

Course Outcome 1 (CO1)

2. Display future leap years from current year to a final year entered by user.

Program

```
>>> print ("Enter year")
```

Enter year

```
>>> endYear = int(input())
```

2030

```
>>> startYear =2020
```

```
>>> print ("List of leap years:")
```

List of leap years:

```
>>> for year in range(startYear, endYear):
```

```
    if (0 == year % 4) and (0 != year % 100) or (0 == year % 400):
```

```
        print (year)
```

2020

2024

2028

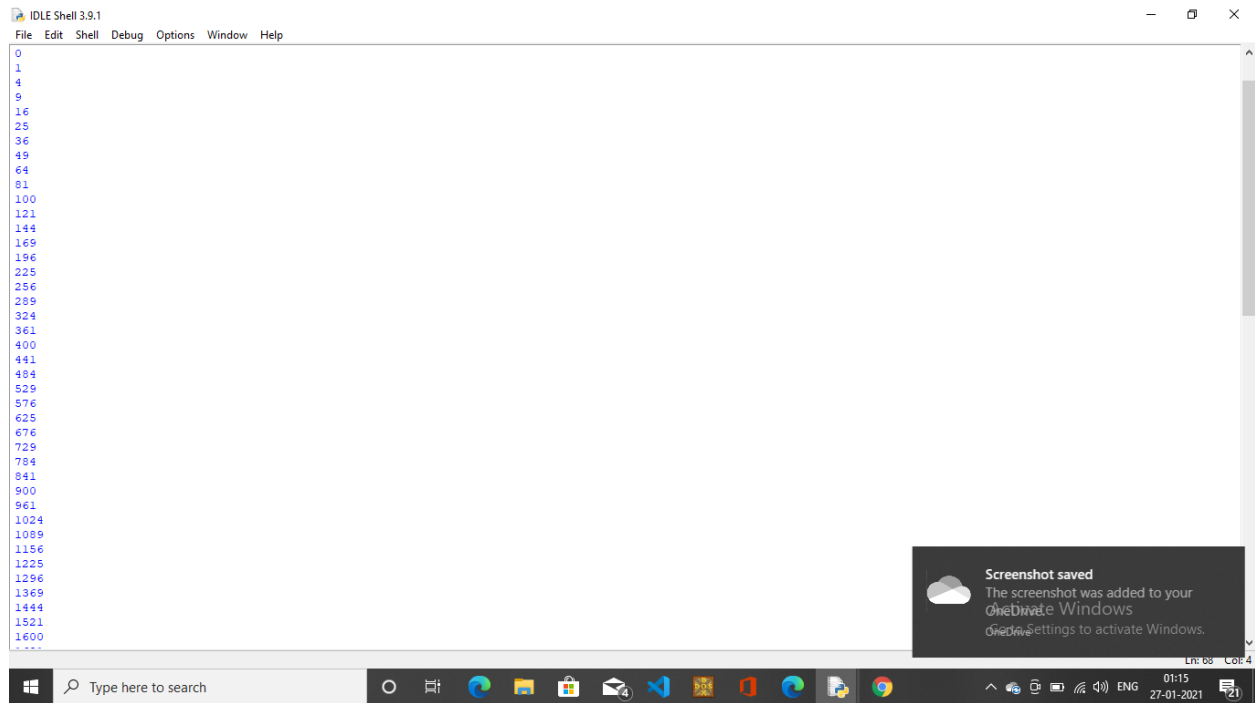
3. List comprehensions:

