All Practice Questions of Python

Input- output

Q1. Write a python program to accept integer input from user and print that integer.

Q2. Write a python program to take input from user age then increase his/her age by 10 years.

Sample Input: enter you age: 12

Sample Output: 22

Q3. Take input user name, age, height then print output as “my name is (your name), my age is (you age), and height is (your age)”.

Sample Input: Enter you name: alice

Enter your age: 10

Enter your height: 3.5

Sample Output:

My name is Python, my age is 10 and height is 3.5

Q4. How do you input a floating-point number from the user and store it in a variable called price?

Q5. Write a Python program that asks the user for two numbers and then prints their sum.

Sample Input: Enter 1st numbers: 3

Enter 2nd number: 4

Sampel Output: 7

Q6. Write a Python program that asks the user for their age and then prints a message stating their age.

Q7. Write a Python program that asks the user for the radius of a circle and then prints the area of the circle.

Q8. How do you take a string input from the user and convert it to an integer?

Sample input: '234'

Sample output: 234

Q9. Write a Python program that asks the user for their height in feet and converts it to meters (1 foot = 0.3048 meters).

Q10. Write a Python program that takes three inputs from the user: two integers and one floating-point number. Your task is to print these three values in the following format:

Integer1 Integer2 Float_Number

Sample Input:

Enter the first integer: 5

Enter the second integer: 10

Enter the floating-point number: 3.14

Sample output:

5 10 3.14

Operator Practice:

Part - 1

1. Write a Python expression that adds two numbers: 7 and 5.

   a= 7

   b= 5

2. Subtract 4 from 9 using Python.

   a= 4

   b =4

3. Multiply 6 by 8 in Python.

   a= 6

   b =8

Note: (Use pen copy to solve questions) then code on your system.

4. Perform floor division (integer division) on 15 by 2.
5. Find the remainder when 22 is divided by 5.
6. Find the remainder when -22 is divided by 8.
7. Find the remainder when 2 is divided by 7.
8. Addition Assignment,

   If x = 10, add 5 to x using an assignment operator.

9. Subtraction Assignment,

   If y = 20, subtract 3 from y using an assignment operator.

10. Multiplication Assignment,

    If z = 7, multiply z by 2 using an assignment operator.

11. Division Assignment

    If w = 40, divide w by 4 using an assignment operator.

12. Determine if 8 is greater than 6.
13. Determine if 5 is less than 10.

14. Check if 7 is greater than or equal to 7.

15. Calculate the result of (3 + 5) * 2 - 4 / 2 % 3 using python operators (Use pen copy to solve question)

16. Evaluate the expression (7 ** 2 + 6 // 3) * (8 % 3 - 2)

17. a = 8

```
b = a * 2
c = b // 3 + a
print(a, b, c)
```

18. p = 10

```
q = p - 4
r = q + p * 2
print(p, q, r)
```

19. m = 3

```
n = m ** 2
o = n % m + 1
print(m, n, o)
```

20. a = 12

```
b = a / 3
c = b ** 2
d = (a + b + c) % 5
print(a, b, c, d)
```

21. c, d = 12, 6

```
c, d = d + 4, c - 2
d, c = c // 3, d * 3
print(c, d +1)
```

22. m, n a = 8, 3,-4

```
m, n = n * 2, m+  a - 5
n, m = m + 4, n // 2
print(m, n)
```

23. a, b = 5, 8

```
a += b
b -= 2
```

```
a, b = b, a - 4
print(a, b)
```

24.
```
x, y = 12, 3
y = x // 2
x *= 3
x, y = y + 1, x - 5
print(x, y)
```

25.
```
c, d = 8, 20
d = c * 2
c += 5
c, d = d - 7, c // 3
print(c, d)
```

Part - 2 (Operators)

Q1. Write a Python program to calculate the area of a rectangle.

Test case:

Input: Length = 5, Width = 10 Output: 50

Q2. Write a Python program to convert temperature from Celsius to Fahrenheit.

Test case:

Input: Celsius = 25
Output: 77.0

Q3. Write a Python program to calculate the total price of items, including tax.

Test case:

Input: Price = 1000, Tax Rate = 18
Output: 1180.0

Q4. Write a Python program to calculate the perimeter of a square. Test case:Input: Side = 7 Output: 28

Q5. Write a Python program to find the remainder when dividing a number by 7.

Test case:Input: Number = 20 Output: 6

Q6. Write a Python program to find the average of five numbers. Test case:

Input: Num1 = 10, Num2 = 20, Num3 = 30, Num4 = 40, Num5 = 50

Output: 30.0

Q7. Write a Python program to calculate the simple interest. Test case:

Input: Principal = 1000, Rate = 5, Time = 2

Output: 100.0

Q8. Write a Python program to calculate the total marks and percentage from marks of five subjects.

Test case:

Input: Subject1 = 85, Subject2 = 90, Subject3 = 78, Subject4 = 88,

Subject5 = 92

Output: Total Marks = 433, Percentage = 86.6

Q9. Write a Python program to convert minutes into hours and minutes.

Test case:

Input: Minutes = 135

Output: Hours = 2, Remaining Minutes = 15

Q10. Write a Python program to calculate the total salary after adding bonus.

Test case:

Input: Salary = 50000, Bonus = 10
Output: 55000.0

If-else Part - 1:

Q1. Write a program to check if a number is positive or negative.

- Input: Enter a number: `-4`
- Output: `negative`

Q2. Write a program that takes two numbers from the user and prints the largest number.

- Input:
  - Enter a number: `15`
  - Enter another number: `25`
- Output: `25`

Q3. Write a program that takes a number from the user and checks if it is divisible by 5.

