Perfect Plan B

Learn, grow and become leaders of tomorrow

Problem 1 : Python program to interchange first and last elements in a list

Examples:

Input : [12, 35, 9, 56, 24]

Output : [24, 35, 9, 56, 12]

Input : [1, 2, 3]

Output : [3, 2, 1]

Solution 1 : Python program to interchange first and last elements in a list

```python
# Python3 program to swap first
# and last element of a list

# Swap function
def swapList(newList):
    size = len(newList)

    # Swapping
    temp = newList[0]
    newList[0] = newList[size - 1]
    newList[size - 1] = temp

    return newList

# Driver code
newList = [12, 35, 9, 56, 24]

print(swapList(newList))
```

Solution 2 : Python program to interchange first and last elements in a list

```python
# Python3 program to swap first
# and last element of a list

# Swap function
def swapList(newList):

    newList[0], newList[-1] = newList[-1], newList[0]

    return newList

# Driver code
newList = [12, 35, 9, 56, 24]
print(swapList(newList))
```

Solution 3 : Python program to interchange first and last elements in a list

```python
# Python3 program to swap first
# and last element of a list

# Swap function
def swapList(list):

    # Storing the first and last element
    # as a pair in a tuple variable get
    get = list[-1], list[0]

    # unpacking those elements
    list[0], list[-1] = get

    return list

# Driver code
newList = [12, 35, 9, 56, 24]
print(swapList(newList))
```

Solution 4 : Python program to interchange first and last elements in a list

```python
# Python3 program to swap first
# and last element of a list

# Swap function
def swapList(list):

    first = list.pop(0)
    last = list.pop(-1)

    list.insert(0, last)
    list.append(first)

    return list

# Driver code
newList = [12, 35, 9, 56, 24]

print(swapList(newList))
```

Problem 2 : Python program to check if a string is palindrome or not

Examples:

Input : malayalam
Output : Yes

Input : geeks
 Output : No

Solution 1 : Python program to check if a string is palindrome or not

```python
# function which return reverse of a string

def isPalindrome(s):
    return s == s[::-1]


# Driver code
s = "malayalam"
ans = isPalindrome(s)

if ans:
    print("Yes")
else:
    print("No")
```

Solution 2 : Python program to check if a string is palindrome or not

```python
# function to check string is
# palindrome or not
def isPalindrome(str):

        # Run loop from 0 to len/2
        for i in xrange(0, len(str)/2):
                if str[i] != str[len(str)-i-1]:
                        return False
        return True

# main function
s = "malayalam"
ans = isPalindrome(s)

if (ans):
        print("Yes")
else:
        print("No")
```

Solution 3 : Python program to check if a string is palindrome or not

```python
# function to check string is
# palindrome or not
def isPalindrome(s):

        # Using predefined function to
        # reverse to string print(s)
        rev = ''.join(reversed(s))

        # Checking if both string are
        # equal or not
        if (s == rev):
                return True
        return False


# main function
s = "malayalam"
ans = isPalindrome(s)
```

Solution 3 : Python Program for factorial of a number

```python
# Python 3 program to find
# factorial of given number

def factorial(n):

    # single line to find factorial
    return 1 if (n==1 or n==0) else n * factorial(n - 1)


# Driver Code
num = 5
print ("Factorial of",num,"is",
    factorial(num))
```

Problem 3 : Program to create grade calculator in Python

Given different scored marks of students.

We need to find grades. The test score is an average of the respective marks scored in assignments, tests and lab-works. The final test score is assigned using below formula.

```
10 % of marks scored from submission
of Assignments
70 % of marks scored from Test
  20 % of marks scored in Lab-Works
```

Grade will be calculated according to :

```
1. score >= 90 : "A"
2. score >= 80 : "B"
3. score >= 70 : "C"
4. score >= 60 : "D"
```

Also, calculate the total class average and letter grade of class.

Solution : Program to create grade calculator in Python (on IDE)

```python
# Python code for the Grade
# Calculator program in action

# Creating a dictionary which
# consists of the student name,
# assignment result test results
# and their respective lab results

# 1. Jack's dictionary
jack = { "name":"Jack Frost",
         "assignment" : [80, 50, 40, 20],
         "test" : [75, 75],
         "lab" : [78.20, 77.20]
     }

# 2. James's dictionary
james = { "name":"James Potter",
          "assignment" : [82, 56, 44, 30],
```

Problem 4 : Python program to create a list of tuples from given list having number and its cube in each tuple

Example:

```
Input: list = [1, 2, 3]
Output: [(1, 1), (2, 8), (3, 27)]

Input: list = [9, 5, 6]
 Output: [(9, 729), (5, 125), (6,

216)]
```

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

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

# creating a list
list1 = [1, 2, 5, 6]

# using list comprehension to iterate each
# values in list and create a tuple as specified
res = [(val, pow(val, 3)) for val in list1]

# print the result
print(res)
```

Problem 5 : Python | Print an Inverted Star Pattern

Examples:

Below is the inverted star pattern of size
n=5
   (Because there are 5 horizontal lines
   or rows consist of stars).