(b) Square of N numbers

Program

```
for x in range(100):
```

```
    Print(x**2)
```

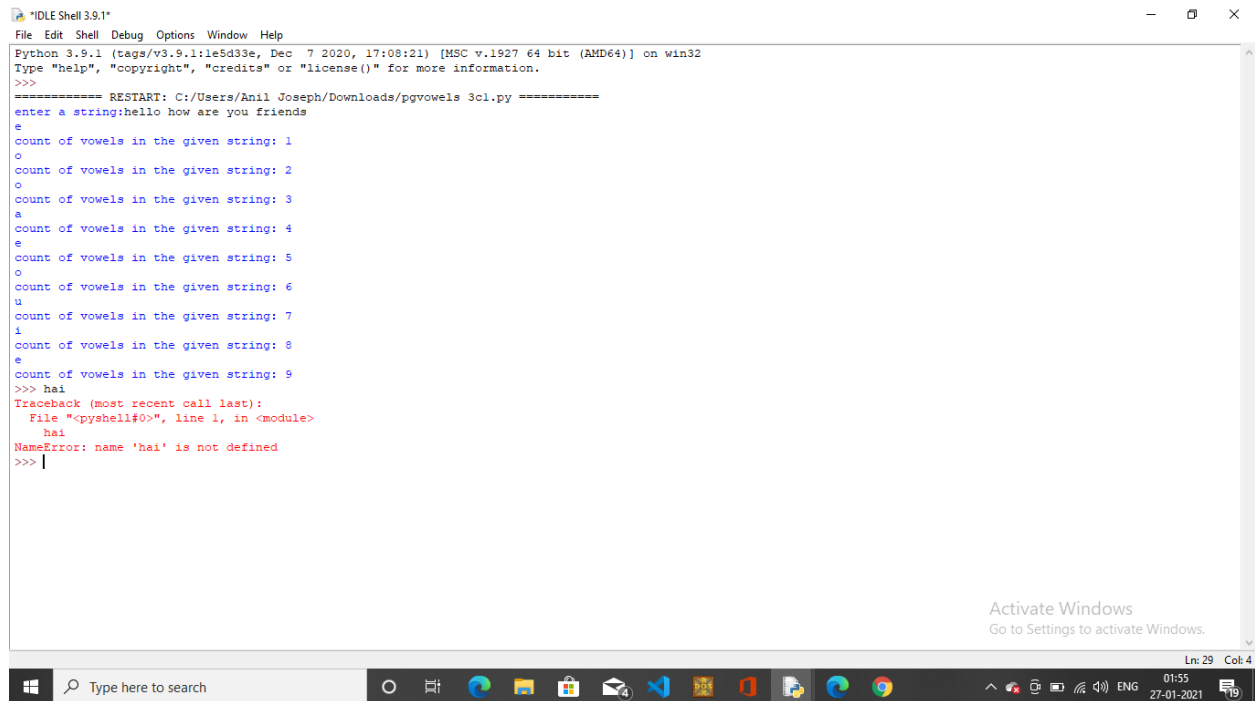


(c) Form a list of vowels selected from a given word

Program

```
str1=input("enter a string:")
str1_lower=str1.lower()
vowels="aeiou"
count=0
for i in str1_lower:
    if i in vowels:
        count=count+1
        print(i)
    print("count of vowels in the given string:",count)
```

output



```
Python 3.9.1 (tags/v3.9.1:11e5d33e, Dec 7 2020, 17:08:21) [MSC v.1927 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: C:/Users/Anil Joseph/Downloads/pgvowels 3cl.py =====
enter a string:hello how are you friends
e
count of vowels in the given string: 1
o
count of vowels in the given string: 2
o
count of vowels in the given string: 3
a
count of vowels in the given string: 4
e
count of vowels in the given string: 5
o
count of vowels in the given string: 6
u
count of vowels in the given string: 7
i
count of vowels in the given string: 8
e
count of vowels in the given string: 9
>>> hai
Traceback (most recent call last):
  File "<pyshell#0>", line 1, in <module>
    hai
NameError: name 'hai' is not defined
>>> |
```

4. Count the occurrences of each word in a line of text.

Program

```
def word_count(str):
```

```
    counts = dict()
```

```
    words = str.split()
```

```
    for word in words:
```

```
        if word in counts:
```

```
            counts[word] += 1
```

```
        else:
```

