

Problemsheet : 1

Pro1: Create a list and perform the following methods.

```
# insert() method
```

```
name = ["audi","mercedes","ford","tata","maruti",]
```

```
name.insert(3, 'BMW')
```

```
print('insert() method :', name)
```

```
# remove method
```

```
name.remove("tata")
```

```
print('\nremove() method :',name)
```

```
#append() merhod
```

```
name.append("maruti")
```

```
print('\nappend() method :',name)
```

```
# len() method
```

```
print("\nlen() method :", len(name))
```

```
# pop() method
```

```
name.pop()
```

```
print ("\npop method :", name)
```

```
name.pop(3)
```

```
print ("pop method :", name)
```

```
# clear() method
```

```
name.clear()
```

```
print("\nclear() method :",end=" ")
```

output:

```
=====
insert() method : ['audi', 'mercedes', 'ford', 'BMW', 'tata', 'maruti']
remove() method : ['audi', 'mercedes', 'ford', 'BMW', 'maruti']
append() method : ['audi', 'mercedes', 'ford', 'BMW', 'maruti', 'maruti']
len() method : 6
pop method : ['audi', 'mercedes', 'ford', 'BMW', 'maruti']
pop method : ['audi', 'mercedes', 'ford', 'maruti']
clear() method :
>>>
```

Pro 2: Create a dictionary and apply the following methods.

- 1) Print the dictionary items
- 2) access items
- 3) use get()
- 4) change values
- 5) use len()

```
print("-----")
```

```
print("1. Print The Dictionary items")
```

```
thisdict = {
```

```
    "brand": "Ford",
```

```
    "model": "Mustang",
```

```
"year": 1964
}
print(thisdict)
print("-----")
print("2. access items")
thisdict = {
    "brand": "Ford",
    "model": "Mustang",
    "year": 1964
}
x = thisdict["model"]
print(x)
print("-----")
print("3. use get()")
thisdict = {
    "brand": "Ford",
    "model": "Mustang",
    "year": 1964
}
x = thisdict.get("brand")
print(x)
```

```
print("-----")
```

```
print("4. change values")
```

```
thisdict = {
```

```
    "brand": "Ford",
```

```
    "model": "Mustang",
```

```
    "year": 1964
```

```
}
```

```
thisdict.update({"year": 2020})
```

```
print(thisdict)
```

```
print("-----")
```

```
print("5. uselen()")
```

```
thisdict = {
```

```
    "brand": "Ford",
```

```
    "model": "Mustang",
```

```
    "year": 1964,
```

```
    "year": 2020
```

```
}
```

```
print(len(thisdict))
```

output:

```
.....  
-----  
1. Print The Dictionary items  
{'brand': 'Ford', 'model': 'Mustang', 'year': 1964}  
-----  
2. access items  
Mustang  
-----  
3. use get()  
Ford  
-----  
4. change values  
{'brand': 'Ford', 'model': 'Mustang', 'year': 2020}  
-----  
5. uselen()  
3  
>>> |
```

Pro3: Create a tuple and perform the following methods

- 1) Add items
- 2) len()
- 3) check for item in tuple
- 4) Access items

```
thistuple=("yellow","black","magenta")  
y=list(thistuple)  
y.append("cherry")  
thistuple=tuple(y)  
print(thistuple)  
thistuple=tuple(("yellow","black","magenta"))  
print(thistuple)  
thistuple = ("yellow","black","magenta")  
if "yellow" in thistuple:  
    print("Yes, 'yellow' is in the colour tuple")
```

```
thistuple = ("yellow","black","magenta")  
print(thistuple[1])
```

output:

```
===== RESTART: E:/python_  
(  
'yellow', 'black', 'magenta', 'cherry')  
(  
'yellow', 'black', 'magenta')  
Yes, 'yellow' is in the colour tuple  
black
```

Pro 4: Write a python program to add two numbers.

```
num1 = 30  
num2 = 45  
#Adding two numbers  
sum = num1 + num2  
# printing values  
print("Sum of {0} and {1} is {2}".format(num1, num2, sum))
```

output:

```
Sum of 30 and 45 is 75
```

Pro 5: Write a python program to print a number is positive/negative using if-else.

```
num = float(input("Input a number: "))  
if num > 0:  
    print("It is positive number")  
elif num == 0:  
    print("It is Zero")
```

else:

```
print("It is a negative number")
```

output:

```
Input a number: 8  
It is positive number
```

Pro 6: Write a python program to find largest number among three numbers.

```
num1 = 10
```

```
num2 = 34
```

```
num3 = 2
```

```
num1 = float(input("Enter first number: "))
```

```
num2 = float(input("Enter second number: "))
```

```
num3 = float(input("Enter third number: "))
```

```
if (num1 >= num2) and (num1 >= num3):
```

```
    largest = num1
```

```
elif (num2 >= num1) and (num2 >= num3):
```

```
    largest = num2
```

```
else:
```

```
    largest = num3
```

```
print("The largest number is", largest)
```

output:

```
Enter first number: 2  
Enter second number: 4  
Enter third number: 9  
The largest number is 9.0
```

