

## DAY 2 LAB EXPERIMENTS

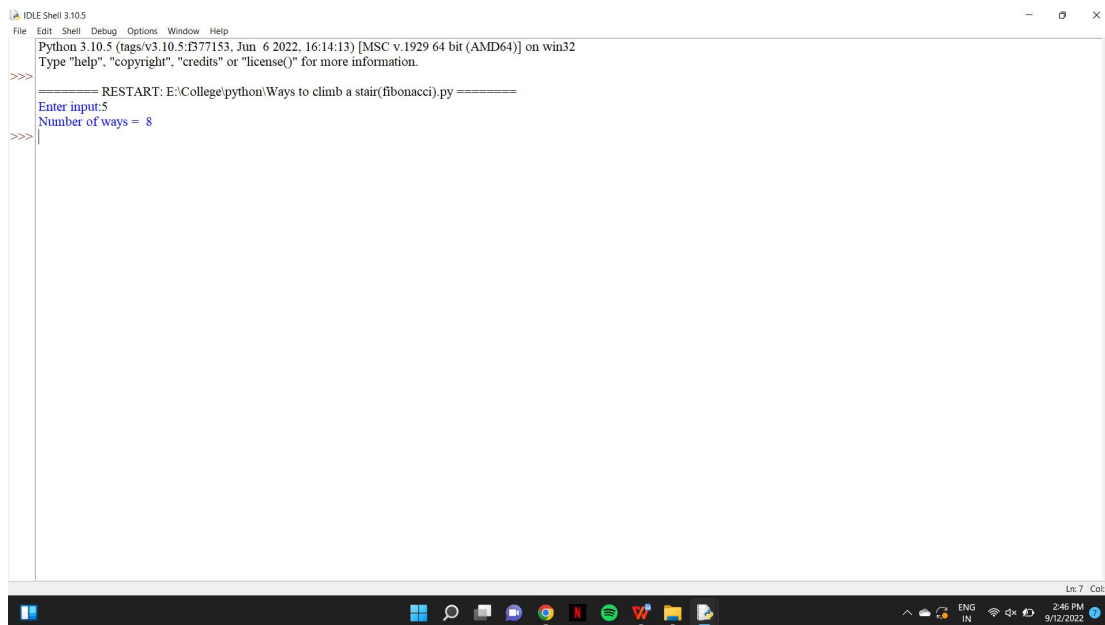
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SUBJECT CODE: CSA0836

```
1) def fib(n):  
    if n <= 1:  
        return n  
    return fib(n-1) + fib(n-2)  
def countWays(s):  
    return fib(s + 1)  
s = int(input("Enter input:"))  
print ("Number of ways = ",countWays(s))
```