- Input: Enter a number: `25`
- Output: `Divisible`

Q4. Write a program that takes four angles and checks if they can form a quadrilateral. (The sum of all four angles should be 360)

- Input:
  - Enter angle 1: `90`
  - Enter angle 2: `80`
  - Enter angle 3: `110`
  - Enter angle 4: `80`
- Output: `Can form a quadrilateral`

Q5. Write a program that takes a number from the user and checks if it is divisible by 5.

- Input: Enter a number: `90`
- Output: `Divisible`

Q6. Write a program that takes a month number from the user and determines the season.

3 <= month <= 5; print "Spring"

6 <= month <= 8 then print "Summer"

9 <= month <= 11, then print "Autumn"

12<= month <= 2 then print "Winter"

- Input: Enter the month number: `4`
- Output: `Spring`

If else Part - 2

Q1. W.A.P to check if a number is positive, negative, or zero.

Input: enter a number: 8

Output: positive

Q2. W.A.P to check if a number is even or odd.

Input: 9

Output: odd

Q3. W.A.P to Determine grade based on marks.

marks >= 90: Grade A

marks >= 80: Grade: B

Marks >= 70: Grade C

marks >= 60: Grade: D

otherwise,

Grade: E

Test Case 1:

Input: 50

Output: E

Q4. W.A.P to Check if a number is divisible by both 3 and 5.

Input: 15

Output: Divisible

Q5. program to determine if a person is a child, teenager, adult, or senior based on their age

age <= 12:"Child"

age <= 19: "Teenager"

age <= 64: "Adult"

age > = 64:"Senior"

Test Case 1:

Enter age: 8

Child

Test Case 2:

Enter age: 16

Teenager

Q6. Check if a year is a leap year.

Test case 1:

Input: 1600

Output: Leap year

Test Case 2:

Input: 1900

Output: Not a leap year.

Q7. W.A.P to find the largest of three numbers.

Input: enter 3 number: 78, 56, 100

Output: greatest out of 3: 100

Q8. W.A.P Determine if a triangle is equilateral, isosceles, or scalene.

Input: enter 3 sides of a triangle 7, 7, 1

Output: isosceles

Q9. Determine if a year is a century year.

Example of century year 1800, 2000, 2100 many more…

Q10.Write a Python program that accepts three numbers and check All numbers are equal or not.

Q11. Write a python program which takes x and y as a input and determine the quadrant of a point in a coordinate system as per the given information below:

x> 0, y> 0: first quadrant

x < 0, y > 0: second quadrant

x< 0, y<0: third quadrant

x> 0, y < 0: fourth quadrant

Test Case 1:

Input: x = 8 and y = -1

Output: fourth quadrant

Q11. Determine the season based on month

3 <= month <= 5; "Spring"

6 <= month <= 8"Summer"

9 <= month <= 11"Autumn"

Otherwise,

"Winter"

Test Case 1:

Input: 7

Output: Summer

Q12. Write a python program which takes three input and check if third number is within a given range between first and second number.

INPUT: LOWER RANGE: 10

UPPER RANGE: 89

INPUT_NUMBER: 77

OUTPUT: 'YES'

Q13. Input 3 angle and determine if they form a triangle or not.

Q14. program that reads 2 numbers and an arithmetic operator like +, -, *, /, % and display the computed result:

Example

Enter the 1 number: 5

Enter the 2 number: 2

Enter the operator: *

Output: 10.0

Q15. Write a python program to input cost price and selling price of a product and check profit or loss. Also calculate total profit or loss using if else.

Test case 1:

input cost price: 1000

Input selling price: 1500

Output:

Profit is 500

Q16. Write a python program to input week number and print week day.

Test case 1:

Input: 1

Output: Monday

Test case 2:

Input: 7

Output: Sunday

Q17. Write a python program that accepts three numbers from the user and check if numbers are in "increasing" or "decreasing" order.

Test Case 1:

Input: 10,17,20

Output: Increasing Order.

Test case 2:

Input: 90,69,36

Output: Decreasing Order

Q18. While purchasing certain items, a discount of 10% is offered if the quantity purchased is more than 100. If quantity and price per item are input through the keyboard, write a program to calculate the total expenses.

Q19. Write a program to input electricity unit charges and calculate total electricity bill

according to the given condition:

- For first 50 units Rs. 0.50/unit
- For next 150 units Rs. 0.75/unit
- For next 250 units Rs. 1.20/unit
- For unit above 450 Rs. 1.50/unit
- An additional surcharge of 20% is added to the bill

Test Case 1:

Input: 100 units

Expected Output:

Rs. 62.5

With Surcharge: Rs. 75

Test Case 3:

Input: 300 units

Expected Output:

Rs. 257.5

With Surcharge: Rs. 309

Q20. Write a python program which accept the kilometres covered and calculate the bill according to the following criteria:

First 10 Km -> Rs11/km

Next 90Km -> Rs 10/km

After that -> Rs9/km

Test Case 1:

Input: 50

Output: 510

Test Case 2:

Input: 100

Output: 1010

WHILE LOOP Part - 1

Q1. Write a program that prints number from 1 to 10 number with their square.

Q2. Write a program that prints a table of a number, take that number from the user.

Sample input:

Enter a number: 5

Output:

5 x 1 = 5

5 x 2 = 10

5 x 3 = 15

5 x 4 = 20

5 x 5 = 25

5 x 6 = 30

5 x 7 = 35

5 x 8 = 40

5 x 9 = 45

5 x 10 = 50

Q3. Write a program that calculates the product of all numbers between 1 to 10 using a while loop.