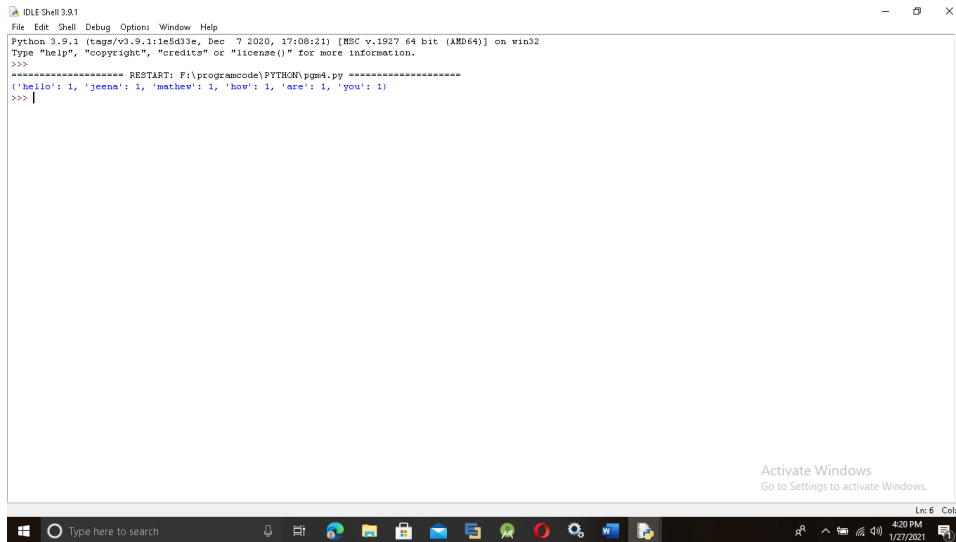
```
            counts[word] = 1
```

```
    return counts
```

```
print( word_count('hello Jeena mathew how are you'))
```

output---

```
{'hello': 1, 'jeena': 1, 'mathew': 1, 'how': 1, 'are': 1, 'you': 1}
```



```
IDLE Shell 3.9.1
File Edit Shell Debug Options Window Help
Python 3.9.1 (tags/v3.9.1:1e5d33e, Dec 7 2020, 17:08:21) [MSC v.1927 64 bit (AMD64)] on win32
Type "help", "copyright", "credits() or "license()" for more information.
>>>
===== RESTART: F:\programcode\PYTHON\pgm4.py =====
{'hello': 1, 'jeena': 1, 'mathew': 1, 'how': 1, 'are': 1, 'you': 1}
>>>
```

6. Store a list of first names. Count the occurrences of 'a' within the list

Program

```
test_str = "jeena mathew thekkidayil house"
```

```
>>> count = 0
```

```
>>> for i in test_str:
```

```
    if i=='a':
```

```
        count = count+1
```

```
    print("cont of a in jeena mathew thekkidayil house:" + str(count))
```

Output

cont of a in jeena mathew thekkidayil house : 3

```
IDLE Shell 3.9.1
File Edit Shell Debug Options Window Help
Python 3.9.1 (tags/v3.9.1:1e5d33e, Dec 7 2020, 17:08:21) [MSC v.1927 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> test_str = "jeena mathew thekkidayil house"
>>> count = 0
>>> for i in test_str:
    if i=='a':
        count = count+1
        print("count of a in jeena mathew thekkidayil house:"+ str(count))

count of a in jeena mathew thekkidayil house:1
count of a in jeena mathew thekkidayil house:2
count of a in jeena mathew thekkidayil house:3
>>> test_str = "jeena mathew thekkidayil house"
>>> count = 0
>>> for i in test_str:
    if i=='a':
        count = count+1
        print("count of a in jeena mathew thekkidayil house:" + str(count))

>>>
>>>
===== RESTART: C:/Users/Anil Joseph/AppData/Local/Programs/Python/Python39/6.py =====
count of a in jeena mathew thekkidayil house : 3
>>> |
```

