**Operators**

1. write a python program to add two numbers given below a=55 and b=22

store the answer in a new variable

multiply the answer with a

store the multiplied answer in new variable

compare the multiplied answer with value a

if the answer is greater then multiply the answer with (pi)value

increment the answer by 34

and decrement the answer by 20

then compare the value of all the present solution

1. Write a Python program to display the examination schedule. (extract the date from exam\_st\_date).

exam\_st\_date = (11, 12, 2014)

Sample Output : The examination will start from : 11 / 12 / 2014

1. Write a Python program that calculates the area of a circle based on the radius

Sample Output :

r = 1.1

Area = 3.8013271108436504

4. write a python program to find the area of a triangle

5. write a python program to swap two numbers

input format

a=4

b=9

output format

a=9

b=4

6. Reverse a number 123456789

**Conditional Statements**

1. Check if a number is divisible by 2,3,4

* If a number is divisible by 2, print “divide by 2”
* If a number is divisible by 3, print “divide by 3”
* If a number is divisible by 4, print “divide by 4”
* If the number is not divisible by 2,3,4 then print “Not divisible by 2,3,4”

1. Print Grade based on marks

* Mark > 90 - print O grade
* Mark > 80 - print A grade
* Mark > 70 - print B grade
* Mark > 60 - print C grade
* Mark > 50 - print D grade
* Mark < 50 - print fail

1. Write a program to find the given number is odd or even

write the program about the fizzbuzz

if the number is divisible by 3 print(Fizz)

if the number is divisible by 5 print(buzz)

if the number is divisible by 3 and 5 print(Fizzbuzz)

**Loops**

1. Get a number input and print all the values from 1 to the number
2. Get a number input and print all the values from 1 to the number but skip values that are divisible by 10 - **using continue**
3. Get a number input and print all the values from 1 to the number but exit the loop if i > 90
4. Get a number input and print sum of all the number from 1 to the number
5. Infinite While loop with a break statement to come out of loop
6. For loop to print number from 1…n , n is the user input
7. For loop to sum numbers from 1…n
8. Print the following pattern using loops

1

2 2

3 3 3

4 4 4 4

**Strings**

### Reverse the words in the given string program using

### Loop

* + 1. Stack
    2. Reverse method
    3. slicing

# Python program to print even length words in a string

# Python program to check if a string has at least one letter and one number

# Remove All Duplicates from a Given String in Python

**List**

# Check if element exists in list in Python

# Python program to interchange first and last elements in a list

# Python Program to Swap Two Elements in a List

# How To Find the Length of a List in Python

# Find Maximum and min element in a List

# Different ways to clear a list in Python

# Reversing a List in Python

# Find sum and average of numbers in a List in Python

# Count occurrences of an element in a list

1. Navigating through a 2D List
2. Insert and delete elements from list

**Tuples**

1. Find the size of a tuple in bytes

# Python program to create a list of tuples from given list having number and its cube in each tuple

Input: list = [1, 2, 3]

Output: [(1, 1), (2, 8), (3, 27)]

# Adding Tuple to List and vice – versa

# Python – Sum of tuple elements

# Update each element in tuple list

The original list :[(1, 3, 4), (2, 4, 6), (3, 8, 1)]

**Expected output - [(5, 7, 8), (6, 8, 10), (7, 12, 5)]**

# Multiply Adjacent elements

The original tuple : (1, 5, 7, 8, 10)

**Expected** tuple after multiplication : (5, 35, 56, 80)

**Set**

# Iterate over a set in Python

1. Min and Max elements in a Set
2. Python program to find common elements in three lists using sets

**Input** : ar1 = [1, 5, 10, 20, 40, 80]

ar2 = [6, 7, 20, 80, 100]

ar3 = [3, 4, 15, 20, 30, 70, 80, 120]

**Output** : [80, 20]

1. Check if two lists have at-least one element common

**Input** : a = [1, 2, 3, 4, 5]

b = [5, 6, 7, 8, 9]

**Output** : True

1. Difference between two lists

**list1** = [10, 15, 20, 25, 30, 35, 40]

**list2** = [25, 40, 35]

Output: [10, 15, 20, 30]

1. Python program to count number of vowels using sets in given string

**Input** : Hello World

**Output** : No. of vowels : 3

1. Python Program to Accept the Strings Which Contains all Vowels

**Input** : ABeeIghiObhkUul

**Output** : Accepted

All vowels are present

1. Python set to check if a String is a panagram

**Input** : The quick brown fox jumps over the lazy dog

**Output** : The string is a pangram

1. Python program to convert Set into Tuple and Tuple into Set

10 . Convert Set to String in Python and vice-versa

11. Convert a set into dictionary

initial string {1, 2, 3, 4, 5}

final list {1: 0, 2: 0, 3: 0, 4: 0, 5: 0}

12. Remove duplicates from a list using Set

**Dictionary**

1. Find the sum of all items

***Input :*** *{‘a’: 100, ‘b’:200, ‘c’:300}*

***Output :*** *600*

# Get size of a Dictionary in Python

1. Remove all duplicates from a given sentence

Input : Python is great and Java is also great

Output : is also Java Python and great

1. Write a Python script to sort (ascending and descending) a dictionary by value.

### Change value of a key in a nested dictionary

## Check if a Given Key Already Exists in Dictionary

1. Write a Python script to merge two Python dictionaries.
2. Write a Python program to iterate over dictionaries using for loops.
3. Count frequency of List Items using Dictionary

List1 = [1, 2, 2, 3, 4, 1, 4, 5, 5, 6, 7, 7]

## Get Keys with Maximum and Minimum Value in a Dictionary

1. Drop empty Items from a given Dictionary
2. [Print the Sum of Key Value Pairs in a Given Dictionary](https://www.shiksha.com/online-courses/articles/python-dictionary-practice-programs-for-beginners/#print-the-sum-of-key-value-pairs-in-a-given-dictionary)

## Python program to convert a dictionary to [list](https://www.tutorialspoint.com/python/python_lists.htm) of (k,v) [tuples](https://www.tutorialspoint.com/python/python_tuples.htm).