Q4. Write a program that prints numbers divisible of 7 between 1 to 70

Q5. Write a program that takes input from the user and print the reverse counting of that number.

Sample Input: 5

Sample output: 5 4 3 2 1

While Loop Part - 2

Q1. Write a python program that calculates the factorial of a number.

Factor of n is: 1 * 2 * 3 * …….. * n

Input: 5

Expected Output: 120

Q2. Write a python program that asks the user for input until the user enters a number 0 and print each number while taking input.

Q3. Write a python program that takes 2 number from user, then print numbers from 1 to 20 which divides both the numbers (common factor of those 2 number)

Q4. Write a program to find the factors of a given number by the user as an input.

Input: 12

Expected output: 1,2,3,4,6,12

Q5. Write a python program that takes a number from the user, then print count of even and odd factors separately of the input number.

While loop Part - 3

Q1. Write a python program to find the Sum of the Digits of a given number as an input.

Input	Output	Explanation
123	6	1+2+3 = 6
456	15	4+5+6 = 15
789	24	7+8+9 = 24

Q2. Write a python program which finds the reverse of a given number.

Input	Output	Explanation
123	321	Reverse of 123 is 321.
456	654	Reverse of 456 is 654.
789	987	Reverse of 789 is 987.

Q3. Write a python program which find the Factors of a given number as an input.

Explanation: Given an integer input, the objective is to find all the factors ofthe number by checking divisibility.

Input	Output	Explanation
12	1, 2, 3, 4, 6, 12	Factors of 12 are 1, 2, 3, 4, 6, and 12.
15	1, 3, 5, 15	Factors of 15 are 1, 3, 5, and 15.
18	1, 2, 3, 6, 9, 18	Factors of 18 are 1, 2, 3, 6, 9, and 18.

Q4. Write a python program which check Whether the given number as an input is a Palindrome or not.

Explanation: palindrome numbers are those whose reverse is equal to the original number.

Input	Output	Explanation
121	Palindrome	Reverse of 121 is 121, so it's a palindrome.
123	Not a Palindrome	Reverse of 123 is 321, so it's not a palindrome.
1331	Palindrome	Reverse of 1331 is 1331, so it's a palindrome.

Q5. Write a python program which finds Factorial of a Number.

Input	Output	Explanation
5	120	Factorial of 5 is 5! = 5×4×3×2×1 = 120.
6	720	Factorial of 6 is 6! = 6×5×4×3×2×1 = 720.
0	1	Factorial of 0 is 1 (by definition).

Q6. Check Whether or Not the Number is an Armstrong Number.

Explanation: An Armstrong number is a number that equals the sum of its digits, each raised to a power (length of that number or count of digit in that number).

Input	Output	Explanation
153	Armstrong	$1^3 + 5^3 + 3^3 = 153$.
123	Not Armstrong	$1^3 + 2^3 + 3^3 \neq 123$.
370	Armstrong	$3^3 + 7^3 + 0^3 = 370$.

Q7. Write a python program to check whether or Not the given number is a Perfect Number.

Explanation: Given an integer input, the objective is to check whether the sum of its factors (excluding the number itself) equals the number. If so, the numberis a Perfect Number.

Input	Output	Explanation
6	Perfect	Factors of 6 are 1, 2, 3. Sum = 1+2+3 = 6.
28	Perfect	Factors of 28 are 1, 2, 4, 7, 14. Sum = 28.
10	Not Perfect	Factors of 10 are 1, 2, 5. Sum = 8 ≠ 10.

Q8. Write a program to enter the number till the user enters 0 and at the end it should display the sum of all the numbers entered.

Example:

Enter a number: 5
Enter a number: 8
Enter a number: 1
Enter a number: -6
Enter a number: 0
Output: 8

How output is 8:

5 + 8 +1 + (-6)

= 8

For loop Part - 1:

1. Write a python program that take a number from user then add all the natural number which are divisible by 3 or 5 both till that input number.

Sample input:

Enter a number: 10

Output: 33 (3+5+6+9+10)

2. Write a python program that takes input from user then print the table of the entered number using for loop

Example: If user enters '5' then,

Output: 5 x 1 = 5

5 x 2=10

5 x 3 =15

5 x 4 =20

5 x 5 = 25

5 x 6 = 30

5 x 7 = 35

5 x 8 = 40

5 x 9 = 45

5 x 10 =50

3. Write a python program that print the given series.

Expected Output: 20, 16, 12, 8, 4, 0

4. Write a python program to generate all the factors of the given number. Using for loop

Input: 12

Output: 1, 2, 3, 4, 6, 12

5. Write a Python program to find the sum of digit of a given number using for loop. (between 100 and 999).

Input: 123

Output: 6

6. write a python program that takes number from user then prints count of even and odd number from 1 to till that number

Sample input:

Enter a number: 10

Output:

Count_of_even_no.s = 5

Count_of_odd_no.s = 5

7. Write a Python program to count how many numbers between 1 and 200 are divisible by 5 but not by 2.

8. Write a Python program to find the reverse of a given number using for loop. (between 100 and 999).

Input: 897

Output: 798

9. Write a python program to input a number and calculate the 'double' factorial using for loop.

Explanation: Double factorial,

- For an even integer n, the double factorial is the product of all even integers less than or equal to n.

· For an odd integer p, the double factorial is the product of all odd integers less than or equal to p.

10. Write a python program which takes number as an input and check whether that number is prime or not.

Input: 13

Output: prime

For Loop Part - 2

(Pattern)

Note: Write a python program to generate the following pattern using for loop by taking ‘n’ as an input. (given patten for n = 5)

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*	*			

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4.

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5.

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6.

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9.

