -*-
```

```
import sys
```

```
arr = sys.argv
```

```
print(arr[0])
```

```
print(arr[1])
```

```
print(arr[2])
```

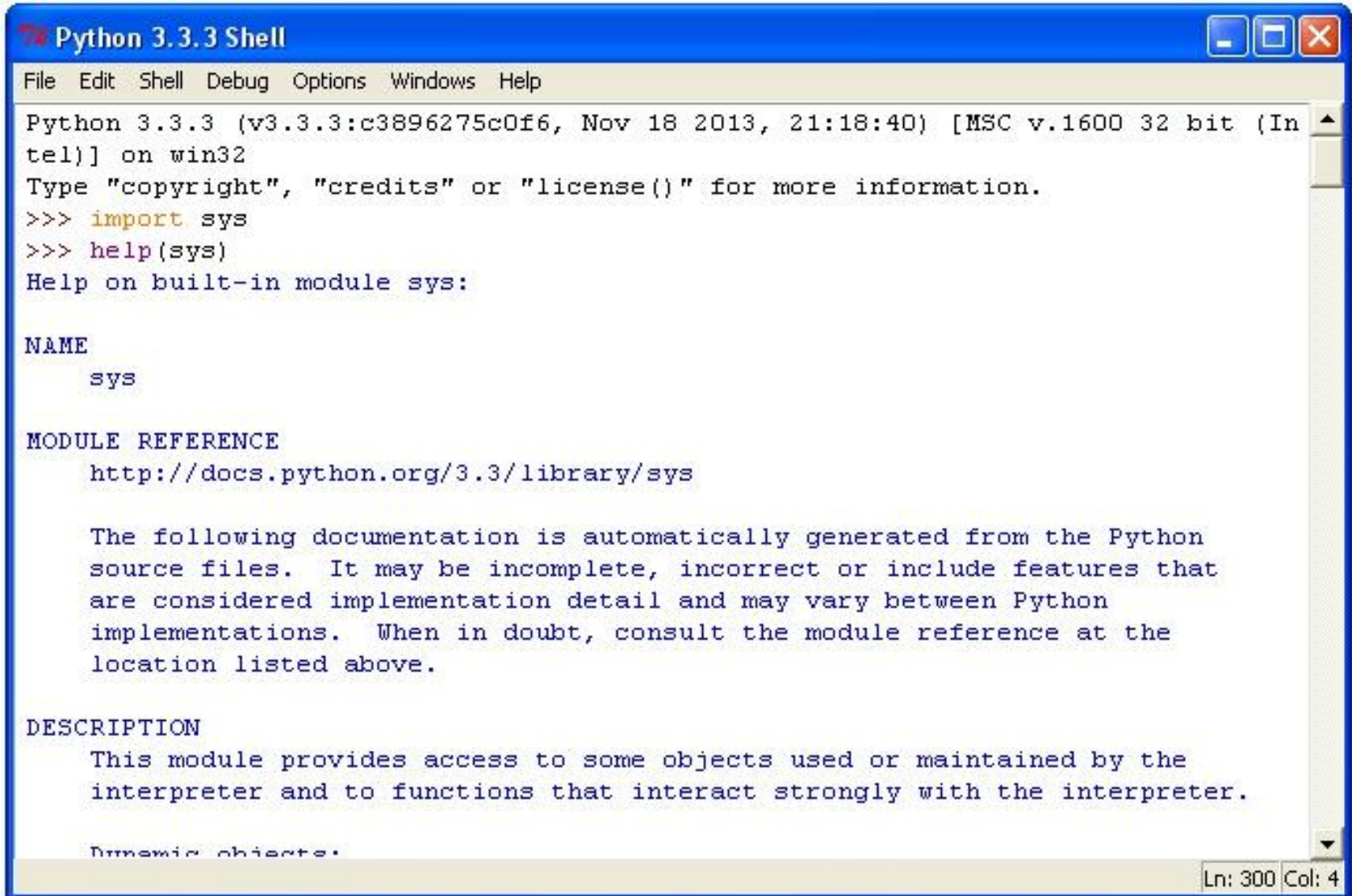
```
print(arr[3])
```

Массив argv

