

Unit 1

Introduction: The Python Programming Language, History, features, Installing Python, Running Python Program, Debugging: Syntax Errors, Runtime Errors, and Semantic Errors, Experimental Debugging, Formal and Natural Languages, The Difference Between Brackets, Braces, and Parentheses, **Variables and Expressions** Values and Types, Variables, Variable Names and Keywords, Type conversion, Operators and Operands, Expressions, Interactive Mode and Script Mode, Order of Operations. **Conditional Statements:** if, if-else, nested if –else **Looping:** for, while, nested loops **Control statements:** Terminating loops, skipping specific conditions.

1. What is python? List and explain feature of python?
2. Write the steps to install python and to run is python code?
3. Explain type conversion of variable in python?
4. Explain if...else statement with example?
5. Explain the use of break statement in loop with example?
6. What is the difference between interactive mode and script mode in python?
7. What is variable? what are the rules and conventions for declaring a variable?
8. Explain if...else statement with an example?
9. List and explain various data types in Python.
10. Explain the continue statement with a suitable example.
11. Explain the use of logical operators and membership operators in Python
12. Define the term “debugging”. What are the different types of errors in programming?
13. Write a program to accept a number from the user and count its number of divisors.
14. Write a program that asks the user to enter their name and age. Print a message addressed
15. to them that tells the year when they will turn 100 years old
16. Write a python program to print factorial of a number. Take input from user?
17. Explain continue statement with an example?
18. Write a python program to calculate area of triangle and circle and print the result .Take input from user?

Unit 2

Functions, Composition, Adding New Functions, Definitions and Uses, Flow of Execution, Parameters and Arguments, Variables and Parameters Are Local, Stack Diagrams, Fruitful Functions and Void Functions, Why Functions? Importing with from, Return Values, Incremental Development, Composition, Boolean Functions, More Recursion, Leap of Faith, Checking Types. **Strings:** A String Is a Sequence, Traversal with a for Loop, String Slices, Strings Are Immutable, Searching, Looping and Counting, String Methods, the in Operator, String Comparison, String Operations.

- 1) How function is defined and called in python?
- 2) Write a function that takes single character and prints 'character is vowel' if it is a vowel, 'character not vowel' otherwise.
- 3) Short note on incremental development?
- 4) What is recursive function? write a python program to calculate factorial of a number using recursive function?
- 5) Explain various string operations that can be performed using operators in python?
- 6) Explain str.find() function with suitable example?
- 7) Define function ? write syntax to define function. Give example of function definition?
- 8) What is actual and formal parameter? Explain the difference along with an example?
- 9) Write a python program to calculate factorial of a given number using recursive function.
- 10) Discuss the difference between local and global variable?
- 11) Explain any five basic operations performed on string.
- 12) Write a python program to check whether a string is palindrome?
- 13) Explain the concept of composition in functions with a suitable example.
- 14) Write a program to print the sum of natural numbers using recursive function.
- 15) What is a fruitful function? Explain with the help of an example.
- 16) Write a program to print the sum of natural numbers using recursive function.
- 17) How can string be traversed with a loop? Give suitable example.
- 18) Write a function to check whether the number entered by the user is an Armstrong number.
- 19) Explain the following string functions with example:
 - i) startswith()
 - ii)rstrip()

Unit 3

List, deleting elements from List, Built-in List Operators, Concatenation, Repetition, `In` Operator, Built-in List functions and methods **Tuples and Dictionaries:** Tuples, Accessing values in Tuples, Tuple Assignment, Tuples as return values, Variable-length argument tuples, Basic tuples operations, Concatenation, Repetition, `in` Operator, Iteration, Built-in Tuple Functions. Creating a Dictionary, Accessing Values in a dictionary, Updating Dictionary, Deleting Elements from Dictionary, Properties of Dictionary keys, Operations in Dictionary, Built-In Dictionary Functions, Built-in Dictionary Methods. **Files:** Text Files, The File Object Attributes, Directories **Exceptions:** Built-in Exceptions, Handling Exceptions, Exception.

