

Expt. No. 7Page No. 13Expt. Name. Compute: $s = (f(x_1) + f(x_2) + \dots + f(x_n)) \text{ Modulo } z$ Date: 08-01-2022Aim:

To write a python program by considering a function $f(x) = x^3$. Input is 'N' list. Each list contains 'M' elements. From the list, find the maximum element. Compute: $s = (f(x_1) + f(x_2) + f(x_3) + \dots + f(x_n)) \text{ Modulo } z$

Algorithm:

- step 1: Start
- step 2: Get the input value of m & n from the user
- step 3: initialize a empty list l and mx
- step 4: using double for loop for N and M
 - step 4.1: Get the input & append in mx
- step 5: initialize a empty list l = []
- step 6: Get the input value of z from the user
- step 7: initialize s is equal to zero
- step 8: for loop in mx
 - step 8.1: increment s by increasing the power of 3
- step 9: print s/z
- step 10: Stop

Program:

```
def f(x):
    return x**3
N = int(input('Enter N:'))
M = int(input('Enter M:'))
l = []
mx = []
for i in range(N):
```

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```
for lj in range(M):  
    l.append(int(input("enter elements: ")))  
mx.append(max(l))  
l = []  
z = int(input("Enter z: "))  
s = 0  
for i in mx:  
    3  
    st = f(i)  
print(s%z)
```

Result:

The above code is executed successfully and the output is attached.

Aim:

To write a python program by validating the Credit number based on the following condition: Begins with 4, 5 or 6, contain exactly 16 digits, contains only number (0 to 9). For every 4 digits a hyphen (-) may be included (not mandatory). No other special character permitted. Must not have 4 or more executive same digits.

Algorithm

- step 1: start
- step 2: import the library re and itertools
- step 3: initialize the text
- step 4: print the length of the text
- step 5: initialize the l to k, sum(1 for i in g) for k, g in itertools.groupby(text)
- step 6: check the condition, if yes print 'passed' else '~~failed~~ "False"
- step 7: Stop

Program:

```
import re
import itertools
text = "5133-3387-8912-3456"
print(len(text))
l = [(k, sum(1 for i in g)) for k, g in itertools.groupby(text)]
if re.search(r'^[456]', text) and len(text) == 16 and re.search(r'[10]', text)
and all(v <= 3 for k, v in l) and bool(re.search(r'15', text)) is False
and bool(re.search(r'[a-z]', text)) is False or (bool(re.search(r' ', text))
is True and len(text) == 19):
```


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```
    print("it passed")  
else:  
    print("Failed False")
```

Result:

The above code is executed successfully and the output is attached.

Output:

7. Consider a function $f(X) = X^3$. Input is 'N' list. Each list contains 'M' elements. From the list, find the maximum element. Compute: $S = (f(X_1) + f(X_2) + f(X_3) + \dots + f(X_N)) \text{ Modulo } Z$

```
[ ] #7.Consider a function f(X) = X3. Input is 'N' list. Each list contains 'M' elements. From the list, find
#4the maximum element. Compute
def f(x):
    return x**3
N=int(input("Enter N:"))
M=int(input("Enter M:"))
l=[]
mx=[]
for i in range(N):
    for j in range(M):
        l.append(int(input("enter elements:")))
    mx.append(max(l))
    l=[]
Z=int(input("Enter Z:"))
s=0
for i in mx:
    s+=f(i)
print(s%Z)
```

Enter N:2
Enter M:4
enter elements:7
enter elements:2
enter elements:8
enter elements:2
enter elements:9
enter elements:1
enter elements:9
enter elements:3
Enter Z:8
1

8. Validate the Credit numbers based on the following conditions:

Begins with 4,5, or 6

Contain exactly 16 digits

Contains only numbers (0 to 9)

For every 4 digits a hyphen (-) may be included (not mandatory). No other special character permitted.

Must not have 4 or more consecutive same digits.

```
1 } #! Validate the Credit numbers based on the following
2
3 import re
4 import itertools
5 text="1111-3332-0012-3456"
6 print(len(text))
7 l=[0,1,0,1 for i in g] for k,g in itertools.groupby(text)
8 if re.search(r'[0-9]{4}',text) and len(text)==16 and re.search(r'[0-9]',text) and all(text for k,v in l) and bool(re.search(r'1',text)) is False and bool(re.search(r'0-2',text)) is False or bool(re.search(r'1',text)) is True and len(text)==16:
9     print("It passed")
10 else:
11     print("Failed")
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