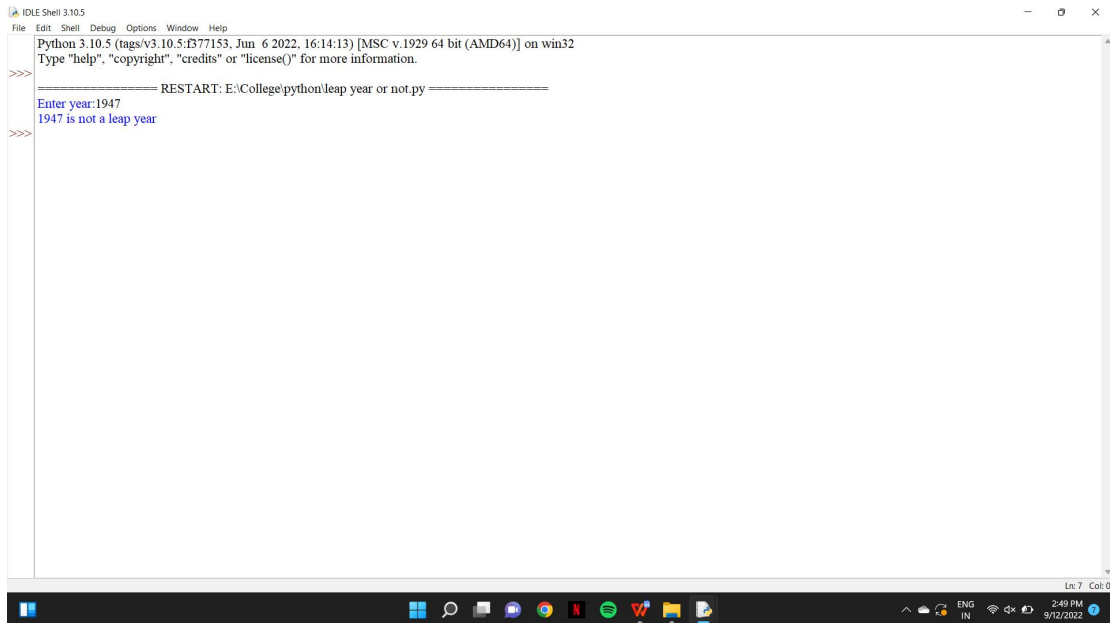
OUTPUT:



```
IDLE Shell 3.10.5  
File Edit Shell Debug Options Window Help  
Python 3.10.5 (tags/v3.10.5:f377153, Jun 6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32  
Type "help", "copyright", "credits" or "license()" for more information.  
>>>  
===== RESTART: E:\College\python\Ways to climb a stair(fibonacci).py =====  
>>> Enter input:5  
Number of ways = 8  
>>>
```

```
2) year=int(input("Enter year:"))  
if (year%400==0):  
    print(year,"is a leap year")  
elif (year%100!=0 and year%4==0):  
    print(year,"is a leap year")  
else:  
    print(year,"is not a leap year")
```

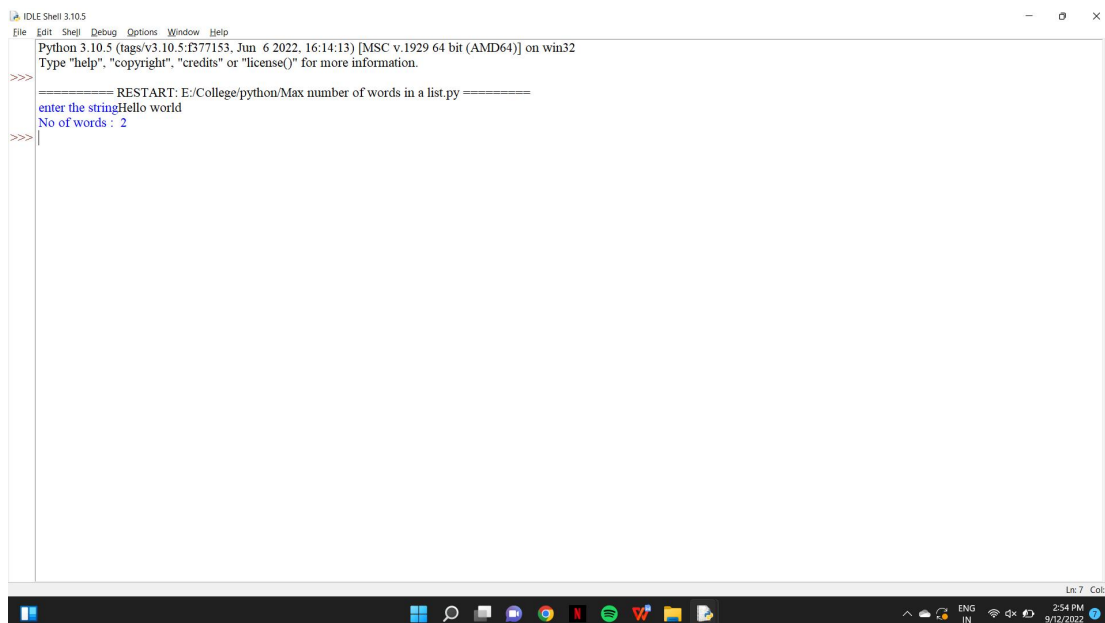
OUTPUT:



```
Python 3.10.5 (tags/v3.10.5:f377153, Jun 6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:\College\python\leap year or not.py =====
Enter year:1947
1947 is not a leap year
>>>
```

```
3) def countWords(s):
    if s.strip() == "":
        return 0
    words = s.split()
    return len(words)
if __name__ == "__main__":
    s = input("enter the string")
    print("No of words : ", countWords(s))
```