7. Enter 2 lists of integers. Check (a) Whether list are of same length (b) whether list sums to same value

(c) whether any value occur in both

Program

```
def lists():
    list1=[]
    list2=[]
    list3=[]
    n1=int(input("total number of elements in list 1:"))
    for i in range(n1):
        val=int(input("enter a number:"))
        list1.append(val)
    n2=int(input("total number of elements in the list 2:"))
    for i in range(n2):
        val=int(input("enter a number:"))
        list2.append(val)
    if(n1==n2):
        print("list are of same length")
    else:
```

```
print("list are not same length:")
if(sum(list1)==sum(list2)):
    print("sum value is same")
else:
    print("sum value is not same")
list3=[each for each in list1 if each in list2]
print("values in the both lists are:",list3)
Lists()
```

Output

total number of elements in list 1:4

enter a number:5

enter a number:6

enter a number:2

enter a number:4

total number of elements in the list 2:5

enter a number:2

enter a number:5

enter a number:7

enter a number:8

enter a number:9

list are not same length:

sum value is not same

values in the both lists are: [5, 2]

8. Get a string from an input string where all occurrences of first character replaced with '\$', except first character.

[eg: onion -> oni\$n]

Program

Type "help", "copyright", "credits" or "license()" for more information.

```
>>> def change_char(str1):
```

```
    char = str1[0]
```

```
    str1 = str1.replace(char, '$')
```

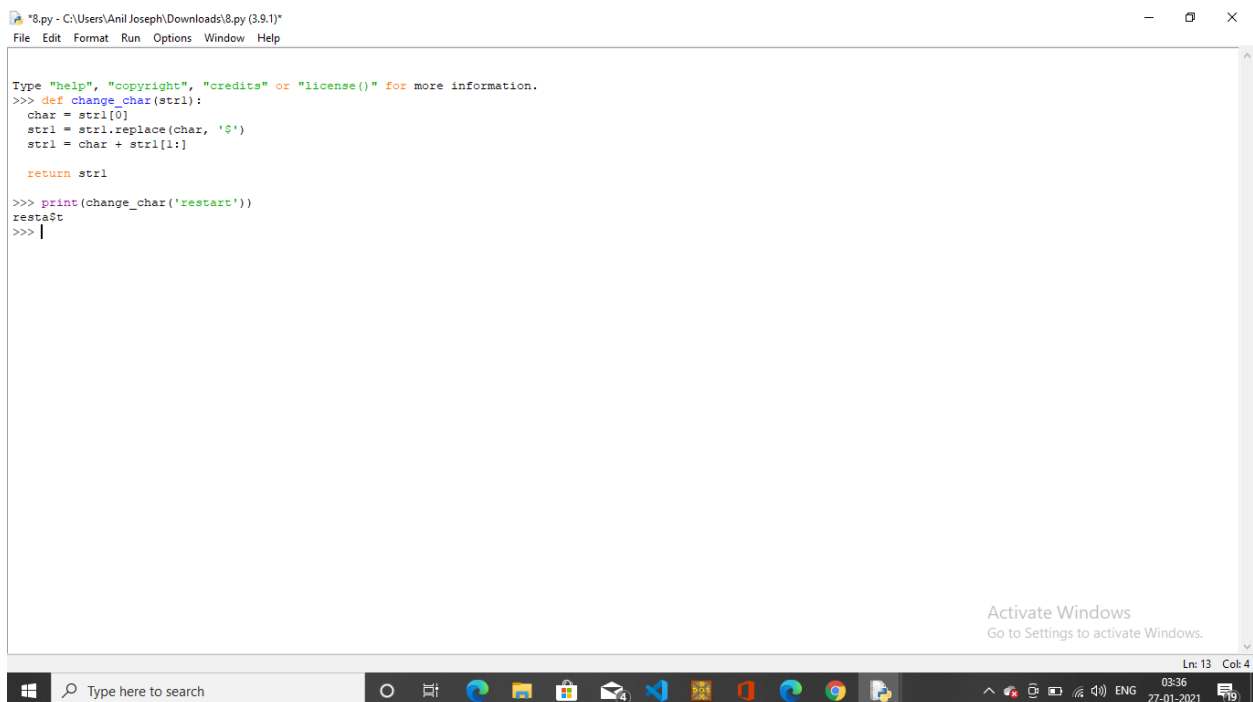
```
    str1 = char + str1[1:]
```

```
    return str1
```

```
>>> print(change_char('restart'))
```

```
resta$t
```

```
>>>
```