## d1 = {"one":11, "two":22, "three":33, "four":44, "five":55}

**Functions**

**Try out all built in functions in Python**

[**https://www.geeksforgeeks.org/python-built-in-functions/**](https://www.geeksforgeeks.org/python-built-in-functions/)

1. Write a Python program that defines a method to calculate the area of a rectangle.

2. Create a method that accepts a list of integers and returns the sum of all the elements in the array.

3. Implement method overloading for a "print" method that can print different types of data such as int, double, and String.

4. Print a multiplication table for a given number.

5. Write a program to Count how many digits in a number.

6. Write a program to Check if a number is prime

7. Write a program to Find all prime numbers up to a given number.

8. Write a program to Print a factorial of a number.

9. Write a program to Print fibonacci series.

10. Get Input from user as follows

num1

num2

operation - add / subtract / multiply / divide

Based on the selected operation, relevant function to be called and value to be printed

**Lambda, Map, Filter and Reduce**

1. Write a Python program to filter a list of integers using Lambda.

Original list of integers:

[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Even numbers from the said list:

[2, 4, 6, 8, 10]

Odd numbers from the said list:

[1, 3, 5, 7, 9]

1. Write a Python program to square and cube every number in a given list of integers using Lambda.

[1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

1. Write a Python program to find if a given string starts with a given character using Lambda.
2. Write a Python program to extract year, month, date and time using Lambda.
3. Write a Python program to check whether a given string is a number or not using Lambda.
4. Write a Python program to create Fibonacci series up to n using Lambda.
5. Write a Python program to find the intersection of two given arrays using Lambda.
6. Write a Python program to rearrange positive and negative numbers in a given array using Lambda.
7. Write a Python program to count the even and odd numbers in a given array of integers using Lambda.
8. Write a Python program to filter a given list to determine if the values in the list have a length of 6 using Lambda.
9. Write a Python program to add two given lists using map and lambda.

[1, 2, 3]

[4, 5, 6]

Result: after adding two list

[5, 7, 9]

1. Write a Python program to find numbers divisible by nineteen or thirteen from a list of numbers using Lambda.

Orginal list:

[19, 65, 57, 39, 152, 639, 121, 44, 90, 190]

Numbers of the above list divisible by nineteen or thirteen:

[19, 65, 57, 39, 152, 190]

1. Write a Python program to find palindromes in a given list of strings using Lambda.

Original list of strings:

['php', 'w3r', 'Python', 'abcd', 'Java', 'aaa']

List of palindromes:

['php', 'aaa']

1. Write a Python program to find all anagrams of a string in a given list of strings using Lambda.

Original list of strings:

['bcda', 'abce', 'cbda', 'cbea', 'adcb']

Anagrams of 'abcd' in the above string:

['bcda', 'cbda', 'adcb']

1. Write a Python program that multiplies each number in a list with a given number using lambda functions. Print the results.

Original list: [2, 4, 6, 9, 11]

Given number: 2

Result:

4 8 12 18 22

1. Calculate the mean values of the elements from input list

[2, 4, 6, 9, 11]

**OOPS Exercises**

| 1 | Create a child class Bus that will inherit all of the variables and methods of the Vehicle class |
| --- | --- |
| 1 | Python program to create a class representing a Circle. Include methods to calculate its area and perimeter. |
| 2 | Write a Python program to create a calculator class. Include methods for basic arithmetic operations. |
| 3 | Write a Python program to create a class that represents a shape. Include methods to calculate its area and perimeter. Implement subclasses for different shapes like circle, triangle, and square. |
| 4 | **Write a Python program to create a person class. Include attributes like name, country and date of birth. Implement a method to determine the person’s age** |
| 5 | **Write a Python program to create two empty classes, Student and Marks. Now create some instances and check whether they are instances of the said classes or not. Also, check whether the said classes are subclasses of the built-in object class or not.** |
| 6 | **Create a class named Student with two attributes student\_name, marks. Modify the attribute values of the said class and print the original and modified values of the said attributes.** |
| 6 | **Write a Python class named Student with two attributes: student\_id, student\_name. Add a new attribute: student\_class. Create a function to display all attributes and their values in the Student class.** |
|  |  |
|  |  |
| **Advanced** |  |
| 1 | **Write a Python program to create a class representing a shopping cart. Include methods for adding and removing items, and calculating the total price.** |
| 2 | **Write a Python program to create a class representing a bank. Include methods for managing customer accounts and transactions.** |
| 3 | **Write a Python program to create a class representing a stack data structure. Include methods for pushing and popping elements.** |
| 4 | **Write a Python program to create a class representing a linked list data structure. Include methods for displaying linked list data, inserting and deleting nodes.** |
| 5 | **Write a Python program to create a class representing a queue data structure. Include methods for enqueueing and dequeueing elements.** |
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