Unit 1

1. Implicit type conversion and Explicit type conversion.
2. Perform the following using built-in string methods.
    i. Search the string for a specified value and return the position of where it was found.
    ii. Returns the number of times a specified value occurs in a string
    iii. Returns True if all characters in the string are digits
    iv. Returns True if all characters in the string are alphanumeric
    v. Returns a string where a specified value is replaced with a specified value
    vi. Returns true if the string starts with the specified value
    vii. Converts a string into upper case
    viii. Converts the first character of each word to upper case
    ix. Splits the string at the specified separator, and returns a list
    x. Returns a trimmed version of the string
3. Write a python program to concatenate two strings using the concept of indexing.
4. Write a Python program for removing i-th character from a string using string slicing.
5. Python program to check whether the string is Symmetrical or Palindrome
6. Elucidate Logical operators in Python.
7. Write a python program to take two users input. If the input values are not integers, convert the values into integers and perform the following operations on them and display the result.
    a) Bit-wise AND.
    b) Bit-wise OR.
    c) Bit-wise NOT.
    d) Bit-wise XOR.
    e) Bit-wise right shift.
    f) Bit-wise left shift.

Discuss the output with proper example.

Unit 2

1. Explicate the constructs which are utilized for Handling Exceptions:
2. Differentiate Tuple, List, set, Dictionary.
3. Write a Python function that takes a list and an element as input. The function should add the element to the list only if it's not already present in the list.
4. Explicate the built in methods that are used in Python List:
    a) different methods to add element
    b) count occurrences of the element
    c) returns the index of the first occurrence of the element
    d) different methods to remove element
    e) reverses objects of the list in place
    f) sort List in ascending, descending order
5. Explicate built-in methods that you can use on tuples.
6. Explain slicing concept and write a Python code with explanation.

Unit 3

1. Describe method overriding. Write a python program to elucidate method overriding.
2. Explain operator overloading in Python. Create a Point class that represents a point in a 2D space, with x and y coordinates. Overload the + operator so that two Point objects can be added together, and their corresponding coordinates (x and y) are summed.
3. Analyze ambiguity problem in inheritance. Write a simple python program to demonstrate how the ambiguity problem is handled in multiple inheritances.

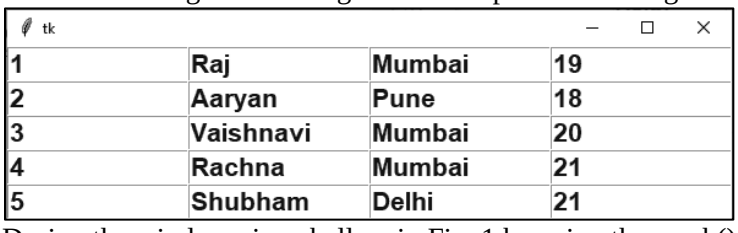
4. An Abstract Base Class (ABC) is a concept in object-oriented programming that serves as a blueprint or template to create classes. Justify the statement with example.
5. Elucidate the concept of inheritance in python. Write a Python program to
   - Create a class that represents a shape; include methods area and perimeter.
   - Implement subclasses for different shapes: circle, square, and, rectangle.
   - Redefine base class methods area and perimeter in all subclasses.
   - Create objects of all subclasses.
   - Access class methods using subclass objects to print area and perimeter.
6. Explain the features of OOPs.

Unit 4

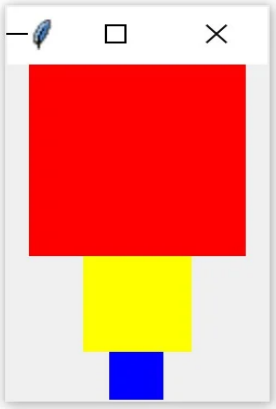
1. Explicate different file types and file opening mode.
2. Write a Python program to:
   a) Create a file (text or binary)
   b) Demonstrate different read and write operations
   c) Open the file in different mode.
   d) Add new contents at the end of file.
   e) Close the file.
3. Write a python code for each given step necessary to establish a connection between Python and MySQL.
   a) Install MySQL Driver
   b) Create a connection Object
   c) Create a cursor Object
   d) Execute the Query to create a database.
   e) create a table
   f) Alter table
   g) insert records in table
   h) retrieve records from table
   i) update records in table
   j) delete table
   k) delete database
4. Discuss the concept of generic database connectivity using ODBC in Python. Write a simple program to demonstrate it.

Unit 5

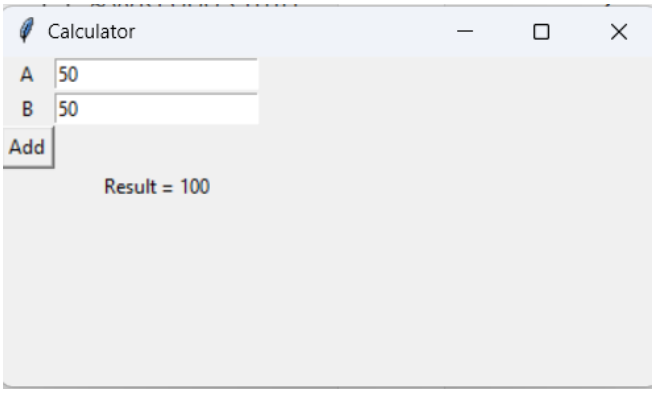
1. Create a simple GUI application using the tkinter module that includes buttons, labels, and entry fields to calculate the square of a number.
2. Create following Table Using Tkinter. Explain each widget used in this program.



3. Design the window given bellow in Fig. 1 by using the .pack() of tkinter module.



4. Create a simple calculator to add two numbers and display result using Entry widget of Tkinter. Explain each line of the code.



5. Write a python program using Tkinter to get following output. Message “Hello World” will appear when "Press this button" is clicked. Explain each line of the code.

6. Describe the key characteristics of Client/ Server Communication.