- 1) What is list? How to create a list?
- 2) Explain try...except blocks for exception handling in python?
- 3) Explain various built-in list functions and methods ?
- 4) What is tuple in python? How to create and access it?
- 5) Explain the properties of dictionary keys?
- 6) Explain open() and close() methods for opening and closing a file.
- 7) What are lists? How to define and access the elements or list?
- 8) Write a program to input any two tuples and interchange the tuple values
- 9) Explain directory method in python?
- 10) How to create dictionary in python? give example.
- 11) Explain different modes of opening a file.
- 12) Write a python program to accept to catch the exception if a floating point number is entered.
- 13) Explain the use of slice operator for accessing elements of a tuple.
- 14) What are the different methods for adding elements to a list? Give example for each method.
- 15) What is exception handling? How does it work?
- 16) Write a program to sort a dictionary in ascending and descending order of values.

Unit 4

Regular Expressions – Concept of regular expression, various types of regular expressions, using match function. **Classes and Objects:** Overview of OOP (Object Oriented Programming), Class Definition, Creating Objects, Instances as Arguments, Instances as return values, Built-in Class Attributes, Inheritance, Method Overriding, Data Encapsulation, Data Hiding **Multithreaded Programming:** Thread Module, creating a thread, synchronizing threads, multithreaded priority queue **Modules:** Importing module, Creating and exploring modules, Math module, Random module, Time module

1. What is regular expression? Explain various patterns of regular expression.
2. Explain math() function with suitable example?
3. What is method overriding? Write an example.
4. What is multithreaded programming ? Explain thread module with suitable example?
5. what is module? what are the advantages of using module?
6. Explain various functions or math module?
7. What is regular expression ? What are different type of regular expression?
8. Explain math module with its any 5 functions?
9. List and explain built in class attributes with example?
10. How to import a module? Explain time module?
11. What is multithreading ? how to create a thread?
12. Design a class that store the information of student and display the same.
13. What is method overloading? Write a program to demonstrate method overloading.
14. What are the methods of Thread class?
15. Create a module “Area.py” with functions area_circle(), area_triangle() and area_rect(). Create a new file. Use area_circle(), area_triangle() and area_rect() from the Area module to calculate the areas.
16. What is multilevel inheritance? Write a program to implement multilevel inheritance.
17. How are threads synchronized?
18. Explain replace () and split () methods of regular expression with suitable examples.

Unit 5

Creating the GUI Form and Adding Widgets: Widgets: Button, Canvas, Checkbutton, Entry, Frame, Label, Listbox, Menubutton, Menu, Message, Radiobutton, Scale, Scrollbar, text, Toplevel, Spinbox, PanedWindow, LabelFrame, tkMessageBox. Handling Standard attributes and Properties of Widgets.

Layout Management: Designing GUI applications with proper Layout Management features.

Look and Feel Customization: Enhancing Look and Feel of GUI using different appearances of widgets.

Storing Data in Our MySQL Database via Our GUI : Connecting to a MySQL database from Python, Configuring the MySQL connection, Designing the Python GUI database, Using the INSERT command, Using the UPDATE command, Using the DELETE command, Storing and retrieving data from MySQL database.

1. Explain Checkbutton widget online with example?
2. Write a short note on tk messagebox module?
3. What is layout management? Explain grid manager?
4. Explain place geometry manager with example?
5. Write and explain the steps insert a row into mysql database with example?
6. Write short note on cursor object in python?
7. Explain the layout manager in detail?
8. What is the use of listbox widget? Give an example to add element to listbox?
9. Write a source code in python to create login screen?
10. Write a source code in python to read single and multiple results of query execution?
11. Write a source code in python to show database connectivity and insert the following information in table named 'Item'
12. Write a program to create a popup menu with two options – Black and White. The background color of the window should change when user selects the option.
13. Write a program using the following layout to save product details in the Product Table (pro_id, pro_name, quantity) and display the message "Record saved successfully".
- 14.