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Python Tutorials
DAY 1

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Contents in the presentation

- **Introduction to Python**
- **Platform on which you can perform programs of Python**
- **Data Types used in Python**
- **Operators**
- **Some Programs for Practice**

Introduction to Python

1. **Developed by Guido van Rossum at National Research Institute for Mathematics and Computer Science in Netherlands in 1990.**

2. **Inspired by Monty Python's Flying Circus, a BBC comedy series, Guido van Rossum named the language as Python.**

Guido van Rossum

DOB : 31 January 1956

Creator of

Python


University of Amsterdam

Monty Python's Flying Circus

Why PYTHON ?

Why use Python when there are so many programming languages?

On one hand we can say it's a matter of personal interest

But still some advantages are there

Let us study

Advantages

1. **Readability**
2. **Portability**
3. **Vast support of libraries**
4. **Software integration**
5. **Developer productivity**

Python Character Set

1. **Letters**: Upper case and lower case letters
2. **Digits** : 0,1,2,3,4,5,6,7,8,9
3. **Special Symbols**: Underscore(_),(,),[,],{,},+,-,*,&,%,^,$,#,!,Single quote(‘),Double quote(“),Back slash(\),Colon(:),Semi Colon(;)
4. **White Spaces:** (‘\t\n\r’),Space,Tab

Python Core Data Types

1. Integer (12, 17, 23, ...etc)
2. Floating Point Number(1.3, 3.2 e 7,4.5 *10,.....etc)
3. Complex Number(3 + 4j, 6j, 7-3j,.....etc)
4. Boolean(True or False)
5. String(using single double or triple quotes we can use strings in Python)

Python Tokens

1. **Keywords**
2. **Identifiers/Variables**
3. **Operators**
4. **Delimiters**
5. **Literals**

Keywords

and	class	elif	finally	import	None	raise	while
as	continue	if else	for	in	nonlocal	return	with
assert	def	except	global	is	not	True	yield
break	del	False	pass	lambda	or	try	from

Identifiers/ Variables

It's a name used to find a variable, function, class or other objects. Following are some of the rules for identifiers

1. An identifier is a sequence of characters that consists of letters, digits and underscore
2. Can be of any length
3. Starts with a letter (lower or upper)
4. Can start with underscore(_)
5. Cannot start with digit
6. Cannot be a keyword

Operators

1. **Arithmetic Operators**
2. **Assignment Operator**
3. **Bitwise Operators**
4. **Comparison Operators**
5. **Identity Operators**
6. **Logical Operators**
7. **Membership Operators**

Arithmetic Operators

1. + (Addition)
2. - (Subtraction)
3. * (Multiplication)
4. /(Division)
5. //(Floor Division i.e. calculation of Quotient)
6. % (Modulus Operator for the calculation of remainder)
7. ** (exponentiation i.e. x^y)

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Assignment Operators

1.	=	Assignment	x = 3	x = 3
2.	+=	Addition assignment	x += 3	x = x + 3
3.	-=	Subtraction assignment	x -= 3	x = x – 3
4.	*=	Multiplication assignment	x *= 3	x = x * 3
5.	/=	Division assignment	x /= 3	x = x / 3
6.	%=	Modulus assignment	x %= 3	x = x % 3
7.	//=	Floor division assignment	x //= 3	x = x // 3

Assignment Operators

8.	**=	Exponentiation assignment	x **= 3 x = x ** 3
9.	&=	Bitwise AND assignment	x &= 3 x = x & 3
10.	|=	Bitwise OR assignment	x |= 3 x = x | 3
11.	^=	Bitwise XOR assignment	x ^= 3 x = x ^ 3
12.	>>=	Bitwise right shift assignment	x >>= 3 x = x >> 3
13.	<<=	Bitwise left shift assignment	x <<= 3 x = x << 3

Bitwise Operators

1. & Bitwise AND
2. | Bitwise OR
3. ^ Bitwise XOR
4. ~ Bitwise NOT
5. << Left Shift
6. >> Right Shift

Comparison Operators

1. == Equal to
2. != Not Equal to
3. > Greater than
4. < Less than
5. >= Greater than equal to
6. <= Less than equal to

Identity Operators

1. **X is Y**

2. **X is not Y**

Logical Operators

1. **and** `x > 0 and y < 0`
2. **or** `x > 0 or y < 0`
3. **not** `not(x > 0 and y < 0)`

Membership Operators

1. **in**
2. **not in**

Literals

These are the numbers or strings or characters that appear directly in a program.

