1. **Program to perform Arithmetic operations (add,sub,mul,div) using complex datatypes**

num1 = int(input("Enter First Number: "))  
num2 = int(input("Enter Second Number: "))  
  
print("Enter which operation would you like to perform?")  
ch = input("Enter any of these char for specific operation +,-,\*,/: ")  
  
result = 0  
if ch == '+':  
 result = num1 + num2  
elif ch == '-':  
 result = num1 - num2  
elif ch == '\*':  
 result = num1 \* num2  
elif ch == '/':  
 result = num1 / num2  
else:  
 print("Input character is not recognized!")  
  
print(num1, ch , num2, ":", result)

**OUTPUT:-**

Enter First Number: 20

Enter Second Number: 10

Enter which operation would you like to perform?

Enter any of these char for specific operation +,-,\*,/ :- +

20 + 10 : 30

Enter any of these char for specific operation +,-,\*,/ :- -

20 - 10 : 10

Enter any of these char for specific operation +,-,\*,/: \*

20 \* 10 : 200

Enter any of these char for specific operation +,-,\*,/ :- /

20 / 10 : 2

**2. Program to print ASCII Value of a character**

ch= input("Enter a Character: ")  
print("The ASCII value of '" + ch + "' is", ord(ch))

**OUTPUT:-**

Enter a Character: n

The ASCII value of 'n' is 110

**3. Print the numbers from 10 to 1 in the descending order**

n=int(input("Enter Number :"))  
i=n;  
while(i>=0):  
 print(i, end=" ")  
 i=i-1

**OUTPUT:-**

Enter Number :10

1. 8 7 6 5 4 3 2 1 0

**4. Program for Sum of squares of first n natural numbers**

def squaresum(n):  
 sm = 0  
 for i in range(1, n + 1):  
 sm = sm + (i \* i)  
  
 return sm  
n = int(input("Enter The Number: "))   
print(squaresum(n))

**OUTPUT:-**

Enter The Number: 5

55

**5. Program for Difference between sums of odd and even digits**

def isDiff(n):  
 return (n % 11 == 0)  
n = int(input("Enter Number :"))  
if (isDiff(n)):  
 print("Yes")  
else:  
 print("No")

**OUTPUT:-**

Enter Number :12345

No

Enter Number :1212112

Yes

1. **program to find the most occurring digit and its count**

**d**ef countOccurrences(x, d):  
 count = 0;  
 while (x):  
 if (x % 10 == d):  
 count += 1;  
 x = int(x / 10);  
 return count;  
def maxOccurring(x):  
 if (x < 0):  
 x = -x;  
 result = 0;  
 max\_count = 1;  
 for d in range(10):  
 count = countOccurrences(x, d);  
 if (count >= max\_count):  
 max\_count = count;  
 result = d;  
 return result;  
x = int(input("Enter Number : "))  
print("Max occurring digit is", maxOccurring(x));

**OUTPUT:-**

Enter Number : 12234567

Max occurring digit is 2

1. **program to convert float decimal to Octal number**

def floatoctal\_convert(my\_number, places = 3):  
 my\_whole, my\_dec = str(my\_number).split(".")  
 my\_whole = int(my\_whole)  
 my\_dec = int (my\_dec)  
 res = bin(my\_whole).lstrip("0b") + "."  
 for x in range(places):  
 my\_whole, my\_dec = str((my\_decimal\_converter(my\_dec)) \* 8).split(".")  
 my\_dec = int(my\_dec)  
 res += my\_whole  
 return res  
def my\_decimal\_converter(num):  
 while num > 1:  
 num /= 10  
 return num  
# Driver Code  
n = input("Enter floating point value : \n")  
p = int(input("Enter the number of decimal places of the result : \n"))  
print(floatoctal\_convert(n, places = p))

**OUTPUT:-**

Enter your floating point value : 7.1234

Enter the number of decimal places of the result : 5

1. **program to convert floating to binary**

**de**f float\_bin(number, places = 3):  
 whole, dec = str(number).split(".")  
 whole = int(whole)  
 dec = int (dec)  
 res = bin(whole).lstrip("0b") + "."  
 for x in range(places):  
 whole , dec = str((dec\_converter(dec)) \* 2).split(".")  
 dec = int(dec)  
 res += whole  
 return res  
 def dec\_converter(num):  
 while num > 1:  
 num /= 10  
 return num  
 n = input("Please enter floating point value : \n")  
 p = int(input("Please enter the number of decimal places : \n"))  
 print(float\_bin(n, places = p))

**OUTPUT:-**

Enter floating point value :

1.234

Enter the number of decimal places of the result :

4

Result: 1.1676

1. **Check whether a number has consecutive 0’s in the given base or not**

def hasConsecutiveZeroes(N, K):  
 z = toK(N, K)  
 if (check(z)):  
 print("Yes")  
 else:  
 print("No")  
  
  
def toK(N, K):  
 w = 1  
 s = 0  
 while (N != 0):  
 r = N % K  
 N = N // K  
 s = r \* w + s  
 w = w \* 10  
 return s  
  
  
def check(N):  
 fl = False  
 while (N != 0):  
 r = N % 10  
 N = N // 10  
 if (fl == True and r == 0):  
 return False  
 if (r > 0):  
 fl = False  
 continue  
 fl = True  
 return True  
  
  
# Main code  
N = int(input("Enter Any Number : "))  
K = int(input("Enter Base Number : "))  
N, K = 15, 8  
hasConsecutiveZeroes(N, K)

**OUTPUT:-**

Enter Any Number : 40

Enter Base Number : 2

Yes

1. **check whether input is alphabet or not**

ch = input("Enter any character: ");  
if ch == '0':  
 exit();  
else:  
 if((ch>='a' and ch<='z') or (ch>='A' and ch<='Z')):  
 print(ch, "is an alphabet.");  
 else:  
 print(ch, "is not an alphabet.");

**OUTPUT:-**

Enter any character: 10

10 is not an alphabet.

Enter any character: n

n is an alphabet.

**11. write a program to accepting only number as input**

def Survey():  
 print('1) Blue')  
 print('2) Red')  
 print('3) Yellow')  
 while True:  
 try:  
 question = int(input('Out of these options\(1,2,3), which is your favourite?'))  
 break  
 except:  
 print("That's not a valid option!")  
 if question == 1:  
 print('Nice!')  
 elif question == 2:  
 print('Cool')  
 elif question == 3:  
 print('Awesome!')  
 else:  
 print('That\'s not an option!')  
Survey()

**OUTPUT:-**

1) Blue

2) Red

3) Yellow

Out of these options\(1,2,3), which is your favourite? 1

Nice!

Out of these options\(1,2,3), which is your favourite? 2

Cool

Out of these options\(1,2,3), which is your favourite? 3

Awesome

1. **Find minimum sum of factors of number**

**d**ef findMinSum(num):  
 sum = 0  
 i = 2  
 while(i \* i <= num):  
 while(num % i == 0):  
 sum += i  
 num /= i  
 i += 1  
 sum += num  
num = 45  
res=findMinSum(num)  
print(res)

**OUTPUT:-**

Input:12

Output: 7