1. Write a PYTHON program to generate all prime numbers between 10 and 50. Also display the average of prime numbers thus generated.

Ans.

sum=0

count=0

for i in range(10,51):

if i<=1:

continue

for k in range(2,i):

if i%k==0:

break

else:

print(i, end=' ')

count+=1

sum+=i

print('\nAverage is',sum/count)

1. Write a PYTHON program To Sum The Series :

x / 1! – x2 / 2! + x3 / 3!

Ans.

x=int(input('Enter x: '))

sum,sign=0,1

for i in range(1,4):

nr=x\*\*i

dr=1

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

dr\*=j

sum+=(nr/dr)\*sign

sign\*=-1

print(sum)

1. Write a PYTHON program to accept a set of 3 numbers and check if it forms a Pythagorean triplet. Perform this till the user wishes to exit(using while loop).

Ans.

while True:

i=int(input('Enter a number: '))

j=int(input('Enter a number: '))

k=int(input('Enter a number: '))

if i>j and i>k:

if i\*\*2==j\*\*2+k\*\*2:

print('Pythagorean Triplet')

else: print('Not a triplet')

elif j>k and j>i:

if j\*\*2==k\*\*2+i\*\*2:

print('Pythagorean Triplet')

else: print('Not a triplet')

else:

if k\*\*2==i\*\*2+j\*\*2:

print('Pythagorean Triplet')

else: print('Not a triplet')

if i==-1:

break

1. Write a PYTHON program to generate all Armstrong numbers between 5 and 500.Also find the mean of all these Armstrong numbers

Ans.

count, sum=0,0

for i in range(5,501):

n=str(i)

p=len(n)

s=0

for k in n:

s+=int(k)\*\*p

if i==s:

print(i, end=' ')

sum+=i

count+=1

print('Average of these numbers is',sum/count)

1. Write a PYTHON program to accept a list of 15 numbers and display :
   1. i)sum and average of all odd numbers
   2. ii)sum and average of all even numbers

Ans.

counteven=0

countodd=0

sumeven=0

sumodd=0

for i in range(15):

n=int(input('Enter the number: '))

if n%2==0:

counteven+=1

sumeven+=n

if n%2!=0:

countodd+=1

sumodd+=n

avgeven=sumeven/counteven

avgodd=sumodd/countodd

print('Sum of odd numbers is',sumodd,'\tAverage of odd numbers is',avgodd,

'\nSum of even numbers is',sumeven,'\tAverage of even numbers is',avgeven)

1. Write a PYTHON program to display the maximum, minimum and mean of a given set of ‘N’ numbers.

Ans.

n=int(input('Enter n: '))

num=int(input('Enter a number: '))

max=min=num

count,sum=1,num

for i in range(n-1):

num=int(input('Enter a number: '))

if num>=max:

max=num

elif num<min:

min=num

count+=1

sum+=num

mean=sum/count

print('Maximum number is:',max,'\nMinimum number is: ',min,'\nMean number is: ',mean)

1. Write a PYTHON program to sum the series ;

-1/U1 + 1/U3 – 1/U5

Ans.

u=int(input('Enter u: '))

sum,sign=0,-1

for i in range(1,6,2):

nr=1

dr=u\*\*i

sum+=(nr/dr)\*sign

sign\*=-1

print(sum)

1. Write a PYTHON program to generate all perfect numbers between 10 and 1000. Also display the mean of all these perfect numbers.

Ans.

sum,count=0,0

for i in range(10,1001):

s=0

for k in range(1,i):

if i%k==0:

s+=k

if s==i:

print(i,end=' ')

count+=1

sum+=i

avg=sum/count

print('\nAverage of the numbers: ',avg)

1. Write a PYTHON program that has menu items : i) convert a given decimal number to its binary form ii) convert a binary number to its decimal form

Ans.

print('''Choose:

1.Decimal to Binary

2. Binary to Decimal ''')

q=int(input('Enter the code from the menu: '))

if q==1:

n=int(input('Enter a decimal: '))

a=0

d=0

while n!=0:

a+=((n%2)\*(10\*\*d))

n//=2

d+=1

print('Binary form is',a)

elif q==2:

n=int(input('Enter binary number: '))

s,i=0,0

while n!=0:

r=n%10

n=n//10

dig=r\*2\*\*i

s+=dig

i+=1

print('Decimal number is',s)

1. Write a menu driven PYTHON program with menu items 1) 12 – hour mode 2) 24 – hour mode 3) Exit. The program has to accept 2 times in hrs and minutes and a choice ( 1 or 2 or 3) and display the sum of these two times . Perform this as long the user wishes to continue.(use while loop)

Ans.

h1=int(input("enter the hour"))

m1=int(input("enter the minute"))

h2=int(input("enter the hour"))

m2=int(input("enter the minute"))

sum=h1\*3600+h2\*3600+m1\*60+m2\*60

s=sum%60

sum//=60

m=sum%60

sum//=60

h=sum

print('''Time conversion

1) 12 – hour mode

2) 24 – hour mode

3) Exit''')

while True:

ch=int(input("Enter your choice"))

if ch==1:

if h>=12:

h-=12

print(h,":",m,":",s,"PM")

else:

print(h,":",m,":",s,"AM")

elif ch==2:

print(h,":",m,":",s)

elif ch==3:

break

1. Write a PYTHON program to display the first ‘n’ numbers of the Fibonacci series and factorial of each of the numbers

Ans.

n=int(input('How many values? '))

a=-1

b=1

for i in range(n):

c = a + b

a = b

b = c

f=1

for j in range(1,c+1):

f\*=j

print(c,f)

1. Write a PYTHON program to display all the palindrome numbers between 1000 and 5000.

Ans.

for i in range(1000,5001):

if i==int(str(i)[::-1]):

print(i,end=' ')

1. Generate the following pattern using nested loops :

8

86

864

8642

Ans.

for i in range(4):

for k in range(i+1):

s=(4-k)\*2

print(s,end=' ')

print()

1. Generate the following pattern using nested loops :

ABCDE

ABCD

ABC

AB

A

Ans.

for i in range(5, 0, -1):

for j in range(65, 65+i):

a = chr(j)

print(a, end="")

print()

1. Generate the following pattern using nested loops :

55555

4444

333

22

1

Ans.

for i in range(5, 0, -1):

for j in range(0, i):

print(i, end="")

print()

1. Generate the following pattern using nested loops :

A65

AB66

ABC67

ABCD68

ABCDE69

Ans.

ch="A"

num=65

for i in range(1,6):

for k in range(i):

char=chr(ord(ch)+k)

num=ord(char)

print(char,end='')

print(num)