

III B.Tech.

Computer Science & Engineering

CSE304: PYTHON PROGRAMMING WITH WEB FRAMEWORKS

UNIT – I: INTRODUCTION

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Agenda



- Overview of syllabus
- Text books and Reference books
- Python Installations
 - Using IDLE
 - Using Anaconda Navigator
- Introduction to Python

Syllabus



CSE304 PYTHON PROGRAMMING WITH WEB FRAMEWORKS

TEXT BOOKS

- Michael Urban, Joel Murach. *Murach's Python Programming*, Mike Murach & Associates, First Indian Reprint, 2017.
 - Unit-I: Chapters 1 to 6
 - Unit-II: Chapters 7 to 13
 - Unit-III: Part-1: Chapters 14 & 15
- Wesley J. Chun, *Core PYTHON Applications Programming*, Prentice Hall, Third Edition, 2013.
 - Unit-III: Part-2: Chapter 3
 - Unit-IV: Chapters 9 & 11

REFERENCE BOOKS



1. Mark Lutz, *Learning Python*, O'Reilly Media, Fifth Edition, 2013
2. Adrian Holovoty, and Jacob Kaplan-Moss, *The Definitive Guide to Django: Web Development Done Right*, Second Edition, Apress, 2009

Installing Python IDLE



- Python 3.8.5 through IDLE
 - Download Python 3.8.5 for windows from GCR
 - Run the setup file
 - Check “Add Python 3.8.5 to PATH”
 - Press “Install Now”
- Run
 - Through IDLE platform
 - Through interactive shell
 - Through functions and modules
 - From command prompt

Interactive Shell



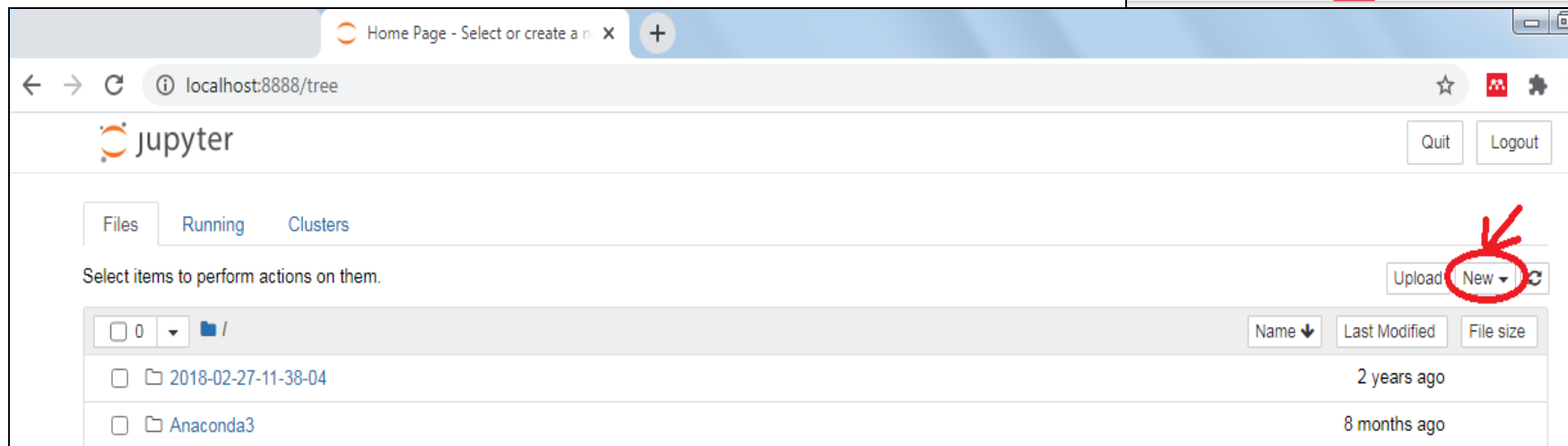
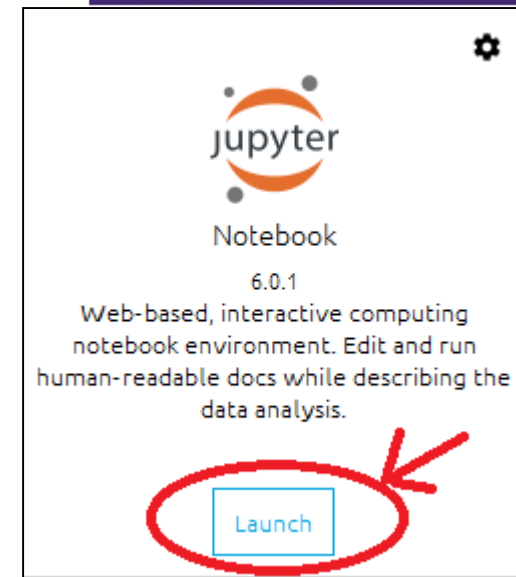
SASTRA
ENGINEERING · MANAGEMENT · LAW · SCIENCES · HUMANITIES · EDUCATION
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THINK MERIT | THINK TRANSPARENCY | THINK SASTRA