OUTPUT:



```
Python 3.10.5 (tags/v3.10.5:f377153, Jun 6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:\College\python\Max number of words in a list.py =====
enter the stringHello world
No of words : 2
>>>
```

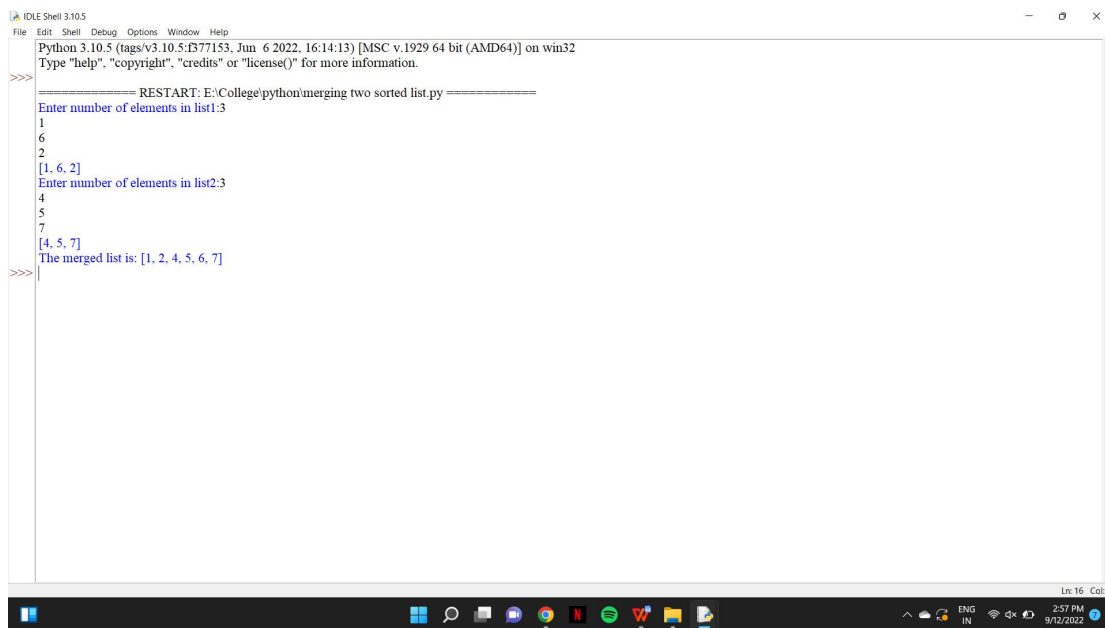
4) lst1=[]

```

lst2=[]
n1=int(input("Enter number of elements in list1:"))
for i in range(0,n1):
    a=int(input())
    lst1.append(a)
print(lst1)
n2=int(input("Enter number of elements in list2:"))
for i in range(0,n2):
    b=int(input())
    lst2.append(b)
print(lst2)
lst3=lst1+lst2
lst3.sort()
print("The merged list is:",lst3)

