

`CHAROTAR UNIVERSITY OF SCIENCE & TECHNOLOGY
DEVANG PATEL INSTITUTE OF ADVANCE TECHNOLOGY & RESEARCH
Department of Computer Engineering

Practical – 1

1.1:

AIM: Introduction to Python Programming. Installation & Configuration of Python. Along with its all-major editors, IDLE, Pycharm, Anaconda, Jupyter, Interpreter etc.

Tools and Technologies used:

- **IDLE :-** IDLE is Python's Integrated Development and Learning Environment.
- **PYCHARM :-** PyCharm is an integrated development environment used for programming in Python. It provides code analysis, a graphical debugger, an integrated unit
- **JUPYTER :-** Project Jupyter is a project with goals to develop open-source software, open standards, and services for interactive computing across multiple
- **ANACONDA. :-** Anaconda is a distribution of the Python and R programming languages for scientific computing, that aims to simplify package management and deployment.

Procedure:

Step 1: Download the Python Installer binaries

1. Open the [official Python website](#) in your web browser. Navigate to the Downloads tab for Windows.
2. Choose the Python version which you want. In our example, we choose the Python 3.7.3 version.
3. Click on the link to download Windows x86 executable installer if you are using a 32-bit installer. In case your Windows installation is a 64-bit system, then download Windows x86-64 executable installer.

Stable Releases

▪ [Python 3.7.3 - March 25, 2019](#)

Note that Python 3.7.3 cannot be used on Windows XP or earlier.

- Download [Windows help file](#)
- Download [Windows x86-64 embeddable zip file](#)
- Download [Windows x86-64 executable installer](#)
- Download [Windows x86-64 web-based installer](#)
- Download [Windows x86 embeddable zip file](#)
- Download [Windows x86 executable installer](#)
- Download [Windows x86 web-based installer](#)