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13.

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14.

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17.

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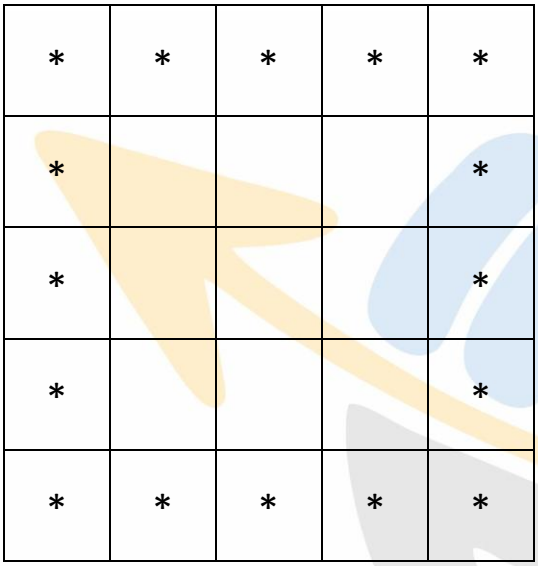
18. If n = 7

For Loop Part - 4

(Hollow Pattern)

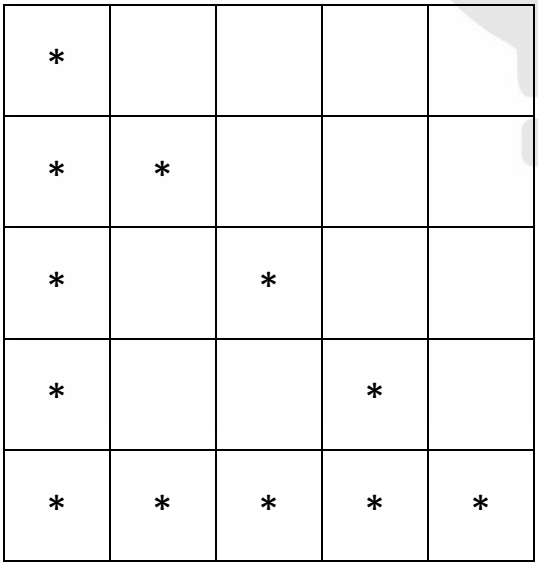
Note: Write a python program to generate the following pattern using for loop by taking 'n' as an input. (given patten for n = 5).

1.

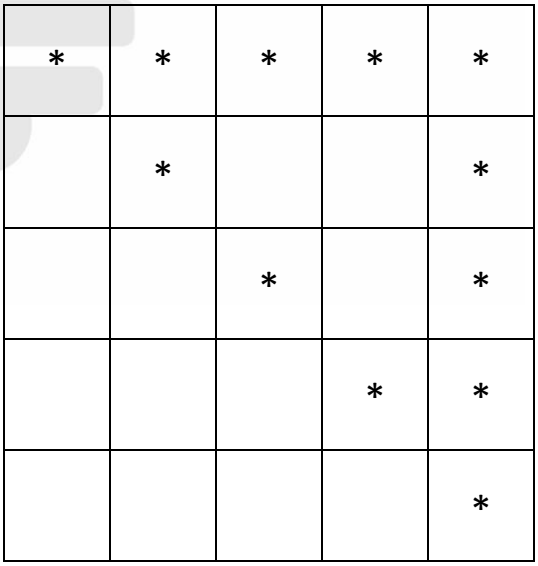


2.

3.



4.



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6.

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7.

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8.

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9.

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10.

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11.

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12. IF (input) n=7,

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Functions Part – 1

Q1. Write a function add_numbers(a, b) that takes two arguments and returns their sum.

Q2. Write a function is_even(n) that takes an integer and returns True if the number is even, otherwise False.

Q3. Write a function factorial(n) that takes a non-negative integer and returns its factorial.

Q4. Write a function max_of_two(a, b) that takes two numbers and returns the larger of the two.

Q5. Write a function celsius_to_fahrenheit(c) that takes a temperature in Celsius and returns the temperature in Fahrenheit. (Formula: F = C * 9/5 + 32)

Q6. Write a function multiplication_table(n) that takes an integer and prints its multiplication table from 1 to 10.

Function Part - 2

Q1. Write a Python function to find the maximum of three numbers

Q2. Write a Python function that takes a number as a parameter and checks whether the number is prime or not.

Q3. Write a Python function that takes a list and returns a new list with distinct elements from the first list.

Sample List: [1,2,3,3,3,3,4,5]
Unique List: [1, 2, 3, 4, 5]

Q4. Write a function intreverse(n) that takes as input a positive integer n and returns the integer obtained by reversing the digits in n.

Here are some examples of how your function should work.

Test Case 1:

Input: intreverse(546)

Output: 645

Test Case 2:

Input: intreverse(3)

Output: 3

Q5. Write a function sumprimes(l) that takes as input a list of integers l and retuns the sum of all the prime numbers in l.

Here are some examples to show how your function should work.

Test Cases:

Input: sumprimes([3,3,1,13])
Output: 19
Input: sumprimes([2,4,6,9,11])
Output: 13

Q6. Write a function that calculates the nth terms in an arithmetic sequence, which takes first term, common difference and value of n as an argument and default value of n is 10.

Q7. Create a function that returns the list of factorials of each element of a given list as argument.

Test Case 1:

Input as argument: [2,3,4,5]
Ouput: [2, 6, 24, 120]

Q8. Write a python function that accepts a list of numbers and returns the sum of the squares of only the prime numbers.