```

OUTPUT:



```

IDLE Shell 3.10.5
File Edit Shell Debug Options Window Help
Python 3.10.5 (tags/v3.10.5:f377153, Jun 6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:\College\python\merging two sorted list.py =====
Enter number of elements in list1:3
1
6
2
[1, 6, 2]
Enter number of elements in list2:3
4
5
7
[4, 5, 7]
The merged list is: [1, 2, 4, 5, 6, 7]
>>>

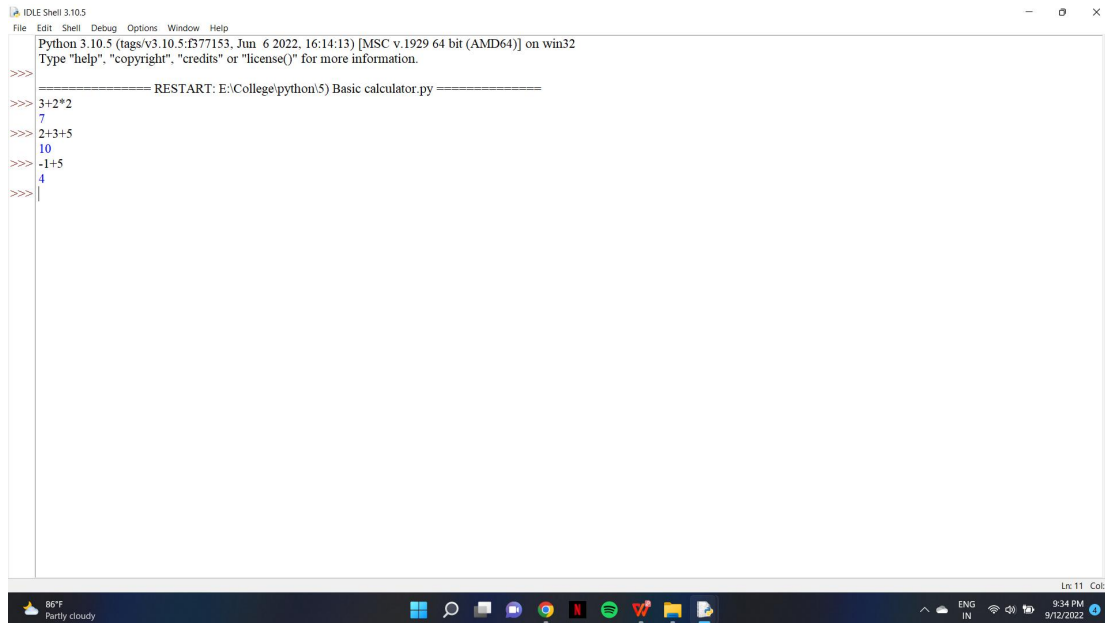
```

```

5) def calculate(self,s):
    """
    :type s: str
    :rtype: int
    """

```

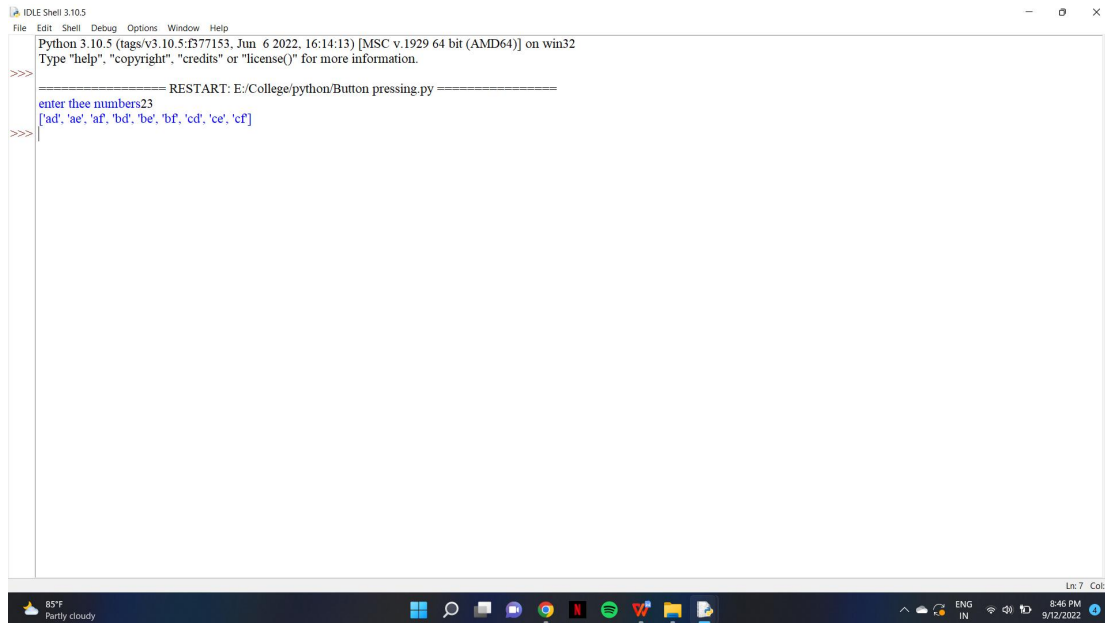
OUTPUT:

A screenshot of an IDE Shell window titled 'IDLE Shell 3.10.5'. The window shows a Python 3.10.5 prompt with several arithmetic calculations: 3+2\*2, 7, 2+3+5, 10, -1+5, and 4. A separator line indicates a restart of a program named 'Basic calculator.py'. The Windows taskbar at the bottom shows the date as 9/12/2022 and the time as 9:34 PM.

```
Python 3.10.5 (tags/v3.10.5:f377153, Jun 6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:\College\python\5) Basic calculator.py =====
>>> 3+2*2
7
>>> 2+3+5
10
>>> -1+5
4
>>> |
```

```
6) class Solution(object):
    def letterCombinations(self, digits):
        if len(digits) == 0:
            return []
        characters =
{2:"abc",3:"def",4:"ghi",5:"jkl",6:"mno",7:"pqrs",8:"tuv",9:"wxyz"}
        result = []
        self.solve(digits,characters,result)
        return result
    def solve(self, digits, characters, result, current_string="",current_level
= 0):
        if current_level == len(digits):
            result.append(current_string)
            return
        for i in characters[int(digits[current_level])]:
            self.solve(digits,characters,result,current_string+i,current_level+1)
ob1 = Solution()
m=(input("enter thee numbers"))
print(ob1.letterCombinations(m))
```

OUTPUT:



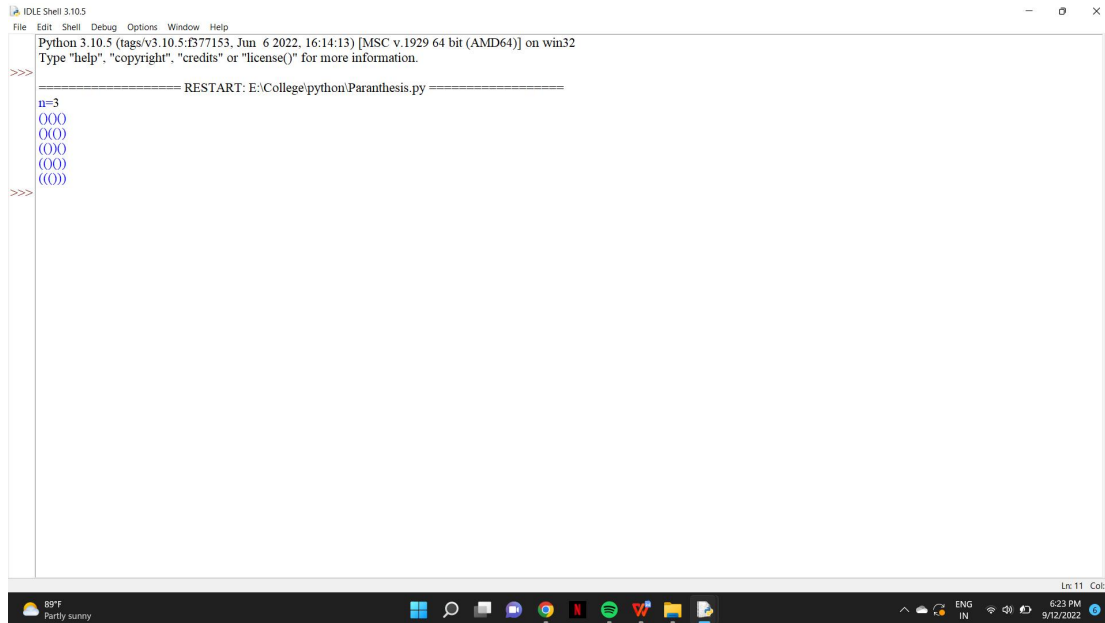
```
7) def printParenthesis(str, n):
    if(n > 0):
        _printParenthesis(str, 0,
                           n, 0, 0)
    return
```

```
def _printParenthesis(str, pos, n,
                      open, close):

    if(close == n):
        for i in str:
            print(i, end="")
        print()
        return
    else:
        if(open > close):
            str[pos] = ')'
            _printParenthesis(str, pos + 1, n,
                              open, close + 1)
        if(open < n):
            str[pos] = '('
            _printParenthesis(str, pos + 1, n,
                              open + 1, close)
```

```
n = int(input("n="))
str = [" "] * 2 * n
printParanthesis(str , n)
```