A screenshot of a Python 3.9.1 IDLE window. The title bar reads '*8.py - C:\Users\Anil Joseph\Downloads\8.py (3.9.1)'. The menu bar includes File, Edit, Format, Run, Options, Window, and Help. The main text area contains the following code:

```
Type "help", "copyright", "credits" or "license()" for more information.
>>> def change_char(str1):
    char = str1[0]
    str1 = str1.replace(char, '$')
    str1 = char + str1[1:]

    return str1

>>> print(change_char('restart'))
resta$t
>>> |
```

The status bar at the bottom right shows 'Ln: 13 Col: 4'. An 'Activate Windows' watermark is visible in the bottom right corner of the window.

9. Create a string from given string where first and last characters exchanged. [eg: python -> nythop]

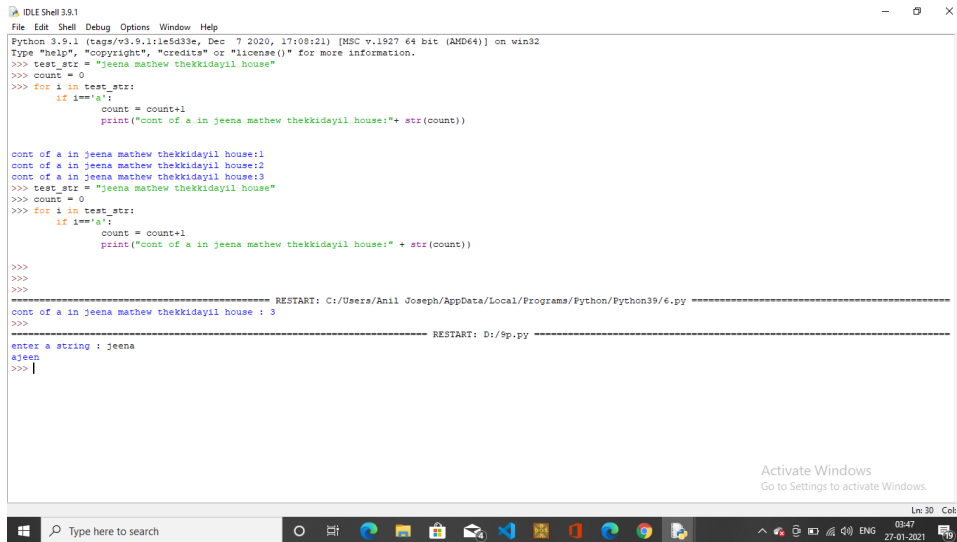
Program

```
str = input("enter a string :")  
new_str=str[-1:]+str[1:-1]+str[:1]  
print(new_str)
```

Output

enter a string : jeena

ajeen



The screenshot shows an IDLE Shell window with the following content:

```
Python 3.9.1 (tags/v3.9.1:11e5d33e, Dec 7 2020, 17:08:21) [MSC v.1927 64 bit (AMD64)] on win32  
Type "help", "copyright", "credits" or "license()" for more information.  
>>> test_str = "jeena mathew thekkidayil house"  
>>> count = 0  
>>> for i in test_str:  
    if i=='a':  
        count = count+1  
        print("cont of a in jeena mathew thekkidayil house:" + str(count))  
  
cont of a in jeena mathew thekkidayil house:1  
cont of a in jeena mathew thekkidayil house:2  
cont of a in jeena mathew thekkidayil house:3  
>>> test_str = "jeena mathew thekkidayil house"  
>>> count = 0  
>>> for i in test_str:  
    if i=='a':  
        count = count+1  
        print("cont of a in jeena mathew thekkidayil house:" + str(count))  
  
>>>  
>>>  
===== RESTART: C:/Users/Anil Joseph/AppData/Local/Programs/Python/Python39/6.py =====  
cont of a in jeena mathew thekkidayil house : 3  
>>>  
===== RESTART: D:/9p.py =====  
enter a string : jeena  
ajeen  
>>> |
```