Q9. Write a function `list_intersection(list1, list2)` that returns a list of elements that are present in both `list1` and `list2`

Q10. Write a Python function that takes a list of strings as input and returns a tuple containing the shortest and longest word from the list, in that order. If there are multiple words of the same shortest or longest length, return the first shortest/longest word found.

Input:-

```
words = ["apple", "banana", "kiwi", "grapefruit", "orange"]
```

Output:- ('kiwi', 'grapefruit')

LIST Part - 1

Q1. Write a program which add the element 13 to the end of the list **numbers = [10, 22, 35, 45, 53]** after that Print the list.

Q2. Write a program which insert the element 20 at index 2 in the list **numbers = [5, 2, 6, 4, 9].** Print the list after inserting.

Q3. If **List1 = [1,2,3,4] and List2 = [8,6,7,5]** then what should be the code for the output: [1,2,3,4,8,6,7,5]

Q4. Delete the element at index 3 from the list **numbers = [10, 2, 36, 41, 5]**. Print the list after deletion.

Q5. Delete the element at index 4 from the list **Lst = ['apple' , 'banana' , 'orange' , 'kiwi' , 'guava']** and Print the list after deletion and also print that deleted element.

Q6. Remove the first occurrence of the element 3 from the list **numbers = [1, 25, 3, 44, 33, 56]**. Print the list after removing.

Q7. Count the number of times the element 2 appears in the list **Lst = [15, 2, 2, 3, 4, 2 ,7 ,8 ,45 ,2 ,2].** Print the count.

Q8. Write a program which prints the reverse list of the given list:

Lst = [15, 22, 35, 24, 65]

Q9. Write a program to which add the element 7 at the last of list **Lst = [4, 2, 5, 1, 3, 6, 8, 10, 3, 5]**, then sort the list. Print the list after these operations.

Q10. Write a program which insert the element 10 at index 1 in the list **Lst = [12, 24, 35, 24, 45]**, then remove the element 35. Print the list after these operations.

LIST Part -2

Q1. Write a python program which iterates the given list prints all the values inside the list via loop .

lst = ['mango','apple','banana','ornage','kiwi']

Q2. Write a python program which finds the sum to all the elements of the list by iterating that given list.

lst = [2,4,6,8,12,10,14,24]

Q3. Write a python program which finds the value (n) in the given list = [4,5,3,2,1,6,8], if present then return True otherwise False.

Note: 'n' can be any input value.

Q4. Write a python program which update odd indices elements of the list by 'hii' through iterating that given list.

lst = [2,4,6,8,1]

Q5. Write a python program which finds and print the average of elements of the given list of integers.

lst = [10,45,23,46,98,56]

Note: If list changes your code should work properly.

Q6. Write a python program which finds the sum of squares of all the elements of the given list.

lst = [2,4,6,8,1]

List Part - 3

Q1. Write a python program to divide the list into two equal halves and print the sum of each half.

lst1 = [2,4,6,8,3,5,8,9]

(3+5+8+9)

(2+4+6+8)

Output: 20, 25

Q2. Write a program to delete the element at the index equal to half the length of the given list. Print the list before and after deletion.

Before: [2,3,4,5,6,7,8]

After: [2,3,4,6,7,8]

Note: List can be changed.

Q3. Write a program to append a new integer to this list, which is the sum of the first and last elements of the list. Print the list before and after appending.

Sample List: [23,43,56,87]

(23+87)

Output: [23,43,56,87,110]

Q4. Write a program to insert the product of the first and last elements at the third position in the list. Print the list before and after insertion.

Sample list = [34,56,23,76,23,46]

*(34 * 46)*

Output: [34,56,23,1564,76,23,46]

Q5. Write a program to print the list of first and last elements of each list of lists.

lst2 = [[23,45,76],[45,3,12],[3,5,20]]

Output: [23,76,45,12,3,20]

Q6. Write a program to calculate and print the sum of max elements of each list of lists.

lst3 = [[1,2,4,5],[3,5,4,3],[4,5,3,2]]

(5+5+5)

Output: 15

Q7. Write a program to calculate and print the sum of elements in each list of lists and add the resultant values. Without using sum() function.

Sample list = [[1,2,4,5],[3,5,4,3],[4,5,3,2]]

Output: [12, 15, 14]

(12+15+14)

lst = [2,5,7,1,4,6,10,11,6,12]

Q8. Find the largest element of the above given list **without** using max() and sort() functions.

Q9. Find the Smallest element of the above given list **without** using min() and sort() functions.

Q10. Find the Second largest element of the above given list **without** using max() and sort() functions.

Q11. Find the Second Smallest element of the above given list **without** using min() and sort() functions.

List Part -4

Q1. Create a new list which have the squares of every element of the given list using list comprehension.

lst = [2,3,4,5,6,7]

Output = [4,9,16,25,36,49]

Q2. Write a Python program using a list comprehension to create a list of even numbers less than 8 from 1 to 20.

Q3. Write a Python program using a list comprehension to create a list of numbers from 1 to 10, but only include numbers that are greater than 5.

Q4. Write a Python program using a list comprehension to create a list of the first letters of each word in the given list.

lst = ['apple', 'banana', 'cherry'].

Q5. Write a Python program using a list comprehension to create a list of the lengths of each word in the given list.

lst = ['python', 'java', 'c++'].

Q6. Write a Python program using a nested list comprehension to flatten the given list.

Input list: [[1, 2, 3], [4, 5], [6, 7, 8]].

Output: [1, 2, 3, 4, 5, 6, 7, 8]

Q7. Write a Python program using a list comprehension to create a list of numbers from 1 to 20 that are divisible by both 2 and 3.

Q8. Write a Python program using a list comprehension to create a list of the sums of corresponding elements from the lists [1, 2, 3] and [4, 5, 6].