```
*****
 ****
  ***
   **
    *
```

Solution : Python | Print an Inverted Star Pattern

```
# python 3 code to print inverted star
# pattern

# n is the number of rows in which
# star is going to be printed.
n=11

# i is going to be enabled to
# range between n-i t 0 with a
# decrement of 1 with each iteration.
# and in print function, for each
iteration,
# " " is multiplied with n-i and '*' is
# multiplied with i to create correct
# space before of the stars.
for i in range (n, 0, -1):
        print((n-i) * ' ' + i * '*')
```

Problem 6 : Python program to swap two elements in a list

Examples:

Input : List = [23, 65, 19, 90], pos1 = 1, pos2=3

Output : [19, 65, 23, 90]

Input : List = [1, 2, 3, 4, 5], pos1 = 2, pos2 = 5

Output : [1, 5, 3, 4, 2]

Problem 7 : Python program to remove Nth occurrence of the given word

Given a list of words in Python, the task is to remove the Nth occurrence of the given word in that list.

Examples:

```
Input: list - ["perfect", "plan", "perfect"]
       word = perfect, N = 2
Output: list - ["perfect", "plan"]


Input: list - ["can", "you",  "can", "a", "can" "?"]
       word = can, N = 1
 Output: list - ["you",  "can", "a", "can" "?"]
```

Problem 8 : Python | Ways to find length of list

List being an integral part of Python day-day programming has to be learned by all the python users and having a knowledge of its utility and operations is essential and always a plus.

Show various methods to find length of a list

Problem 9 : Python | Ways to check if element exists in list

List being an integral part of Python day-day programming has to be learned by all the python users and having a knowledge of its utility and operations is essential and always a plus.

Show various methods to find if the element exists in the list or not.

Problem 10 : Python | Reversing a List

Examples:

```
Input : list = [10, 11, 12, 13, 14, 15]
Output : [15, 14, 13, 12, 11, 10]


Input : list = [4, 5, 6, 7, 8, 9]
 Output : [9, 8, 7, 6, 5, 4]
```

Problem 11 : Reverse words in a given String in Python

We are given a string and we need to reverse words of

given string ?

Examples:

```
Input : str = "quiz practice code"
 Output : str = "code practice quiz"
```

Problem 12 : Python | Check if a Substring is Present in a Given String

Given two strings, check if s1 is there in s2.

Examples:

```
Input : s1 = perfect s2=perfect plan b
Output : yes
```

```
Input : s1 = per s2=perfect plan b
 Output : yes
```

Problem 13 : Python program to print even length words in a string

Given a string. The task is to print all words with even length in the given string.

Examples:

```
Input: s = "This is a python language"
Output: This
        is
        python
        language


Input: s = "i am muskan"
Output: am
        muskan
```

Problem 14 : Python | Program to accept the strings which contains all vowels

Given a string, the task is check if every vowel is present or not. We consider a vowel to be present if it is present in upper case or lower case. i.e. 'a', 'e', 'i'.'o', 'u' or 'A', 'E', 'I', 'O', 'U' .

Examples :

```
Input : perfectplanb
Output : Not Accepted
'i,o,u' are not present
```

```
Input : ABeeIghiObhkUul
Output : Accepted
 All vowels are present
```

Problem 15 : Remove all duplicates from a given string in Python

We are given a string and we need to remove all duplicates from it ? What will be the output if order of character matters ?

Examples:

```
Input : geeksforgeeks
 Output : efgkos
```

Problem 16 : Python program to find the sum of all items in a dictionary

Given a dictionary in Python, write a Python program to find the sum

of all Items in the dictionary.

Examples:

```
Input : {'a': 100, 'b':200, 'c':300}
Output : 600

Input : {'x': 25, 'y':18, 'z':45}
 Output : 88
```

Problem 17 : Python | Convert a list of Tuples into Dictionary

Sometimes you might need to convert a tuple to dict object to make it more readable.

In this article, we will try to learn how to convert a list of tuples into a dictionary.

Examples:

```
Input : [("akash", 10), ("gaurav", 12), ("anand", 14),
         ("suraj", 20), ("akhil", 25), ("ashish", 30)]
Output : {'akash': [10], 'gaurav': [12], 'anand': [14],
          'ashish': [30], 'akhil': [25], 'suraj': [20]}

Input : [('A', 1), ('B', 2), ('C', 3)]
 Output : {'B': [2], 'A': [1], 'C': [3]}
```

Problem 18 : Python Program for Tower of Hanoi

Tower of Hanoi is a mathematical puzzle where we have three rods and n disks. The objective of the puzzle is to move the entire stack to another rod, obeying the following simple rules:

1) Only one disk can be moved at a time.

2) Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack i.e. a disk can only be moved if it is the uppermost disk on a stack.

3) No disk may be placed on top of a smaller disk.

Note: Transferring the top n-1 disks from source rod to Auxilliary rod can again be thought of as a fresh problem and can be solved in the same manner.

Problem 19 : Python program to copy odd lines of one file to other

Write a python program to read contents of a file and copy only the content of odd

lines into new file.

Examples:

```
Input : Hello
        World
        Python
        Language
Output : Hello
         Python


Input : Python
        Language
        Is
        Easy
Output : Python
         Is
```

Problem 20 : Python program to check if a string contains all unique characters

To implement an algorithm to determine if a string contains all unique characters.

Examples:

Input : s = "abcd"

Output: True

"abcd" doesn't contain any duplicates. Hence the output is True.

Input : s = "abbd"

Output: False

"abbd" contains duplicates. Hence the output is False.

About Piazza

Please watch this video about how to use Piazza:

https://youtu.be/ndzsh5ShhhA

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