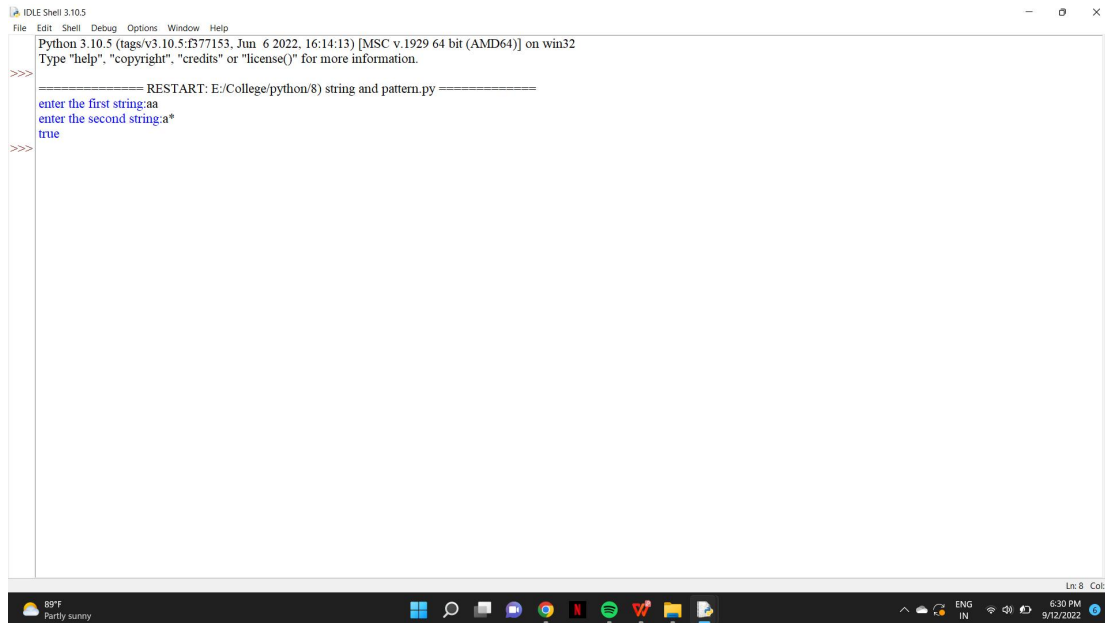
OUTPUT:



```
Python 3.10.5 (tags/v3.10.5:f377153, Jun 6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: E:\College\python\Paranthesis.py =====
n=3
())
())
())
())
())
>>>
```

```
8) import re
s = input("enter the first string")
p = input("enter the second string")
p = r"{}".format(p)
p = re.compile(p)
if p.fullmatch(s):
    print("true")
else:
    print("false")
```