Pro 7: Write a python Program to read a number and display corresponding day using if_elif_else.

```
weekday = int(input("Enter weekday day number (1-7) : "))
```

```
if weekday == 1 :
```

```
    print("\nMonday");
```

```
elif weekday == 2 :
```

```
    print("\nTuesday")
```

```
elif(weekday == 3) :
```

```
    print("\nWednesday")
```

```
elif(weekday == 4) :
```

```
    print("\nThursday")
```

```
elif(weekday == 5) :
```

```
    print("\nFriday")
```

```
elif(weekday == 6) :
```

```
    print("\nSaturday")
```

```
elif (weekday == 7) :
```

```
    print("\nSunday")
```

```
else :
```

```
print("\nPlease enter weekday number between 1-7.")
```

output:


```
Enter weekday day number (1-7) : 7
```

```
Sunday
```

```
===== RESTART: E:/pyt
```

```
Enter weekday day number (1-7) : 6
```

```
Saturday
```

```
|
```

Pro 8: Write a program to create a menu with the following options:

1. TO PERFORM ADDITION
2. TO PERFORM SUBTRACTION
3. TO PERFORM MULTIPLICATION
4. TO PERFORM DIVISION

```
n1=int(input("Enter the number:"))
```

```
n2=int(input("Enter the number:"))
```

```
Addition =n1+n2
```

```
Substraction=n1-n2
```

```
Multiplication=n1*n2
```

```
Division=n1/n2
```

```
print(Addition)
```

```
print(Substraction)
```

```
print(Multiplication)
```

```
print(Division)
```

output:

```
Enter the number:58
Enter the number:56
114
2
3248
1.0357142857142858
```

Pro 9: Write a python program to check whether the given string is palindrome or not.

```
def factorial(n):
    return 1 if (n==1 or n==0) else n * factorial(n - 1);

num = 9;

print("Factorial of",num,"is",
factorial(num))
```

output:

```
Factorial of 9 is 362880
```

Pro 10: Write a python program to find factorial of a given number using functions

```
def factorial(n):
    return 1 if (n==1 or n==0) else n * factorial(n - 1);

num = 34;

print("Factorial of",num,"is",
factorial(num))
```

output:

```
Factorial of 34 is 295232799039604140847618609643520000000
```

Pro 11: Write a Python function that takes two lists and returns True if they are equal otherwise false.

```
result=False

for x in list1:

    for y in list2:

        if x==y:

            result=True

            return result

print(common_data([1,2,3,4,5],[5,6,7,8,9]))

print(common_data([1,2,3,4,5],[6,7,8,9]))
```

output:

```
True
None
|
```

Pro 12: Write a python program to print the Fibonacci series up to a given number. if n<0:

```
print("Incorrect input")

elif n==0:

    return 0

elif n== 1 or n==2:

    return 1

else:

    return Fibonacci(n-1)+Fibonacci(n-2)
```

```
print(Fibonacci(8))
```

output:

```
=====
21
21
```

Pro 13: Write a program to print half pyramid using *.

```
rows = int(input("Enter number of rows: "))
```

```
for i in range(rows):
```

```
    for j in range(i+1):
```

```
        print("* ", end="")
```

```
    print("\n")
```

output:

```
Enter number of rows: 12
*
* *
* * *
* * * *
* * * * *
* * * * * *
* * * * * * *
* * * * * * * *
* * * * * * * * *
* * * * * * * * * *
* * * * * * * * * * *
* * * * * * * * * * * *
* * * * * * * * * * * * *
```

Pro 14: Write a program to print inverted half pyramid using Numbers.

```
rows = int(input("Enter number of rows: "))
for i in range(rows, 0, -1):
    for j in range(1, i+1):
        print(j, end=" ")
    print("\n")
```

output:

```
-----
Enter number of rows: 10
1 2 3 4 5 6 7 8 9 10
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8
1 2 3 4 5 6 7
1 2 3 4 5 6
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

Pro 15: Write a program of Pascal's triangle.

```
def solve(n):
    for i in range(n+1):
        for j in range(n-i):
            print(' ', end=" ")
```

C = 9

```
    for j in range(1, i+1):
print(C, ' ', sep='', end='')

    C = C * (i - j) // j

print()

n = 9

solve(n)
```

output:

```
===== RESTART: E
      9
     9 9
    9 18 9
   9 27 27 9
  9 36 54 36 9
 9 45 90 90 45 9
9 54 135 180 135 54 9
9 63 189 315 315 189 63 9
9 72 252 504 630 504 252 72 9
```

Pro 16: Write a Python program of Floyd's Tringle.

```
def floydTringle(n):

    val = 1

    for i in range(1,n+1):
        for j in range(1,i+1):
print(val,end=" ")
            val+=1

print("")

floydTringle(10)
```

Pro 17: Write a python program to convert Decimal to Binary, Octal and Hexadecimal.

```
dec = 345

print("The decimal value of",dec,"is:")

print(bin(dec),"in binary.")

print(oct(dec),"in octal.")

print(hex(dec),"in hexadecimal.")
```

output:

```
===== RESTART: I
The decimal value of 345 is:
0b101011001 in binary.
0o531 in octal.
0x159 in hexadecimal.
```

Pro 18: Write a python program to shuffle Deck of cards.

