

Python Assignment Day3 Solution:



1. Python Program for How to check if a given number is Fibonacci number?

Here is an interesting property about Fibonacci numbers that can also be used to check if a given number is Fibonacci or not.

*A number is Fibonacci if and only if one or both of $(5*n^2 + 4)$ or $(5*n^2 - 4)$ is a perfect square*

```
# function that returns true if x is perfect square
def isPerfectSquare(x):
    s = int(math.sqrt(x))
    return s*s == x

# Returns true if n is a Fibonacci Number, else false
def isFibonacci(n):

    # n is Fibonacci if one of 5*n*n + 4 or 5*n*n - 4 or both
    # is a perfect square
    return isPerfectSquare(5*n*n + 4) or isPerfectSquare(5*n*n - 4)

# function to test above functions
for i in range(1,11):
    if (isFibonacci(i) == True):
        print i,"is a Fibonacci Number"
    else:
        print i,"is a not Fibonacci Number "
```

2. Program to accept the strings which contains all vowels

```

# Function for check if string is accepted or not
def check(string) :

    # set() function convert "aeiou" string into set of characters
    vowels = set("aeiou")

    # set() function convert empty dictionary into empty set
    s = set({})

    # looping through each character of the string
    for char in string :

        # Check for the character is present inside the vowels set or not. If present, then
        # add into the set s by using add method
        if char in vowels :
            s.add(char)
        else:
            pass

    # check the length of set s equal to length of vowels set or not. If equal, string is
    # accepted otherwise not
    if len(s) == len(vowels) :
        print("Accepted")
    else :
        print("Not Accepted")

# Driver code
if __name__ == "__main__" :

    string = "SEEquoiaL"

    # lower method of string convert every character into small letter
    string = string.lower()

    # calling function
    check(string)

```

3. Program to Split the array and add the first part to the end

There is a given an array and split it from a specified position, and move the first part of array add to the end.

12	10	5	6	52	36
----	----	---	---	----	----

5	6	52	36	12	10
---	---	----	----	----	----

#for specified position 2

```

def splitArr(arr, n, k):
    for i in range(0, k):
        x = arr[0]
        for j in range(0, n-1):
            arr[j] = arr[j + 1]

        arr[n-1] = x

# main
arr = [12, 10, 5, 6, 52, 36]
n = len(arr)    #len in inbuilt function
position = 2

splitArr(arr, n, position)

for i in range(0, n):
    print(arr[i], end = ' ')

```

4. Program to check if a 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 = "abcba"
ans = isPalindrome(s)

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

```

5. 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

Approach #1 : Using Inbuilt sum() Function

Use sum function to find the sum of dictionary values.

```
# Function to print sum
def returnSum(myDict):

    sum = 0
    for i in myDict:
        sum = sum + myDict[i]

    return sum

# Driver Function
dict = {'a': 100, 'b':200, 'c':300}
print("Sum :", returnSum(dict))
```

Approach #2 : Using For loop to iterate through values using values() function

Iterate through each value of the dictionary using values() function and keep adding it to the sum.

```
# Function to print sum
def returnSum(dict):

    sum = 0
    for i in dict.values():
        sum = sum + i

    return sum

# Driver Function
dict = {'a': 100, 'b':200, 'c':300}
print("Sum :", returnSum(dict))
```