**Hands-on Session 21.7.20 FN**

**Exercises**

1. Find the **compound interest** for the given p,n,i (formula : p(1+n\*r/100)n )
2. Convert **centegrade to farenheit**  ( f= 9/5\*c+32)
3. Find the greater of two nos
4. Write a program for finding **surface areas of cylinder and cone** (2\*PI\*r\*h, 1/3\*PI\*r\*r\*h) using function.
5. Find the greatest of four nos (using **and** operator) using function.
6. Write a menu program to find **Area-Circle, Circumference-Circle, Area- Square, Circumference-Square** using functions with menu choice

**Evaluation Key for Day 1 sesson 1 Exercises**

**1. Find the compound interest for the given p,n,i (formula : p(1+n\*r/100)n )**

p=int(input("enter value for p:"))

r=int(input("enter value for r:"))

n=int(input("enter value for n:"))

ci=p\*(1+n\*r/100)\*\*n

print("the compound interest is {0:.2f}".format(ci))

**2. Convert centegrade to farenheit ( f= 9/5\*c+32)**

c=int(input("enter value for c"))

f=9/5\*c+32

print("then no in farenheit is {0:.2f}".format(f))

**3. Find the greater of two nos**

a=int(input("enter value for a:"))

b=int(input("enter value for b:"))

if (a>b):

print("{0} is greater than {1}".format(a,b))

else:

print("{0} is greater than {1}".format(b,a))

**4. Write a program for finding surface areas of cylinder and cone (2\*PI\*r\*h, 1/3\*PI\*r\*r\*h) using function.**

import math

def area\_cyl(r,h):

return 2\*math.pi\*r\*h

def area\_co(r,h):

return 1/3\*math.pi\*r\*r\*h

r=int(input("enter the radius"))

h=int(input("enter the height"))

print("surface area of cylinder : {0:.2f}".format(area\_cyl(r,h)))

print("surface area of cone : {0:.2f}".format(area\_co(r,h)))

**5. Find the greatest of four nos (using and operator) using function.**

def great4(n1,n2,n3,n4):

if((n1>n2)and(n1>n3)and(n1>n4)):

return n1

elif((n2> n3)and(n2>n4)):

return n2

elif((n3 >n4)):

return n3

else:

return n4

n1=int(input("enter first value"))

n2=int(input("enter second value"))

n3=int(input("enter third value"))

n4=int(input("enter fourth value"))

print("the greatest of all 4 nos is:{0}".format(great4(n1,n2,n3,n4)))

**6. Write a menu program to find Area-Circle, Circumference-Circle, Area- Square, Circumference-Square using functions with menu choice**

import cmath

loop = 1

def acircle(r):

return cmath.pi\*r\*r

def ccircle(r):

return 2\*cmath.pi\*r

def asquare(s):

return s\*s

def csquare(s):

return 4\*s

while loop ==1:

print ("your options are:")

print (" ")

print ("1) area of circle")

print ("2) circumference of circle")

print ("3) area of square")

print ("4) circumference of square")

print ("5) Quit ")

print (" ")

choice = int(input("Choose your option: "))

if choice == 1:

r= int(input("enter the radius:"))

print ("The area of the circle is {0:.2f}".format(acircle(r)))

elif choice == 2:

r= int(input("enter the radius "))

print ("The circumference of the circle is {0:.2f}".format(ccircle(r)))

elif choice == 3:

s=int(input("enter side"))

print("The area of the square is {0}".format(asquare(s)))

elif choice == 4:

s=int(input("enter side"))

print("The circumference of the square is {0}".format(csquare(s)))

elif choice == 5:

loop = 0

**Test-Exercises**

**Hands-on Session 21.7.20 FN**

**Evaluation Key for Day 1 sesson 2 Exercises**

**1 Write a program to print the triangle**

i/p 4

1

1 2

1 2 3

1 2 3 4

**2 Write a program to print the triangle**

i/p 4

1

2 3

4 5 6

7 8 9 10

**3 Enter number 4**

\*

\* \*

\* \* \*

\* \* \* \*

**4. Enter number 5**

5

4 5

3 4 5

2 3 4 5

1 2 3 4 5

5 **Enter number 5**

5 4 3 2 1

4 3 2 1

3 2 1

2 1

1

**String Exercises**

6. Find the length of a string without using len functions

7. Find the no of words and characters in a string

8. Find the no of occurrences of a word in a string

**Hands-on Session 21.7.20 FN**

**Evaluation Key for Day 1 sesson 2 Exercises**

**1.**

# Function to demonstrate printing pattern of numbers

def numpat(n):

num = 1

for i in range(0, n):

num = 1

for j in range(0, i+1):

print(num, end=" ")

num = num + 1

print("\n")

n = 4

numpat(n)

2.