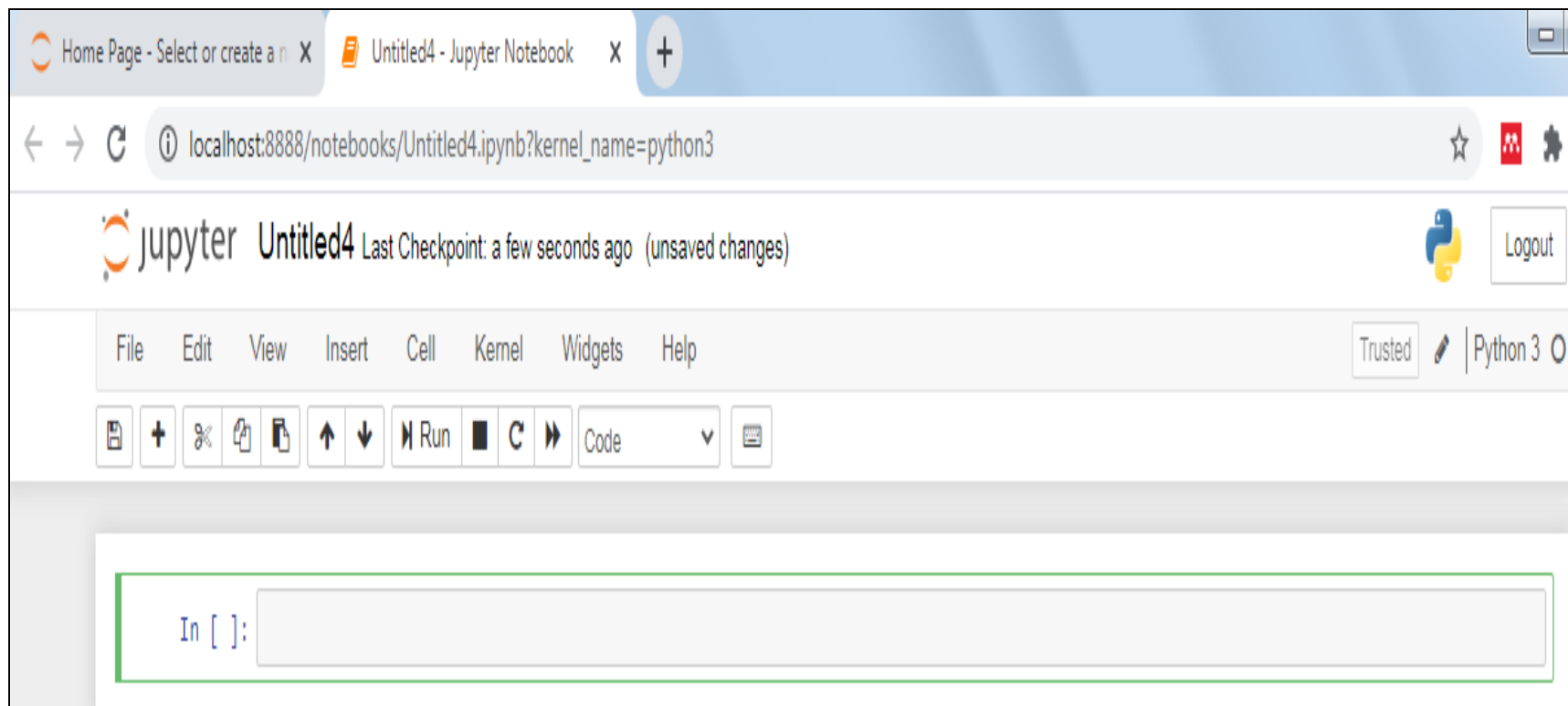
```
Python 3.8.5 Shell
File Edit Shell Debug Options Window Help
Python 3.8.5 (tags/v3.8.5:580fbb0, Jul 20 2020, 15:43:08) [MSC v.1926 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> print ("Hello Students! Welcome to Online Class for Python")
Hello Students! Welcome to Online Class for Python
>>> 4+5
9
>>> "Hello Students! Welcome to Online Class for Python"
'Hello Students! Welcome to Online Class for Python'
>>> 4+'5'
Traceback (most recent call last):
  File "<pyshell#3>", line 1, in <module>
    4+'5'
TypeError: unsupported operand type(s) for +: 'int' and 'str'
>>> '4'+5
Traceback (most recent call last):
  File "<pyshell#4>", line 1, in <module>
    '4'+5
TypeError: can only concatenate str (not "int") to str
>>> '4'+ '5'
'45'
>>>
```