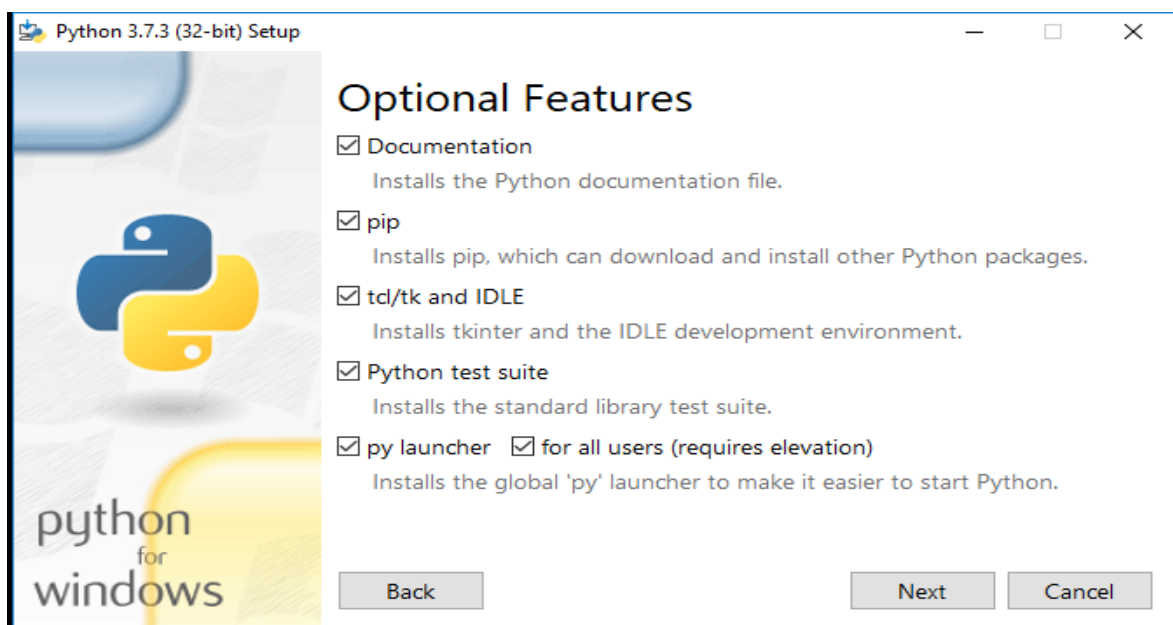
Step 2: Run the Executable Installer

1. Once the installer is downloaded, run the Python installer.



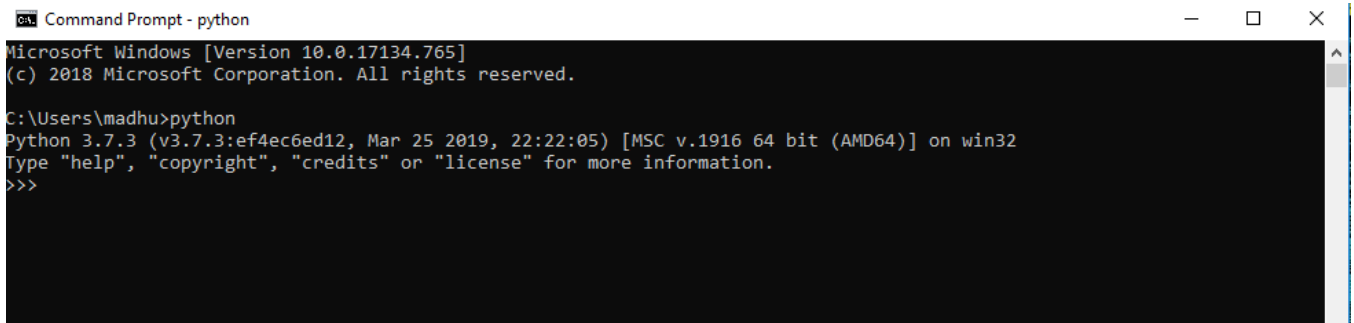
2. Check the Install launcher for all users check box. Further, you may check the Add Python 3.7 to path check box to include the interpreter in the execution path.4. Select Customize installation. Choose the optional features by checking the following check boxes:

1. Documentation
2. Pip
3. Tcl/tk and IDLE(to install tkinter and IDLE)
4. Python (to install the standard library test suite of python)
5. Install the global launcher for '.py' files. This makes it easier to start python.
6. Install for all users



Step 3: Verify the Python Installation

You have now successfully installed Python 3.7.3 on Windows 10. You can verify if the Python installation is successful either through the command line or through the IDLE app that gets installed along with the installation. Search for the command prompt and type “python”. You can see that Python 3.6.2 is successfully installed.



```
Microsoft Windows [Version 10.0.17134.765]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\madhu>python
Python 3.7.3 (v3.7.3:ef4ec6ed12, Mar 25 2019, 22:22:05) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Learning Outcomes:

In this practical, following concepts were learnt:

- i. I learnt how to install python.
- ii. Also, I learnt how to use python with different editors

1.2:

AIM: Write a python program to calculate simple interest.

Tools and Technologies used:

- **Vs code**- Visual Studio Code is a free source code editor that fully supports Python and useful features such as real-time collaboration
- **Python Script**- A Python script is a collection of commands in a file designed to be executed like a program.

Program Code:

```
#Taking the principal amount
p=int(input("Enter Principle amount:"))

#taking the rate of intrest
r=int(input("Enter rate of interest:"))

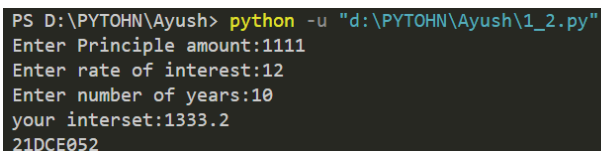
#Taking the number of years for a person want to keep their money
n=int(input("Enter number of years:"))

#calculating the rate of intrest
i = ((p*n*r)/100)

#printing the intrest
print("your interset:"+str(i))

#END of program
print("21DCE052")
```

Output:



```
PS D:\PYTOHN\Ayush> python -u "d:\PYTOHN\Ayush\1_2.py"
Enter Principle amount:1111
Enter rate of interest:12
Enter number of years:10
your interset:1333.2
21DCE052
```

Learning Outcomes:

In this practical, following concepts were learnt:

- I learn how to take input from user for variables .
- I learn how to perform arithmetic operations.
- Also by this how to print variable

Practical – 2

2.1:

AIM: Create a list and apply methods (append, extend, remove, reverse), arrange created list in ascending and descending order.

Tools and Technologies used:

- **Vs code**- Visual Studio Code is a free source code editor that fully supports Python and useful features such as real-time collaboration
- **Python Script**- A Python script is a collection of commands in a file designed to be executed like a program.

Program Code:

```
L = [2, 1, 3, 5, 4, 3, 8]
L1 = [10,11,14,12,13]
L.append(9)
print("append:",L)
L.extend(L1)
print("extend:",L)
L.remove(5)
print("remove:",L)
L.reverse()
print("reverse:",L)
L.sort()
print("ascending order:",L)
L.sort(reverse=True)
print("descending order:",L)

#defining list L
#defining list L1
#appending list L
#printing list L
#extending list L
#printing the extended list L
#removing list L
#printing list L
#reversing list L
#printing the revrse list L
#sorting list L accending order
#printing the ascending order list L
#sorting list L descending order
#printing the descending order list L
#END of program

print("21DCE052")
```

Output:

```
PS D:\PYTOHN\Ayush> python -u "d:\PYTOHN\Ayush\2_1.py"
append: [2, 1, 3, 5, 4, 3, 8, 9]
extend: [2, 1, 3, 5, 4, 3, 8, 9, 10, 11, 14, 12, 13]
remove: [2, 1, 3, 4, 3, 8, 9, 10, 11, 14, 12, 13]
reverse: [13, 12, 14, 11, 10, 9, 8, 3, 4, 3, 1, 2]
ascending order: [1, 2, 3, 3, 4, 8, 9, 10, 11, 12, 13, 14]
descending order: [14, 13, 12, 11, 10, 9, 8, 4, 3, 3, 2, 1]
21DCE052
```

Learning Outcomes:

In this practical, following concepts were learnt:

- iii. I learn how to manipulate list in python.
- iv. Also ,I learn different functions like append, extend, remove, reverse.

2.2:

AIM: List1 = [1, 2, 3, 4, ["python", "java", "c++", [10,20,30]], 5, 6, 7, ["apple", "banana", "orange"]] From above list get word “orange” and “Python” & repeat this list five times without using loops.

Tools and Technologies used:

- **Vs code**- Visual Studio Code is a free source code editor that fully supports Python and useful features such as real-time collaboration
- **Python Script**- A Python script is a collection of commands in a file designed to be executed like a program.

Program Code:

```
list1 = [1, 2, 3, 4, ["python", "java", "c++", [10,20,30]], 5, 6, 7, ["apple", "banana",  
"orange"]]  
List= list1*5  
print("five time print list = ",List)  
  
print("word Python = ",list1[4][0])  
print("word orange =",list1[8][2])  
print("20 number =",list1[4][3][1])  
  
#defining the list  
#multiplying the list1 by 5 an storing it in List  
#printing the list five times  
#Getting specific words from list of lists  
  
#END of program  
  
print("21DCE052 ")
```

Output:

```
PS D:\PYTOHN\Ayush> python -u "d:\PYTOHN\Ayush\2.2.py"  
five time print list = [1, 2, 3, 4, ['python', 'java', 'c++', [10, 20, 30]], 5, 6, 7, ['apple', 'banana', 'orange'], 1, 2, 3, 4, ['python', 'java', 'c++', [10, 20, 30]], 5, 6, 7, ['apple', 'banana', 'orange'], 1, 2, 3, 4, ['python', 'java', 'c++', [10, 20, 30]], 5, 6, 7, ['apple', 'banana', 'orange'], 1, 2, 3, 4, ['python', 'java', 'c++', [10, 20, 30]], 5, 6, 7, ['apple', 'banana', 'orange'], 1, 2, 3, 4, ['python', 'java', 'c++', [10, 20, 30]], 5, 6, 7, ['apple', 'banana', 'orange']]  
word Python = python  
word orange = orange  
20 number = 20  
21DCE052
```

Learning Outcomes:

In this practical, following concepts were learnt:

- i. I learn how to print a same list more then one times.
- ii. How to find particular element from the given or choosn list.

2.3:

AIM: Create a list and copy it using slice function.

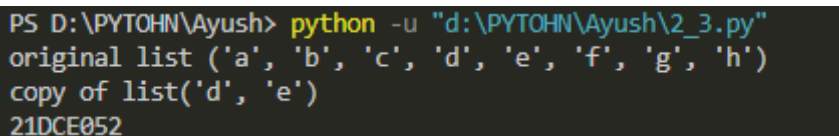
Tools and Technologies used:

- **Vs code**- Visual Studio Code is a free source code editor that fully supports Python and useful features such as real-time collaboration
- **Python Script**- A Python script is a collection of commands in a file designed to be executed like a program.

Program Code:

```
a = ("a", "b", "c", "d", "e", "f", "g", "h")           #defining the list
x = slice(3, 5)                                       #performing slice function
print("original list "+str(a))                       #printing original list
print("copy of list "+str(a[x]))                     #printing the copy of list
print("21DCE052 ")                                   #END of program
```

Output:



```
PS D:\PYTOHN\Ayush> python -u "d:\PYTOHN\Ayush\2_3.py"
original list ('a', 'b', 'c', 'd', 'e', 'f', 'g', 'h')
copy of list('d', 'e')
21DCE052
```

Learning Outcomes:

In this practical, following concepts were learnt:

- i. In this I learnt how to copy list using slice function.
- ii. And how to copy with slice function

2.4:

AIM: Create a tuple and apply different type of mathematical operation on it (Sum, Maximum, minimum etc.).

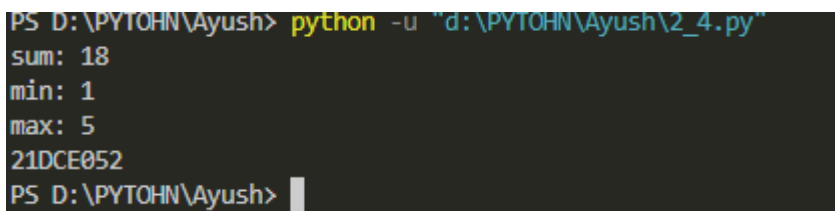
Tools and Technologies used:

- **Vs code**- Visual Studio Code is a free source code editor that fully supports Python and useful features such as real-time collaboration
- **Python Script**- A Python script is a collection of commands in a file designed to be executed like a program.

Program Code:

```
A = (2, 1, 3, 5, 4, 3)          #defining the list
                                #Performing sum() function
print("sum:",sum(A))
                                #Performing min() function to find out minimum number
print("min:",min(A))
                                #Performing max() function to find out maximum number
print("max:",max(A))
                                #END of program
print("21DCE052")
```

Output:



```
PS D:\PYTOHN\Ayush> python -u "d:\PYTOHN\Ayush\2_4.py"
sum: 18
min: 1
max: 5
21DCE052
PS D:\PYTOHN\Ayush> 
```

Learning Outcomes:

In this practical, following concepts were learnt:

- i. How to declare tuple in python.
- ii. Also i learnt how to get sum, min and max value of tuples.

Practical – 3

3.1:

AIM: String Operations:

- Reverse a string, replace string with other string, merge two strings).
- Find character is in string or not without using loops.
- Split string into multiple word

Tools and Technologies used:

- **Vs code**- Visual Studio Code is a free source code editor that fully supports Python and useful features such as real-time collaboration
- **Python Script**- A Python script is a collection of commands in a file designed to be executed like a program.

Program Code:

text ="depstar is college"	#Reversing a string:
text1 = text[::-1]	
print("reversed:"+str(text1))	#Replacing a string with other string:
text2 = text.replace(" depstar"," cspit")	
print("replace: "+str(text2))	#Finding character in string:
text3 =text.find('l')	
print("l is present at index: "+ str(text3))	#Finding character in string:
text4 = text + " "+text2	
print("merge: "+str(text4))	#Splitting string into multiple words:
text5= text.split(" ")	
print("split: "+str(text5))	#END of program
print("21DCE052")	

Output:

```
PS D:\PYTOHN\Ayush> python -u "d:\PYTOHN\Ayush\3_1.py"
reversed:egelloC si ratsped
replace: depstar is college
l is present at index: 13
merge: depstar is college depstar is college
split: ['depstar', 'is', 'college']
21DCE052
```

Learning Outcomes:

In this practical, following concepts were learnt:

- I. I learn how to manipulate string
- II. Also how to use different operations like reverse, split , merge, find element etc.

3.2:

AIM: Dictionaries Operations:

- Apply “Update, Delete, clear, pop item, pop, get, keys and values” operation in dictionary.
- Create 3 dictionaries and merge them into 1 dictionary.

Tools and Technologies used:

- **Vs code**- Visual Studio Code is a free source code editor that fully supports Python and useful features such as real-time collaboration
- **Python Script**- A Python script is a collection of commands in a file designed to be executed like a program.

Program Code:

```
def Merge(Dictionary1, Dictionary2, Dictionary3):
```

```
    Dictionary3.update(Dictionary2)
```

```
    Dictionary3.update(Dictionary1)
```

```
    return Dictionary3
```

```
#Creating a dictionary
```

```
exampleDictionary = {
```

```
    "FirstName" : "Luffy",
```

```
    "MiddleName" : "D",
```

```
    "LastName" : "Monkey"
```

```
}
```

```
print(exampleDictionary)
```

```
#Using update() function:
```

```
exampleDictionary.update({"FirstName": "Dragon"})
```

```
print(f"After using update() function: {exampleDictionary}")
```

#Using del function:

```
del exampleDictionary["FirstName"]  
print(f"After del: {exampleDictionary}")
```

#Using clear() function:

```
exampleDictionary.clear()  
print(f"After using clear() function: {exampleDictionary}\n")
```

#Creating a dictionary

```
exampleDictionary = {  
    "FirstName" : "Luffy",  
    "MiddleName" : "D",  
    "LastName" : "Monkey",  
    "Address" : "Dawn",  
    "Pincode" : "12345"  
}  
print(exampleDictionary)
```

#Using popitem() function:

```
exampleDictionary.popitem()  
print(f"After using popitem() function: {exampleDictionary}")
```

#Using pop() function:

```
exampleDictionary.pop("Address")  
print(f"After using pop() function: {exampleDictionary}")
```

#Using get() function:

```
example = exampleDictionary.get("FirstName")  
print(f"Using get() function: {example}")
```

#Using key() function:

```
example = exampleDictionary.keys()
print(f"Using get() function: {example}")
```

#Using values() function:

```
example = exampleDictionary.values()
print(f"Using get() function: {example}")
```

#Creating 3 dictionary

```
Dictionary1 = {
    "FirstName": "Levi",
    "LastName": "Ackerman"
}
Dictionary2 = {
    "FirstName1": "Mikasa",
    "LastName3": "Ackerman"
}
Dictionary3 = {
    "FirstName2": "Eren",
    "LastName2": "Yeagar"
}
```

#Merging 3 dictionaries using Merge() funcion:

```
print(f"Merged Dictionary: {Merge(Dictionary1, Dictionary2, Dictionary3)}")
```

Output:

```
PS D:\PYTOHN\Ayush> python -u "d:\PYTOHN\Ayush\3_2.py"
{'FirstName': 'Luffy', 'MiddleName': 'D', 'LastName': 'Monkey'}
After using update() function: {'FirstName': 'Dragon', 'MiddleName': 'D', 'LastName': 'Monkey'}
After del: {'MiddleName': 'D', 'LastName': 'Monkey'}
After using clear() function: {}

{'FirstName': 'Luffy', 'MiddleName': 'D', 'LastName': 'Monkey', 'Address': 'Dawn', 'Pincode': '12345'}
After using popitem() function: {'FirstName': 'Luffy', 'MiddleName': 'D', 'LastName': 'Monkey', 'Address': 'Dawn'}
After using pop() function: {'FirstName': 'Luffy', 'MiddleName': 'D', 'LastName': 'Monkey'}
Using get() function: Luffy
Using get() function: dict_keys(['FirstName', 'MiddleName', 'LastName'])
Using get() function: dict_values(['Luffy', 'D', 'Monkey'])
Merged Dictionary: {'FirstName2': 'Eren', 'LastName2': 'Yeagar', 'FirstName1': 'Mikasa', 'LastName3': 'Ackerman', 'FirstName': 'Levi', 'LastName': 'Ackerman'}
21DCE052
PS D:\PYTOHN\Ayush>
```

Learning Outcomes:

In this practical, following concepts were learnt:

- I. I learn how to create dictionary
- II. then different operations like Update, Delete, clear, pop item, pop, get, keys and values etc.
- III. Also how to merge dictionaries.