# Function to demonstrate printing pattern of numbers

def numpat(n):

num = 1

for i in range(0, n):

for j in range(0, i+1):

print(num, end=" ")

num = num + 1

print("\n")

n = 4

numpat(n)

3.

# Function to demonstrate printing pattern of numbers

def numpat(n):

num = 1

for i in range(0, n):

for j in range(0, i+1):

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

print("\n")

n = 4

numpat(n)

4.

# Function to demonstrate printing pattern of numbers

def numpat(n):

num = n+1

for i in range(0, n):

num=num-1

n1=num

for j in range(0, i+1):

print(n1, end=" ")

n1=n1+1

print("\n")

n = 5

numpat(n)

5.

# Function to demonstrate printing pattern of numbers

def numpat(n):

for i in range(0, n):

num=n

for j in range(0, n):

print(num, end=" ")

num=num-1

print("\n")

n=n-1

n = 5

numpat(n)

6.

string=input("Enter string:")

count=0

for i in string:

count=count+1

print("Length of the string is:"+str(count))

7.

string=input("Enter string:")

char=0

word=1

for i in string:

char=char+1

if(i==' '):

word=word+1

print("Number of words in the string:")

print(word)

print("Number of characters in the string:")

print(char)

8.

string=input("Enter string:")

word=input("Enter word:")

a=[]

count=0

a=string.split(" ")

for i in range(0,len(a)):

if(word==a[i]):

count=count+1

print("Count of the word is:")

print(count)

**Hands-on Session 22.7.20 FN**

**Evaluation Key for Day 2 sesson 1 Exercises**

1. print multiples of 3 upto 200 using a list
2. print the nos only divisable by 5 and 7 between 1000 and 2000 using a list( both inclusive)
3. Add the n number of names in a list and print them alphabetically and reverse alphabetically.
4. Print perfect squares and divisible by 5 between 500 and 1000( (both inclusive) using list comprehension
5. Calculate the Average of the numbers in a List by getting the elements of list from keyboard .
6. Print lists of odd,even and multiples of 5 numbers from 1 to 1000 using list comprehension

**Hands-on Session 22.7.20 FN**

**Evaluation Key for Day 2 sesson 1 Exercises**

1. **print multiples of 3 upto 200 using a list**

a=[]

a=[3\*x for x in range(1,200)]

print("the multiples of 3 are:",a)

1. **print the nos only divisable by 5 and 7 between 1000 and 2000 using a list( both inclusive)**

a=[]

a=[x for x in range(1000,2000)]

div5=[]

div7=[]

for i in a:

if(i%5==0):

div5.append(i)

elif(i%7==0):

div7.append(i)

print("no divisible by 5",div5)

print("no divisible by 7",div7)

1. **Add the n number of names in a list and print them alphabetically and reverse alphabetically.**

a=[]

n=int(input("enter the no of names"))

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

b=input("enter a name:")

a.append(b)

a.sort()

print(a)

a.reverse()

print(a)

1. **Print perfect squares and divisible by 5 between 500 and 1000( (both inclusive) using list comprehension**

import math

a=[]

a=[ x for x in range(500,1001) if(math.sqrt(x)%5 == 0)]

a.append(x)

print(a)

1. **Calculate the Average of the numbers in a List by getting the elements of list from keyboard .**

# Python Program to Calculate the Average of Numbers in a Given List.

n=int(input("Enter the number of elements to be inserted: "))

a=[]

for i in range(0,n):

elem=int(input("Enter element: "))

a.append(elem)

avg=sum(a)/n

print("Average of elements in the list",round(avg,2))

1. **Print lists of odd,even and multiples of 5 numbers from 1 to 1000 using list comprehension**

# print odd even multiple of 5 between 1 and 1000

print("Odd series ")

print([x for x in range(1,1001) if x % 2 != 0])

print("Even series ")

print([x for x in range(1,1001) if x % 2 == 0])

print(" Multiples of 5 series ")

print([x for x in range(1,1001) if x % 5== 0])

**Hands-on Session 22.7.20 FN**

**Evaluation Key for Day 2 sesson 1 Exercises**

**Tuples Exercises-**

#### 1. Python Program to Create a List of Tuples with the First Element as the Number and Second Element as the Square of the Number

2. Write python program to have a list of words to sort them from shortest to longest using list of tuples

3.Write python program to get a list of tuples of Rollno,Name for 5 students through keyboard and sort them Rollno wise ascending order

4.Write python program to get a list of tuples of Rollno,Name for 5 students through keyboard and sort them by Rollno wise descending order

5.Write python program to get a list of tuples of Rollno,Name for 5 students through keyboard and sort them by Name wise ascending order

6.Write python program to get a list of tuples of Rollno,Name for 5 students through keyboard and sort them by Name wise descending order