Installing Anaconda

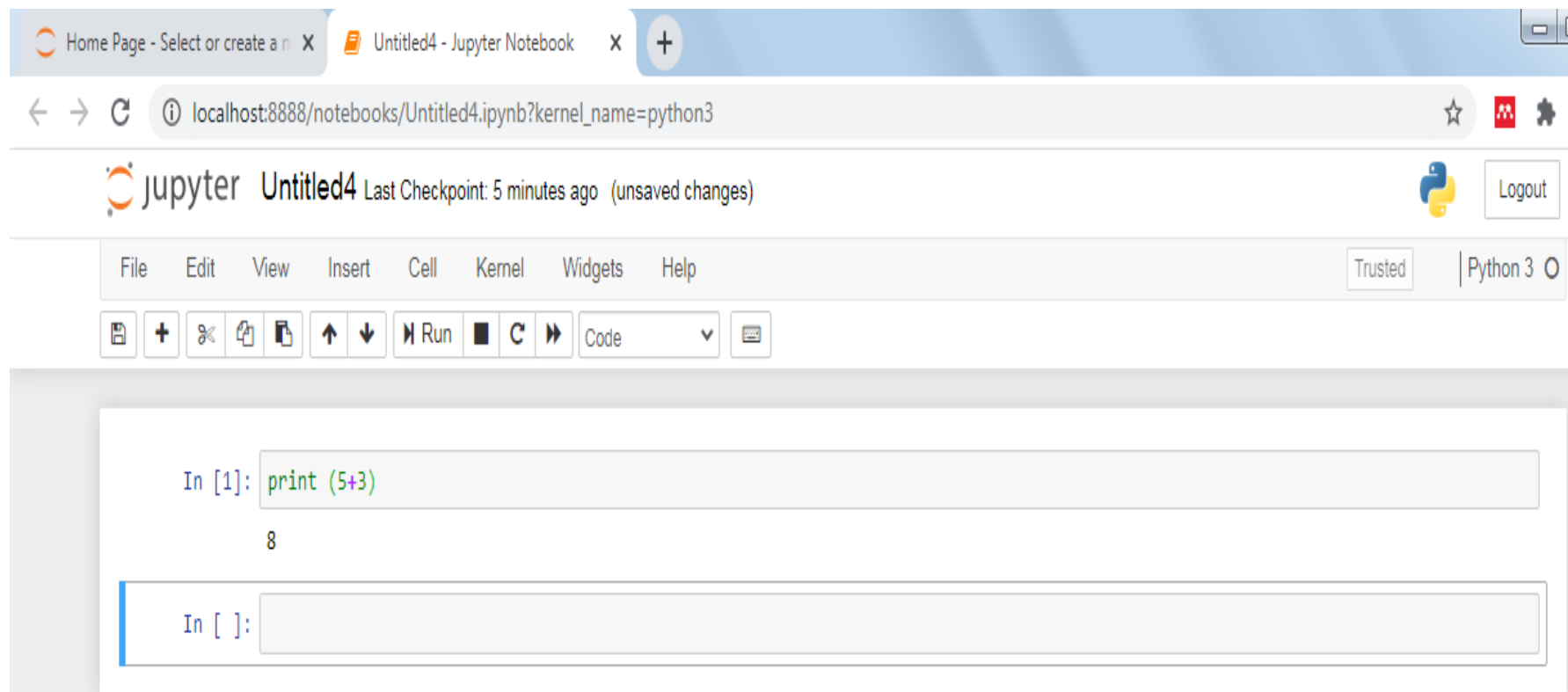
- Install Anaconda
 - Download Python for windows from GCR
 - Run the setup file
- Start Anaconda Navigator
 - Launch Jupyter Notebook
 - Jupyter will launch in browser
 - Select New → Python 3