Output: [5, 7, 9]

Q9. Write a python program using list comprehension to create a list which has the sums of elements of list of given list.

lst = [[1,2,3],[3,4,5],[3,4,5],[5,7,3,2]]

Output: [6,12,12,17]

Q10. Write a python program using list comprehension to create a list which has the min of elements of list of given list.

lst = [[1,2,3],[3,4,5],[3,4,5],[5,7,3,2]]

Output: [1,3,3,2]

TUPLE Part - 1

Q1. Write a python program to create a tuple with elements 'apple', 'banana', 'cherry'. Print the first and last elements.

Q2. Write a python program which prints the second last element and check if 'blue' is in the given tuple.

t = ('red', 'green', 'blue', 'yellow')

Q3. Write a python program in which slice the given tuple to get the elements from the second to the fourth position. Print the sliced tuple and its length.

tpl = ('a', 'b', 'c', 'd', 'e')

Q4. Write a python program to concatenate the given tuples. Print the result and then sort the tuple and print it.

t1 = ('a', 'b', 'c')

t2 = ('d', 'e', 'f')

Output: ('a', 'b', 'c', 'd', 'e', 'f')

('a', 'b', 'c', 'd', 'e', 'f')

Q5. Write a program to count how many times 5 appears and find the index of the first occurrence of 3. Print both results.

t = (1, 2, 3, 4, 5, 5, 5, 6).

Q6. Write a program to create a tuple with elements ('cat', 'dog', 'mouse', 'elephant'). Slice it to get the first two elements and print them and also print the after sorting the tuple.

Q7. Write a python program which prints the last element of given tuple and check if 'Hello' is in the tuple. Print the results.

tpl = ('python', 'java', 'c++', 'ruby')

Output: ‘ruby’

False

Q8. Write a python program to create a tuple with elements ('hello', 'world', 'python'). Print its length then add ‘3’ as int at the last of tuple and Print

Output: 3

[‘hello’,’world’,’python’,3]

Q9. Write a python program which access first six elements of the given tuple, then count how many times 5 appears in the new tuple. Print both results.

t = (1, 2, 5, 5, 6, 3, 4, 5, 5, 5, 6)

Q10. Write a python program in which concatenate the given tuples and print the resulting tuple and the third element of generated tuple.

t1 = ('java', 'python')

t2 = ('c', 'ruby')

Tuple Part - 2

Q1. Write a Python program to check if a specified element appears in a tuple of tuples.

Original Tuple:
(('Red', 'White', 'Blue'), ('Green', 'Pink', 'Purple'), ('Orange', 'Yellow', 'Lime'))

Check if White presenet in said tuple of tuples!
True

Check if White presenet in said tuple of tuples!
True
Check if Olive presenet in said tuple of tuples!
False

Q2. WAP to check the tuple contain any duplicate element

Q3. WAP to check if all the element of a tuple are in descending order or not.

Q4. WAP to check if the elements in the first half of a tuple are sorted in ascending or not.

Q5. WAP to inputs name of n students and store them in a tuple . Also, input a name from the user and if this student is present in the tuple or not. Example:

Input:-

How many student?=5

Enter name of student 1: Anaya

Enter name of student 2:Ausha

Enter name of student 3:Kirat

Enter name of student 4:Kyle

Enter name of student 5:Suji

Output:-

Enter name to be Searched for : Suji

Suji exists in a tuple

Q6. Python program to find unique numbers in a given tuple –

original tuple: (1, 9, 1, 6, 3, 4, 5, 1, 1, 2, 5, 6, 7, 8, 9, 2)

Unique numbers: (1, 9, 6, 3, 4, 5, 2, 7, 8)

Q7. Write a Python program to convert a tuple of string values to a tuple of integer values.
Original tuple values:
(('333', '33'), ('1416', '55'))
New tuple values:
((333, 33), (1416, 55))

Q8. Write a Python program to calculate the product, multiplying all the numbers in a given tuple.
Original Tuple:
(4, 3, 2, 2, -1, 18)
Product - multiplying all the numbers of the said tuple: -864
Original Tuple:
(2, 4, 8, 8, 3, 2, 9)
Product - multiplying all the numbers of the said tuple:

String Part -1

Q1. Write a program to check if the word 'am' is present within a given string, and if so, return the index of its first occurrence.

String = "Hello World, I am Programmer"

Output: 15

Q2. Write a python program which takes string as input and replace every occurrence of input string in the given the list to 'hii' and also print list which have length of all the strings inside that list.

Sample Input:

Input_string : 'am'

List = ['I' , 'am' , 'programmer' , 'and' , 'I' , 'am' , 'coder']

Output:

['I' , 'hii' , 'programmer' , 'and' , 'I' , 'hii' , 'coder']

[1, 3, 10, 3, 1, 3, 5]

Q3. Write a program to take two strings and an integer. The program should slice the first string till the given integer and concatenate the resulting substrings with the second string.

Q4. Write a python program which convert all occurrences of first character and last character of given string into '$'.

Sample Input: 'concatenation'

Output: $o$$ate$atio$

Q5. Write a program to remove all vowels from a given string.

Sample Input: " concatenate"

Output: cnctnt

Q6. Write a python program which takes character as a input and count the occurrences of that character into the given string and convert all them into '#'.

String = 'programming'

Sample Input: g

Output: 2

'pro#rammin#'

Q7. Write a python program which takes string as an input and removes the character at even indices.

Sample Input: 'python'

Output: pto

Q8. Write a program that splits a given string into words, sorts the words in alphabetical order, and joins them back into a single string.