**Evaluation Key for Day 2 sesson 1 Exercises**

**Evaluation key**

#### **1. Python Program to Create a List of Tuples with the First Element as the Number and Second Element as the Square of the Number**

l\_range=int(input("Enter the lower range:"))

u\_range=int(input("Enter the upper range:"))

a=[(x,x\*\*2) for x in range(l\_range,u\_range+1)]

print(a)

**2. Write python program to have a list of words to sort them from shortest to longest using list of tuples**

txt = 'but soft what light in yonder window breaks'

words = txt.split()

t = list()

for word in words:

t.append((len(word), word))

t.sort()

res = list()

for length, word in t:

res.append(word)

print res

**3.Write python program to get a list of tuples of Rollno,Name for 5 students through keyboard and sort them Rollno wise ascending order**

#Write python program to get a list of tuples of Rollno,Name for 5 students through keyboard

#and sort them Rollno wise ascending order

l=[]

for i in range(5):

no=int(input("Enter student Rollno "))

na=input("Enter student name")

l.append((no,na))

print(l)

import operator

l.sort(key = operator.itemgetter(0))

print("sort first element ascending using itemgetter ")

print(l)

**4.Write python program to get a list of tuples of Rollno,Name for 5 students through keyboard and sort them by Rollno wise descending order**

#Write python program to get a list of tuples of Rollno,Name for 5 students through keyboard

#and sort them Rollno wise descending order

l=[]

for i in range(5):

no=int(input("Enter student Rollno "))

na=input("Enter student name")

l.append((no,na))

print(l)

import operator

l.sort(key = operator.itemgetter(0),reverse=True)

print("sort first element ascending using itemgetter ")

print(l)

**5.Write python program to get a list of tuples of Rollno,Name for 5 students through keyboard and sort them by Name wise ascending order**

#Write python program to get a list of tuples of Rollno,Name for 6 students through keyboard

#and sort them Name wise ascending order

l=[]

for i in range(6):

no=int(input("Enter student Rollno "))

na=input("Enter student name")

l.append((no,na))

print(l)

import operator

l.sort(key = operator.itemgetter(1))

print("sort first element ascending using itemgetter ")

print(l)

**6.Write python program to get a list of tuples of Rollno,Name for 5 students through keyboard and sort them by Name wise descending order**

#Write python program to get a list of tuples of Rollno,Name for 6 students through keyboard

#and sort them Name wise descending order

l=[]

for i in range(6):

no=int(input("Enter student Rollno "))

na=input("Enter student name")

l.append((no,na))

print(l)

import operator

l.sort(key = operator.itemgetter(1),reverse=True)

print("sort first element ascending using itemgetter ")

print(l)

**Evaluation Key for Day 2 sesson 2 Exercises**

**Hands-on Session 22.7.20 FN**

**Exercises- Tests**

1. Add rollno and marks {name:mark} for n number of students through keyboard in a dictionary and print the marks in descending order with respective name.
2. Add name and salary {name:salary} for n number of employees through keyboard in a dictionary and print them in name alphabetical order with salary
3. Add name and salary {name:salary} for n number of employees through keyboard in a dictionary and print them in salary ascending order and sum, max, min and average of the salaries
4. Add name and salary {name:salary} for n number of employees through keyboard in a dictionary and print only the employees whose salary is greater than 2000 but less than 4000
5. Python program to convert a 3 digit number into words

**Hands-on Session 22.7.20 FN**

**Evaluation Key for Day 2 sesson 2 Exercises**

**Evaluation key**

1. **Add rollno and marks {name:mark} for n number of students through keyboard in a dictionary and print the marks in descending order with respective name.**

#Add name and marks {name:mark} for n number of students through keyboard in a dictionary and

#print the marks in descending order with respective name.

n=int(input("Enter no of records"))

d={}

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

name= input("Enter name %d"%(i))

mark=int(input("Enter mark %d"%(i)))

d[name]=mark

print (d)

import operator

l= sorted(d.items(), key=operator.itemgetter(1),reverse=True)

print(l)

1. **Add name and salary {name:salary} for n number of employees through keyboard in a dictionary and print them in name alphabetical order with salary**

#Add name and salary {name:salary} for n number of employees through keyboard in a dictionary

#and print them in name alphabetical order with salary

n=int(input("Enter no of records"))

d={}

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

name= input("Enter name %d"%(i))

sal=int(input("Enter salary %d"%(i)))

d[name]=sal

print (d)

import operator

l= sorted(d.items(), key=operator.itemgetter(0))

print(l)

1. **Add name and salary {name:salary} for n number of employees through keyboard in a dictionary and print them in salary ascending order and sum, max, min and average of the salaries**