Some of the literals are as follows:-

1. 53----#integer literal
2. 12.13-----#Floating Point Literal
3. 'W'--------#Character Literal
4. "Hello"--------#String Literal

Delimiters

1	( ),{ },[ ]
2	‘,:,.,`,=,;
3	+=,-=,*=,/=,//=,%=
4	&=,|=,^=,>>=,**=

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0.1.1
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jupyterlab
0.27.0
An extensible environment for interactive and reproducible computing, based on the Jupyter Notebook and Architecture.
Launch

notebook
5.0.0
Web-based, interactive computing notebook environment. Edit and run human-readable docs while describing the data analysis.
Launch

qtconsole
4.3.1
PyQt GUI that supports inline figures, proper multiline editing with syntax highlighting, graphical calltips, and more.
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spyder
3.2.4
Scientific PYthon Development EnviRonment. Powerful Python IDE with advanced editing, interactive testing,

glueviz
0.15.2
Multidimensional data visualization across files. Explore relationships within and among related datasets.

orange3
3.23.1
Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows

powershell_shortcut
0.0.1

11:14 AM
05-Jul-20

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Component based data mining framework. Data visualization and data analysis for novice and expert. Interactive workflows with a large toolbox.
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powershell_shortcut
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Install

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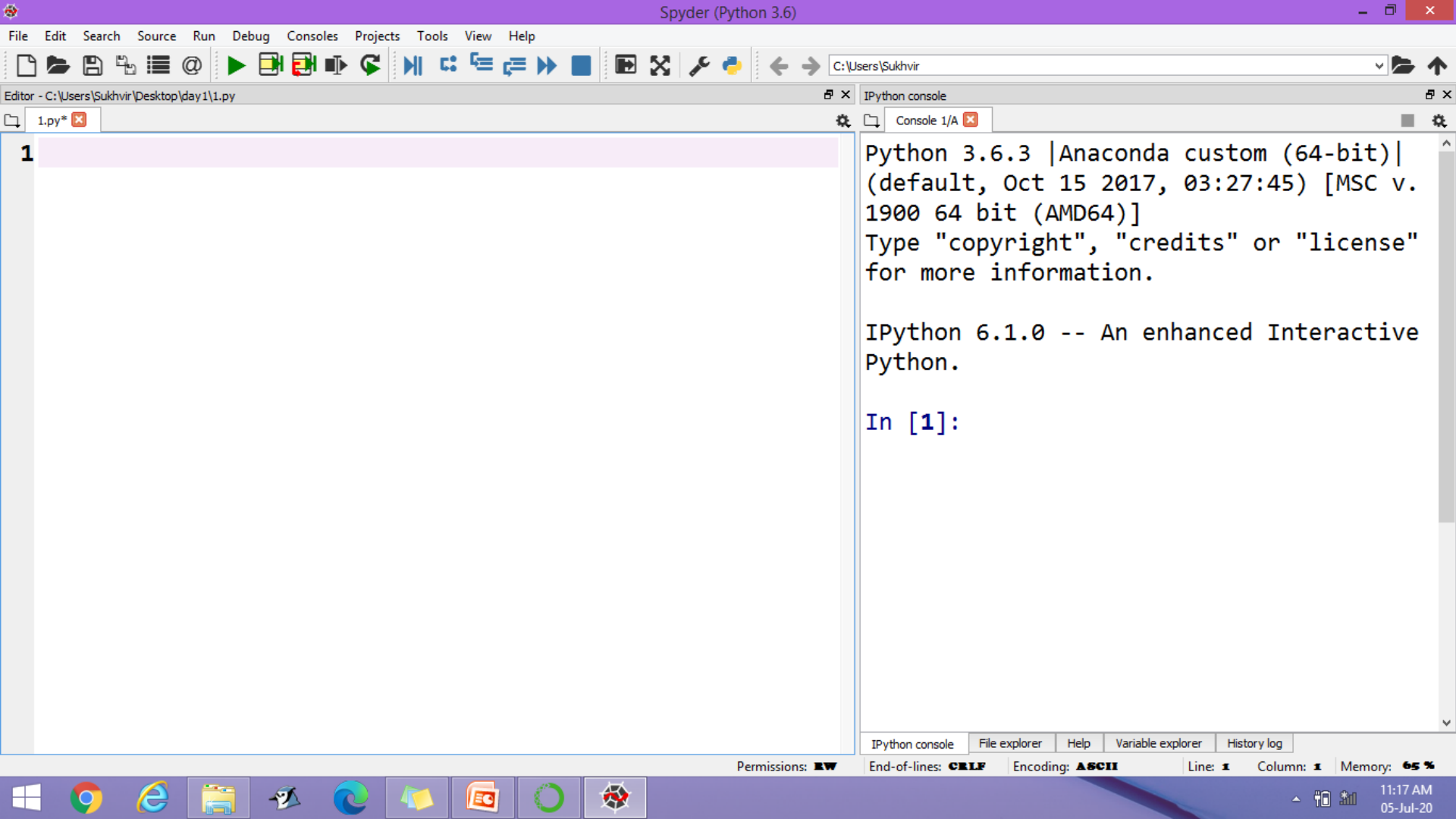
Spyder (Python 3.6)
File Edit Search Source Run Debug Consoles Projects Tools View Help
C:\Users\Sukhvir
Editor - C:\Users\Sukhvir\Desktop\day1\1.py
1.py*
1
IPython console
Console 1/A
Python 3.6.3 |Anaconda custom (64-bit)| (default, Oct 15 2017, 03:27:45) [MSC v. 1900 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.
IPython 6.1.0 -- An enhanced Interactive Python.
In [1]:
IPython console
File explorer
Help
Variable explorer
History log
Permissions: RW
End-of-lines: CRLF
Encoding: ASCII
Line: 1
Column: 1
Memory: 65 %
11:17 AM
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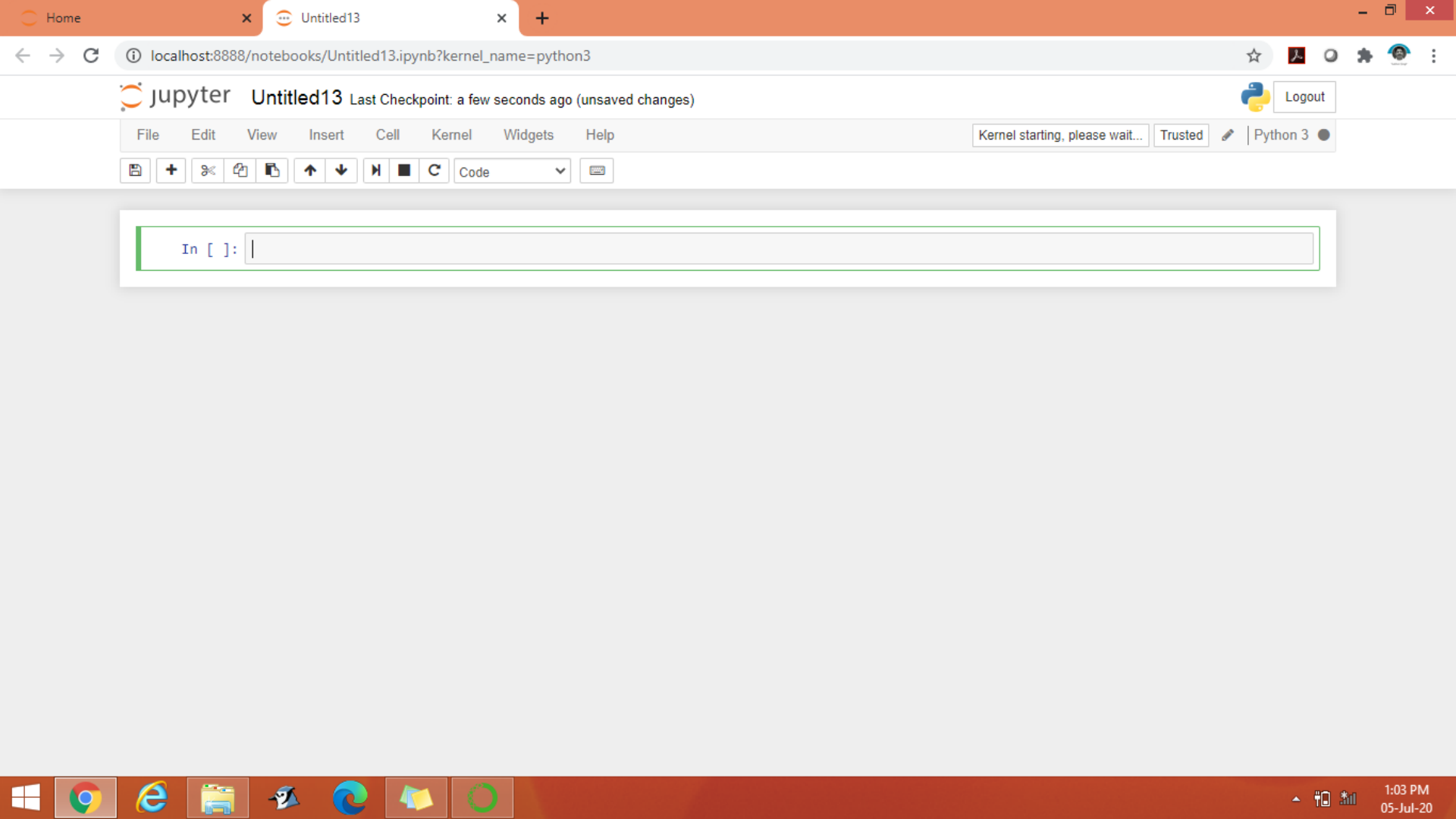
Home
Untitled13
localhost:8888/notebooks/Untitled13.ipynb?kernel_name=python3
jupyter
Untitled13
Last Checkpoint: a few seconds ago (unsaved changes)
Logout
File
Edit
View
Insert
Cell
Kernel
Widgets
Help
Kernel starting, please wait...
Trusted
Python 3
Code
In [ ]:
1:03 PM
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Thank you students