String = 'hello, i am a machine learning engineer'

Output = a am engineer hello, i learning machine

Q9. Write a python program which takes string as input and swap first and last character of that string.

Sample Input: 'hello'

Output: 'oellh'

Q10. Write a program to check if a given string is a palindrome.

Palindrome: The string is palindrome if the sequence of characters is in same order from backward as well as forward reading.

Example: wow, rotator, pop, noon.

Q11. Write a python program which convert given list into a single string where each name is capitalized and separated by a semicolon.

list = ['bhopal' , 'vidisha' , 'rewa' , 'bina']

String Part – 2

Q1. Write a Python program to check if a given string is a valid email address.

Ex: example@domain.com

Hint: Check '@' comes earlier than 'dot'

Q2. Write a Python program to reverse the order of words in a given string without reversing the individual words.

Input: "Hello World from Python"

Output: "Python from World Hello"

Q3. Write a Python program that takes a string and a character as input and returns a list of indices where the character occurs in the string.

Input: "programming", 'm'

Output: [6, 7]

Q4. Write a Python program to remove all occurrences of a given substring from a string.

Input: "This is a test string for testing", "test"

Output: "This is a string for ing"

Q5. Write a Python program to find all unique characters in a given string.

Input: "programming"

Output: ['p', 'o', 'r', 'g', 'a', 'm', 'i', 'n']

Q6. Write a Python program to count the number of words in a given string that start with a specific letter which was taken as a input.

Input: "This is a test string for testing", 't'

Output: 3

Q7. Write a Python program to split a string into a list of words and then join them back into a single string with a hyphen - as a separator.

Input: "Python is awesome"

Output: "Python-is-awesome"

Q8. Write a Python program to capitalize the first and last character of every word in a given string.

Input: "hello world from python"

Output: "HellO WorlD FroM PythoN"

Q9. Write a Python program to remove given special characters from a given string.

Special characters include symbols like @, #, !.

Input: "Hello@World!123"

Output: "HelloWorld123"

Set Part 1

Q1. Write a Python program to create two sets, A and B, and find the elements that are common to both sets.

A = {1, 2, 3, 4, 5}

B = {4, 5, 6, 7, 8}

Q2. Write a Python program to create two sets, X and Y, and find the elements that are unique to each set (not present in both).

X = {10, 20, 30, 40}

Y = {30, 40, 50, 60}

Q3. Write a Python program to check if all elements of one set are contained within another set.

S1 = {1, 2, 3}

S2 = {1, 2, 3, 4, 5}

Q4. Write a Python program which create a new set from given two sets have only that elements which are not common.

A = {2, 4, 6}

B = {1, 3, 5}

Q5. Write a Python program to combine all elements from three different sets into one.

Set1 = {1, 2}

Set2 = {2, 3}

Set3 = {3, 4}

Q6. Write a Python program to find all elements that are in one set but not in another.

A = {10, 20, 30}

B = {20, 30, 40}

Q7. Write a Python program to remove a specific element(n) from a set, but only if it exists in the set.

S = {1, 2, 3, 4, 5}

Test case 1: n = 2

Test case 2: n = 7

Set Part - 2

Q1. Write a program to multiply all the float element in the set. set should be taken as input such that a set should contain integer float and string element.

Input:- Enter a set:-{5, 'abc', 7, 8.0, 'def', '10.0', 11, 12.0, '123', 14.0}

Output:- 1344.0

Q2. Write a program to add all the integer element in a set and set should be taken as input such that a set should contain integer float and string element.

Input:- Enter a set:-{5, 'abc', 7, 8.0, 'def', '10.0', 11, 12.0, '123', 14.0}

Output:- 23

Q3. Write a Python program to convert all the even number of a set into a string and set should be user defined.

Input:- Enter a set:-{5, 6, 7, 8, 9, 10, 11, 12, 13, 14}

Output:- {'10', 5, 7, 9, 11, 13, '14', '6', '8', '12'}

Q4. Write a Python program to convert all the odd number of a set into a float and set should be user defined.

Input:- Enter a set:-{5, 6, 7, 8, 9, 10, 11, 12, 13, 14}

Output:-{5.0, 6, 7.0, 8, 9.0, 10, 11.0, 12, 13.0, 14}

Q5. Write a program to convert all the integer element of a set into float and the float element of a set into integer and set should be user defined

Input:- {5.0, 6, 7.0, 8, 9.0, 10, 11.0, 12, 13.0, 14}

Output:- {5, 6.0, 7, 8.0, 9, 10.0, 11, 12.0, 13, 14.0}

Set Part - 3

Q1. Given two sets, A and B.

Write a python program which find all elements that are in either A or B, but not in both. Create a third set with these elements.

A = {1, 2, 3, 4}

B = {3, 4, 5, 6}

Q2. Given two sets, X and Y.

Write a python program which check if all elements of X are present within Y. If present, then remove those elements from Y; otherwise, add the elements of X to Y.

Test case 1: X = {2, 4}

Y = {1, 2, 3, 4, 5}

Test case 2: X = {6, 7}

Y = {1, 2, 3, 4, 5}

Q3. You are given three lists, L1, L2, and L3.

Write a python program which combine all unique elements from these lists into a set. After that, remove any elements that appear in all three lists.

L1 = [1, 2, 3, 4]

L2 = [3, 4, 5, 6]

L3 = [1, 4, 6, 7]

Hint: Use the concept of 'set'

Q4. Write a python program if a set and list is given then, for each element in L, if it's not already in S, add it; otherwise, remove it from S and then print S.

S = {1, 2, 3}

L = [2, 3, 4, 5]

Output: {1, 4, 5}

Q5. Write a python program which combine three sets, A, B, and C. Then, if any number in the set is greater than 10, remove all such numbers.