# Add name and salary {name:salary} for n number of employees through keyboard in a dictionary

#and print the sum, max, min and average of the salaries

n=int(input("Enter no of records"))

d={}

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

name= input("Enter name %d"%(i))

sal=int(input("Enter salary %d"%(i)))

d[name]=sal

print (d)

import operator

l= sorted(d.items(), key=operator.itemgetter(1))

print(l)

print('Minimum',l[0])

print('Maximum',l[n-1])

print('Sum',sum(d.values()))

1. **Add name and salary {name:salary} for n number of employees through keyboard in a dictionary and print only the employees whose salary is greater than 2000 but less than 4000**

# Add name and salary {name:salary} for n number of employees through keyboard in a #dictionary and print only the employeeswhose salary is greater than 2000 but less than 4000

n=int(input("Enter no of records"))

d={}

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

name= input("Enter name %d"%(i))

sal=int(input("Enter salary %d"%(i)))

d[name]=sal

print (d)

l=[(k,v) for (k,v) in d.items() if v>2000 and v<4000]

print(l)

1. **Python program to convert a 3 digit number into words**

#Python program to convert 3 digit number into words

def inttoword(num):

if (num<=20):

print(d[num])

if(num>20 and num<100):

if num%10==0:

print(d[num])

else:

print(d[num//10\*10]+" "+d[num%10])

if(num>=100 and num<1000):

if num%100==0:

print(d[num//100]+" "+d[100])

if (num%100!=0 and (num%100)%10==0):

print(d[num//100]+" "+d[100]+" "+d[( num%100)])

elif (num%100!=0) and ((num%10)%10!=0):

print(d[num//100]+" "+d[100]+" "+d[(num%100)-(num%10)]+" "+d[num%10])

return

d={0:'',1:'one',2:'two',3:'three',4:'four',5:'five',6:'six',7:'seven',8:'eight',9:'nine',\

10:'ten',11:'eleven',12:'twelve',13:'thirteen',14:'fourteen',15:'fifteen',16:'sixteen',\

17:'seventeen',18:'eightteen',19:'nineteen',20:'twenty',30:'thirty',40:'fourty',50:'fifty',\

60:'sixty',70:'seventy',80:'eighty',90:'ninty',100:'hundred'}

num=int(input("Enter the integer between 1 to 99:"))

inttoword(num)

**Hands-on Session 22.7.20 FN**

**Evaluation Key for Day 2 sesson 2 Exercises**

**Exercises – Test**

1. Python Program to count the total number of charaters (except blank space) in a text file.
2. Python Program to print all the numbers present in a text file with its total number of occurrence.
3. Python Program to append the contents of one file to another file by getting the both file names through keyboard .
4. Python Program to count the number of blank spaces in a text file.
5. Python Program to read a file and capitalize the first letter of every word in the file and copy the every word capitalized content into another file and read it .

**Evaluation Key for Day 2 sesson 2 Exercises**

**Evaluation key( As the exercises are done in google colab , there will be minor changes in the key for getting files in colab|)**

1. **Python Program to count the total number of charaters (except blank space) in a text file.**

#Program to count the occurrences of a letter in a text file.

fname = input("Enter file name: ")

num\_words = 0

ccount=0

with open(fname, 'r') as f:

for line in f:

words = line.split()

for w in words:

for ch in w:

ccount=ccount+1

print("Number of character:")

print(ccount)

1. **Python Program to print all the numbers present in a text file with its total number of occurrence.**

#Program to count the occurrences of a numbers in a text file.

fname = input("Enter file name: ")

num = 0

ccount=0

with open(fname, 'r') as f:

for line in f:

words = line.split()

for w in words:

if w.isdigit():

print(w)

num+=1

print("Total occurenece of numbers are:")

print(num)

1. **Python Program to append the contents of one file to another file by getting the both file names through keyboard .**

# Python Program to append the contents of one file

#to another file by getting the both file names through keyboard .

rfile=input('Enter the file to be read')

wfile=input('Enter the file to be appended with')

with open(rfile,"r") as f:

with open(wfile,"a") as f1:

for line in f:

f1.write(line)

f.close()

f1.close()

with open(wfile,"r") as f:

for line in f:

print(line)

1. **Python Program to count the number of blank spaces in a text file.**

#Program to count the occurrences of blank spaces in a text file.

fname = input("Enter file name: ")

n= 0

t=0

ccount=0

with open(fname, 'r') as f:

for line in f:

n = line.count(' ')

t+=n

print("Number of blank spaces are:")

print(t)

1. **Python Program to read a file and capitalize the first letter of every word in the file and copy the every word capitalized content into another file and read it .**

fname = input("Enter file name: ")

f1=open("d.txt","w")

ccount=0

with open(fname, 'r') as f:

for line in f:

l= line.title()

f1.write(l)

f1.close()

with open("d.txt", 'r') as f1:

for line in f1:

print(line)