```
import itertools,random

deck=list(itertools.product(range(1,14),['Apple','Cherry','Orange','Mango']))

random.shuffle(deck)

print("You got:")

for i in range(5):

    print(deck[i][0],"of",deck[i][1])
```

output:

```
=====
You got:
1 of Apple
11 of Mango
11 of Cherry
7 of Mango
12 of Apple
> |
```

Pro 19: Write a python program to multiply Two Matrices.

```
A = [[12, 7, 3],
```

```
      [4, 5, 6],
```

```
      [7, 8, 9]]
```

```
B = [[5, 8, 1, 2],
```

```
      [6, 7, 3, 0],
```

```
      [4, 5, 9, 1]]
```

```
result = [[0, 0, 0, 0],
```

```
          [0, 0, 0, 0],
```

```
          [0, 0, 0, 0]]
```

```
for i in range(len(A)):
```

```
    for j in range(len(B[0])):
```

```
        for k in range(len(B)):
```

```
            result[i][j] += A[i][k] * B[k][j]
```

```
for r in result:
```



```
print(r)
```

output:

```
=====
[114, 160, 60, 27]
[74, 97, 73, 14]
[119, 157, 112, 23]
> |
```

Pro 20: Write a python program to find Armstrong number in an interval.

```
lower = 100
```

```
upper = 2000
```

```
for num in range(lower, upper + 1):
```

```
    order = len(str(num))
```

```
    sum = 0
```

```
    temp = num
```

```
    while temp > 0:
```

```
        digit = temp % 10
```

```
        sum += digit ** order
```

```
        temp //= 10
```

```
    if num == sum:
```

```
        print(num)
```

output:

```
=====
153
370
371
407
1634
|
```

Pro 21: Write a python program to find HCF Or GCD.

```
def compute_hcf(x, y):
    if x > y:
        smaller = y
    else:
        smaller = x
    for i in range(1, smaller+1):
        if((x % i == 0) and (y % i == 0)):
            hcf = i
    return hcf
num1 = 54
num2 = 24
print("The H.C.F. is", compute_hcf(num1, num2))
```

output:

```
=====
| The H.C.F. is 6
```

Pro 22: Write a program to find LCM.

```
def compute_lcm(x, y):
```

```
if x > y:  
    greater = x  
else:  
    greater = y
```

```
while(True):  
if((greater % x == 0) and (greater % y == 0)):  
    lcm = greater  
    break  
    greater += 1  
return lcm  
num1 = 54  
num2 = 24  
print("The L.C.M. is", compute_lcm(num1, num2))
```

output:

```
=====
| The L.C.M. is 216
|
```

Pro 23: Write a python program to find the factors of a number.

```
def print_factors(x):
```

```
print("The factors of",x,"are:")
```

```
for i in range(1, x + 1):
```

```
    if x % i == 0:
```

```
print(i)

num = 340

print_factors(num)
```

output:

```
=====
The factors of 340 are:
```

```
1
2
4
5
10
17
20
34
68
85
170
340
```

Pro 24: Write a python program to make a simple calculator.

This function divides two numbers

```
def divide(x, y):
```

```
    return x / y
```

```
print("Select operation.")
```

```
print("1.Add")
```

```
print("2.Subtract")
```

```
print("3.Multiply")
```

```
print("4.Divide")
```

while True:

 # take input from the user

 choice = input("Enter choice(1/2/3/4): ")

 # check if choice is one of the four options

 if choice in ('1', '2', '3', '4'):

 num1 = float(input("Enter first number: "))

 num2 = float(input("Enter second number: "))

 if choice == '1':

 print(num1, "+", num2, "=", add(num1, num2))

 elif choice == '2':

 print(num1, "-", num2, "=", subtract(num1, num2))

 elif choice == '3':

 print(num1, "*", num2, "=", multiply(num1, num2))

 elif choice == '4':

 print(num1, "/", num2, "=", divide(num1, num2))

 # check if user wants another calculation

 # break the while loop if answer is no

 next_calculation = input("Let's do next calculation? (yes/no): ")

 if next_calculation == "no":

 break

else:

```
print("Invalid Input")
```

output:

```
*IDLE Shell 3.9.6*
File Edit Shell Debug Options Window Help
Python 3.9.6 (tags/v3.9.6:db3ff76, Jun 28 2021, 15:26:21) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/bansii/PYTHON PRO/calc.py =====
Select operation.
1.Add
2.Subtract
3.Multiply
4.Divide
Enter choice(1/2/3/4): 1
Enter first number: 30
Enter second number: 50
30.0 + 50.0 = 80.0
Let's do next calculation? (yes/no): |
```

Pro 25: Write a python program to convert decimal to binary using recursion.

def convertToBinary(n):

if n > 1:

convertToBinary(n//2)

print(n % 2,end = "")

dec = 34

convertToBinary(dec)

print()

output:

```
=====
100010
.|
```

20020201194