A = {2, 3, 5}

B = {5, 7, 11}

C = {11, 13, 17}

Q6. Given two sets, X and Y,

Write a python program which find the common elements and store them in a new set. Then, create another set with elements that are unique to either X or Y, but not both.

X = {10, 20, 30, 40}

Y = {30, 40, 50, 60}

Frozen Set

Q1. Write a Python program to create a frozenset from a list of numbers.

numbers = [10, 20, 30, 40, 50]

Q2. Write a Python program which firstly create two frozenset of integers and find the common elements between those frozensets.

Q3. Write a Python program which create two frozenset of float values as a tuple and combine those frozensets into one.

Q4. Write a Python program to find elements that are in one frozenset but not in another.

```
F1 = frozenset([100, 200, 300])

F2 = frozenset([200, 300, 400])
```

Q5. Write a Python program to find elements that are unique to each of two frozensets (not in both).

```
fs1 = frozenset([2, 4, 6, 8])

fs2 = frozenset([4, 8, 12, 16])
```

Q6. Write a Python program to check if one frozenset is a subset of another.

```
small_set = frozenset([1, 2])

large_set = frozenset([1, 2, 3, 4])
```

Dictionary Part - 1

Note: Dictionary for all the questions,

student_grade = {'Alice': 85, 'Bob': 90, 'Charlie': 78}

Q1: Write a Python program to create a dictionary named student_grades with the following key-value pairs: 'Alice': 85, 'Bob': 90, 'Charlie': 78 and also print the dictionary.

Q2: Write a Python program to access and print the grade of 'Bob' from the given dictionary.

Sample Output: 90

Q3: Write a Python program to add a new student 'David' with a grade of 92 to the given dictionary and print it.

Output: {'Alice': 85, 'Bob': 90, 'Charlie': 78, 'David': 92}

Q4: Write a Python program to update the grade of 'Charlie' to 80 in the given dictionary and print the dictionary.

Output: {'Alice': 85, 'Bob': 90, 'Charlie': 80, 'David': 92}

Q5: Write a Python program to delete the student 'David' from the given dictionary using the del keyword, also print the updated dictionary.

Output: {'Alice': 85, 'Bob': 90, 'Charlie': 80}

Q6: Write a Python program to check if the key 'Eve' is present in the given dictionary, if not then print “Eve is not present in the dictionary”.

Q7: Write a Python program to print all the student names in the given dictionary.

Alice

Bob

Charlie

Output:

Q8: Write a Python program to print all the grades in the given dictionary.

85

90

80

Output:

Q9: Write a Python program to print all key-value pairs in the given dictionary in the format “Student: Grade”.

Alice: 85

Bob: 90

Charlie: 80

Output:

Q10: Write a Python program to clear all elements from the given dictionary.

Q11. Write a python program to count, how many key-value pairs are present in the dictionary by traversing on the given dictionary.

student_grade = {'Alice': 85, 'Bob': 90, 'Charlie': 78}

Q12. Write a Python program to check if a dictionary is empty or not.

D = {}

Output: True

Q13. Write a Python program to access dictionary key's element by index (user input).

student_grade = {'Alice': 85, 'Bob': 90, 'Charlie': 78}

Sample Input: 2

Expected Output: bob

Dictionary Part – 2

Note: Dictionary for all question numbers,

fruit_prices = {'apple': 30, 'banana': 10, 'cherry': 25}

Q1: Write a Python program to create a dictionary named fruit_prices using the dict() constructor with the following key-value pairs: 'apple': 30, 'banana': 10, 'cherry': 25 and print the dictionary.

Q2: Write a Python program to update the price of 'apple' to 35 and 'banana' to 12 in the given dictionary.

Output: {'apple': 35, 'banana': 12, 'cherry': 25}

Q3: Write a Python program to delete the key 'cherry' from the given dictionary and print the updated dictionary and removed value.

Output: {'apple': 35, 'banana': 12}

Q4: Write a Python program to remove the last key-value pair from the given dictionary and print the removed pair.

Output: ('banana', 12)

Q5: Write a Python program to check if the key 'grape' is not present in the fruit_prices dictionary, if not then add ‘grape’ with value 30 and print the updated dictionary.

Q6: Write a Python program to create a shallow copy of the given dictionary and name it copied_prices and print both dictionaries.

Dictionary Part - 3

Q1. Write a Python program to create a dictionary named even_squares that contains squares of even numbers between 1 and 10 using dictionary comprehension.

Expected Output: {2: 4, 4: 16, 6: 36, 8: 64, 10: 100}

Q2. Write a Python program to create a dictionary using dictionary comprehension from a given dictionary, where the new dictionary only includes items with values greater than 10.

Use the dictionary: {'a': 5, 'b': 12, 'c': 7, 'd': 20}.

Q3. Write a Python program to create a dictionary using dictionary comprehension where the keys are numbers from 1 to 10, and the values are "even" or "odd" depending on the key value.

Q4. Write a Python program to reverse the keys and values of a given dictionary using dictionary comprehension.

Dictionary: {'x': 1, 'y': 2, 'z': 3}

Expected Output: {1: 'x', 2: 'y', 3: 'z'}.

Q5. Write a Python program to create a dictionary using dictionary comprehension that maps each word in a list to its length.

list: ['apple', 'banana', 'cherry', 'date'].

Q6. Write a Python program to create a dictionary using dictionary comprehension where the keys are numbers from 1 to 10, and the values are categorized as 'low' if the key is less than 5, 'medium' if between 5 and 7, and 'high' if greater than 7.