- The notebook will open in new browser window



- Type python code in In [] cell and press Shift+Enter to run it



Why Python?



- Software Quality
 - More readable, Reusable and Maintainable than other scripting tools due to Objected Oriented Approach
- Developer Productivity
 - Easy to type, debug, and maintain
 - Run interactively
- Program Portability
 - Portable to many OS platforms
- Support Libraries
 - Text Pattern Matching
 - Numeric Programming
 - Network Scripting
 - Game Development
 - Embedded Programming
- Component Integration
 - Integrate with modules in other programming languages C, C++, Java
 - Communicate over frameworks like COM, Silverlight
 - Interact with interfaces like SOAP, XML-RPC, CORBA

Introduction



- Started designing Python language in December, 1989
- Initial Python version 0.9 released in February, 1991
- Python 1 first released in January, 1994
- Python 2 first released in October, 2000
- Python 3 first released in December, 2008
- Latest version Python 3.8.5 released in October 2019
- Next version Python 3.9 planned to be released in October 2020
- Next version Python 3.10 planned to be released in October 2021

Comparison between Java and Python

- Java Code

```
private static double calculateFutureValue(  
    double monthlyInvestment, double monthlyRate, int months)  
{  
    double futureValue = 0.0;  
    for (int i = 1; i <= months; i++) {  
        futureValue =  
            (futureValue + monthlyInvestment) * (1 + monthlyRate);  
    }  
    return futureValue;  
}
```

- Python Code

```
def calculateFutureValue(monthlyInvestment, monthlyRate, months):  
    futureValue = 0.0  
    for i in range(months):  
        futureValue =  
            (futureValue + monthlyInvestment) * (1 + monthlyRate)  
    return futureValue
```

Types of Python Applications



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A console application

```
Command Prompt - python future_value.py

C:\>cd \murach\python\book_apps\ch01
C:\murach\python\book_apps\ch01>python future_value.py
Welcome to the Future Value Calculator

Enter monthly investment:      100
Enter yearly interest rate:    5.0
Enter number of years:        5
Future value:                  $6,828.94

Continue? <y/n>:
```

A GUI application

Future Value Calculator

Monthly Investment: 100

Yearly Interest Rate: 5.0

Years: 5

Future Value: \$6,828.94

Calculate Exit

A web application

Future Value Calculator

Monthly Investment: 100.0

Yearly Interest Rate: 5.0

Years: 5

Future Value: 66828.94

Calculate

Python Program Execution