```
C:\Python33\work>test.py -fghdg -h -w
C:\Python33\work\test.py
-fghdg
-h
-w

C:\Python33\work>
```

Документация Python



```
Python 3.3.3 Shell
File Edit Shell Debug Options Windows Help
Python 3.3.3 (v3.3.3:c3896275c0f6, Nov 18 2013, 21:18:40) [MSC v.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> import sys
>>> help(sys)
Help on built-in module sys:

NAME
    sys

MODULE REFERENCE
    http://docs.python.org/3.3/library/sys

    The following documentation is automatically generated from the Python
    source files. It may be incomplete, incorrect or include features that
    are considered implementation detail and may vary between Python
    implementations. When in doubt, consult the module reference at the
    location listed above.

DESCRIPTION
    This module provides access to some objects used or maintained by the
    interpreter and to functions that interact strongly with the interpreter.

    Dynamic objects:
```

Ln: 300 Col: 4

Что можно делать с помощью Python?

Всё, что угодно, - от веб-сайтов и игровых программ до управления роботами и космическими кораблями!

- Развитые сетевые средства
- Доступ ко многим базам данных
- Развитые системные средства
- Отличные графические средства
- «Батарейки» в комплекте!

Первая программа

```
# -*- coding: utf-8 -*-
```

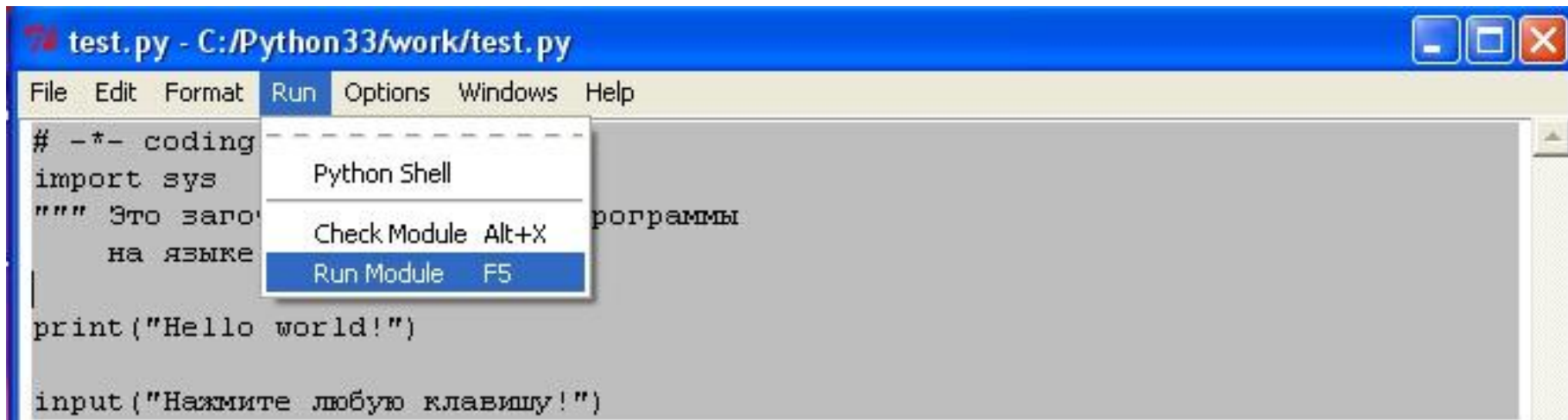
```
import sys
```

```
""" Это заготовка для первой программы  
на языке Python """
```

```
print("Hello world!")
```

```
input("Нажмите любую клавишу!")
```

Запуск программ из IDLE



>>>

Hello world!

Нажмите любую клавишу!п

>>>

Прочие IDE

- Anaconda (www.continuum.io)
- Ninja (www.ninja-ide.org)
- Eclipse (www.eclipse.org)
- Geany (www.geany.org)
- PyCharm (www.jetbrains.com)
- Еще несколько штук:
(<https://python-scripts.com/ide-for-python>)