OUTPUT:



```
Python 3.10.5 (tags/v3.10.5:f377153, Jun 6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=====RESTART: E:/College/python/8) string and pattern.py =====
enter the first string:aa
enter the second string:a*
true
>>>
```

```
9) month = input("Input the month (e.g. January, February etc.): ")
day = int(input("Input the day: "))
```

```
if month in ('January', 'February', 'March'):
```

```
    season = 'winter'
```

```
elif month in ('April', 'May', 'June'):
```

```
    season = 'spring'
```

```
elif month in ('July', 'August', 'September'):
```

```
    season = 'summer'
```

```
else:
```

```
    season = 'autumn'
```

```
if (month == 'March') and (day > 19):
```

```
    season = 'spring'
```

```
elif (month == 'June') and (day > 20):
```

```
    season = 'summer'
```

```
elif (month == 'September') and (day > 21):
```

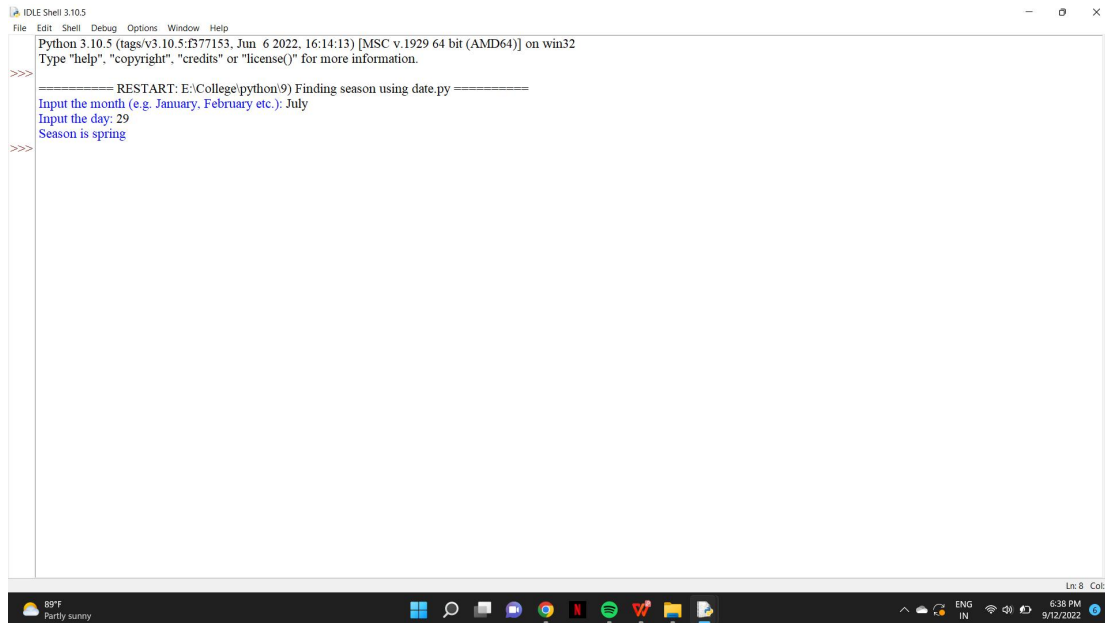
```
    season = 'autumn'
```

```
elif (month == 'December') and (day > 20):
```

```
    season = 'winter'
```

```
print("Season is",season)
```

OUTPUT:



10) # Python program for the above approach  
from collections import Counter

# Function to remove common  
# words from two strings  
def removeCommonWords(sent1, sent2):

# Store the words present  
# in both the sentences  
sentence1 = list(sent1.split())  
sentence2 = list(sent2.split())

# Calculate frequency of words  
# using Counter() function frequency1 = Counter(sentence1)  
frequency2 = Counter(sentence2)

word = 0

# Iterate the list consisting  
# of words in the first sentence  
for i in range(len(sentence1)):

# If word is present # in both the strings  
if sentence1[word] in frequency2.keys():

# Remove the word  
sentence1.pop(word)



```

    # Decrease the frequency of the word
    word = word-1
    word += 1

word = 0

# Iterate the list consisting of
# words in the second sentence
for i in range(len(sentence2)):

    # If word is present
    # in both the strings
    if sentence2[word] in frequency1.keys():

        # Remove the word
        sentence2.pop(word)

        # Decrease the removed word
        word = word-1

    word += 1

# Print the remaining
# words in the two sentences
print(*sentence1)
print(*sentence2)

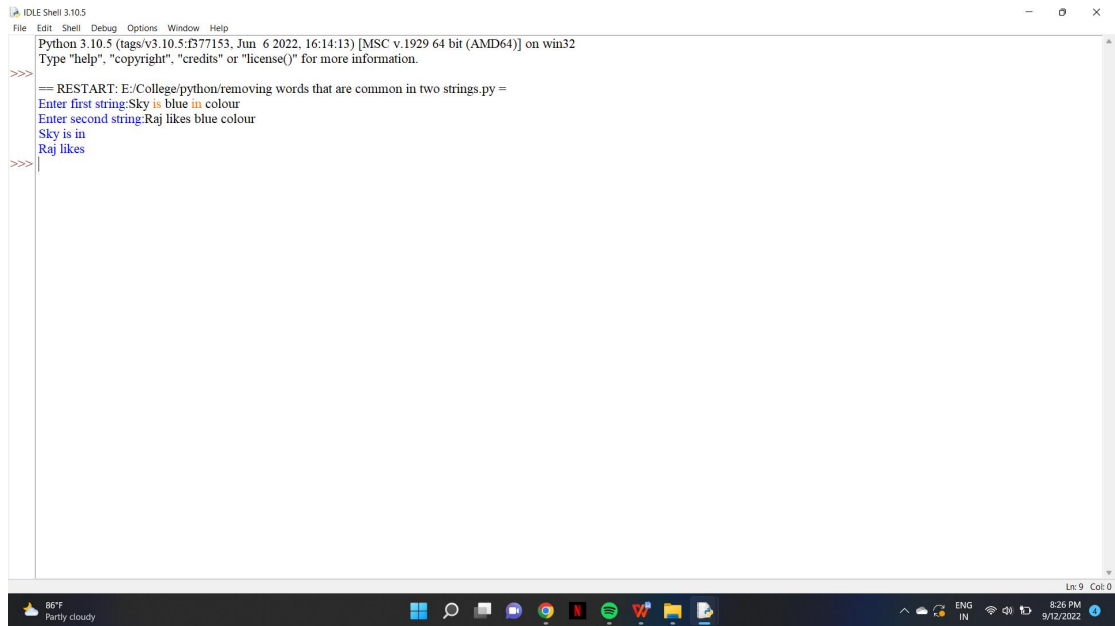
# Driver Code

sentence1 = "sky is blue in color"
sentence2 = "raj likes sky blue color"

removeCommonWords(sentence1, sentence2)

```

## OUTPUT:



The screenshot shows a Python IDLE Shell window with the following content:

```
Python 3.10.5 (tags/v3.10.5:f377153, Jun 6 2022, 16:14:13) [MSC v.1929 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
== RESTART: E:/College/python/removing words that are common in two strings.py ==
Enter first string: Sky is blue in colour
Enter second string: Raj likes blue colour
Sky is in
Raj likes
>>>
```

The window title is "IDLE Shell 3.10.5". The bottom status bar shows "Ln: 9 Col: 0". The Windows taskbar at the bottom displays the date and time as "8:26 PM 9/12/2022" and the system language as "ENG IN".