10. Accept the radius from user and find area of circle.

Program

```
import math  
r = float(input("enter the radius of the circle:"))  
area = math.pi*r*r  
print("%.2f" %area)
```



```
IDLE Shell 3.9.1
File Edit Shell Debug Options Window Help
Python 3.9.1 (tags/v3.9.1:11e5d33e, Dec 7 2020, 17:08:21) [MSC v.1927 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>> test_str = "jeena mathew thekkidayil house"
>>> count = 0
>>> for i in test_str:
    if i=='a':
        count = count+1
        print("count of a in jeena mathew thekkidayil house:"+ str(count))

count of a in jeena mathew thekkidayil house:1
count of a in jeena mathew thekkidayil house:2
count of a in jeena mathew thekkidayil house:3
>>> test_str = "jeena mathew thekkidayil house"
>>> count = 0
>>> for i in test_str:
    if i=='a':
        count = count+1
        print("count of a in jeena mathew thekkidayil house:" + str(count))

>>>
>>>
>>>
===== RESTART: C:/Users/Anil Joseph/AppData/Local/Programs/Python/Python39/6.py =====
count of a in jeena mathew thekkidayil house : 3
>>>
===== RESTART: D:/9p.py =====
enter a string : jeena
ajeen
>>>
===== RESTART: C:/Users/Anil Joseph/pp10.py =====
enter the radius of the circle:3
28.27
>>>
```

14. Accept an integer n and compute n+nn+nnn.

Program

```
n=int(input("enter a number n:"))
temp=str(n)
t1=temp+temp
t2=temp+temp+temp
comp=n+int(t1)+int(t2)
print("the value is:",comp)
```

Output

```
enter a number n:5
the value is: 615
```

17. Sort dictionary in ascending and descending order.

Program

```

import operator
d = {1: 2, 3: 4, 4: 3, 2: 1, 0: 0}
print('dictionary : ',d)
s= sorted(d.items(), key=operator.itemgetter(1))
print('ascending order : ',s)
s1= dict( sorted(d.items(), key=operator.itemgetter(1),reverse=True))
print('descending order : ',s1)

```

Output

```

dictionary : {1: 2, 3: 4, 4: 3, 2: 1, 0: 0}
ascending order : [(0, 0), (2, 1), (1, 2), (4, 3), (3, 4)]
descending order : {3: 4, 4: 3, 1: 2, 2: 1, 0: 0}

```

The screenshot shows the IDLE Shell 3.9.1 interface. The command prompt displays the following output:

```

Python 3.9.1 (tags/v3.9.1:1e5d33e, Dec 7 2020, 17:08:21) [MSC v.1927 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/pp101.py =====
dictionary : {1: 2, 3: 4, 4: 3, 2: 1, 0: 0}
ascending order : [(0, 0), (2, 1), (1, 2), (4, 3), (3, 4)]
descending order : {3: 4, 4: 3, 1: 2, 2: 1, 0: 0}
>>>

```

The Windows taskbar at the bottom shows the date as 27-01-2021 and the time as 04:11.

18. Merge two dictionaries.

Program

```
x = {'a': 1, 'b': 2}
y = {'b': 10, 'c': 11}
z = x.update(y)
print(z)
print(x)
```

OUTPUT

```
None
{'a': 1, 'b': 10, 'c': 11}
```

19. Find gcd of 2 numbers.

```
num1 = int(input("Enter 1st number: "))
num2 = int(input("Enter 2nd number: "))
i = 1
while(i <= num1 and i <= num2):
    if(num1 % i == 0 and num2 % i == 0):
        gcd = i
        i = i + 1
print("GCD is", gcd)
```

OUTPUT

```
Enter 1st number: 80
```