

ITW1
PYTHON ASSIGNMENT1

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1. Write a Python program to get a string made of the first 2 and the last 2 chars from a given a string. If the string length is less than 2, return instead of the empty string.

Sample String : 'alresource'

Expected Result : 'alce'

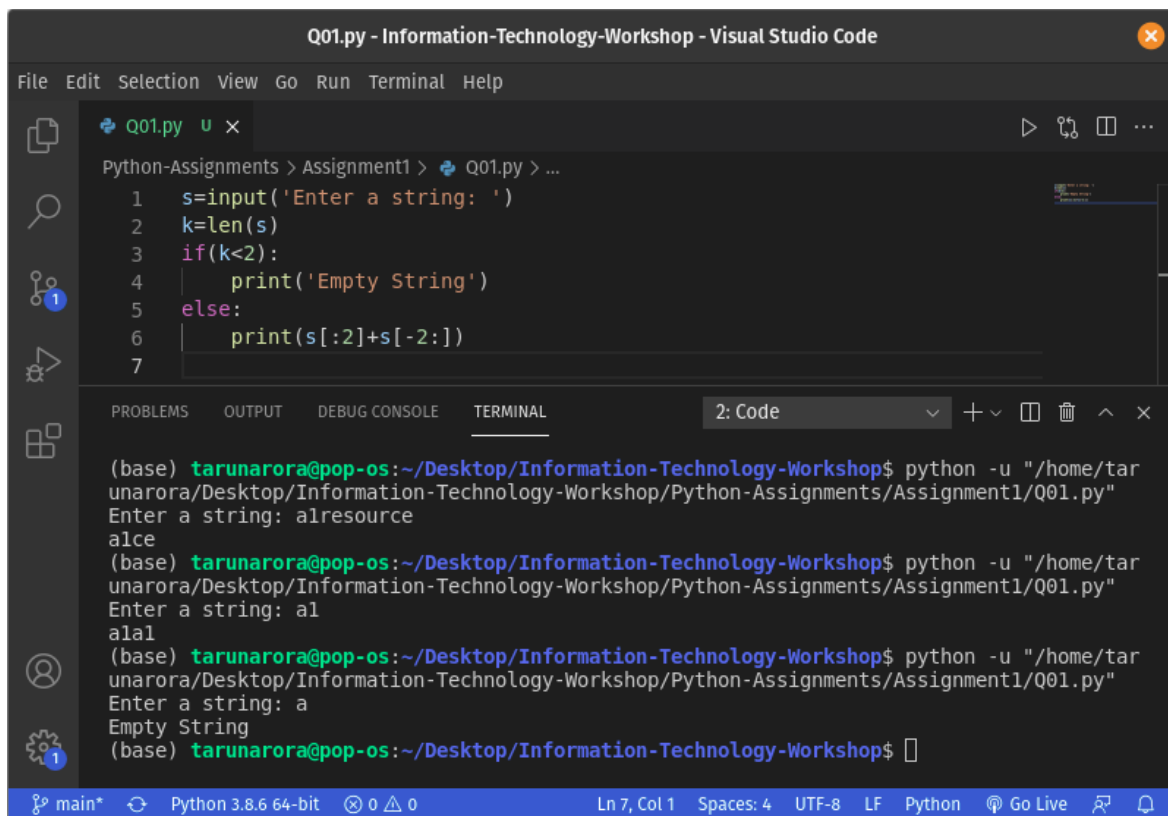
Sample String : 'al'

Expected Result : 'alal'

Sample String : ' a'

Expected Result : Empty String

Solution: -



The screenshot shows a Visual Studio Code window titled "Q01.py - Information-Technology-Workshop - Visual Studio Code". The editor displays a Python program in a file named "Q01.py". The code is as follows:

```
1 s=input('Enter a string: ')
2 k=len(s)
3 if(k<2):
4     print('Empty String')
5 else:
6     print(s[:2]+s[-2:])
7
```

Below the code editor, the "TERMINAL" panel shows the execution of the program. The user runs the command `python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q01.py"` three times with different inputs:

- Input: `alresource`, Output: `alce`
- Input: `al`, Output: `alal`
- Input: `a`, Output: `Empty String`

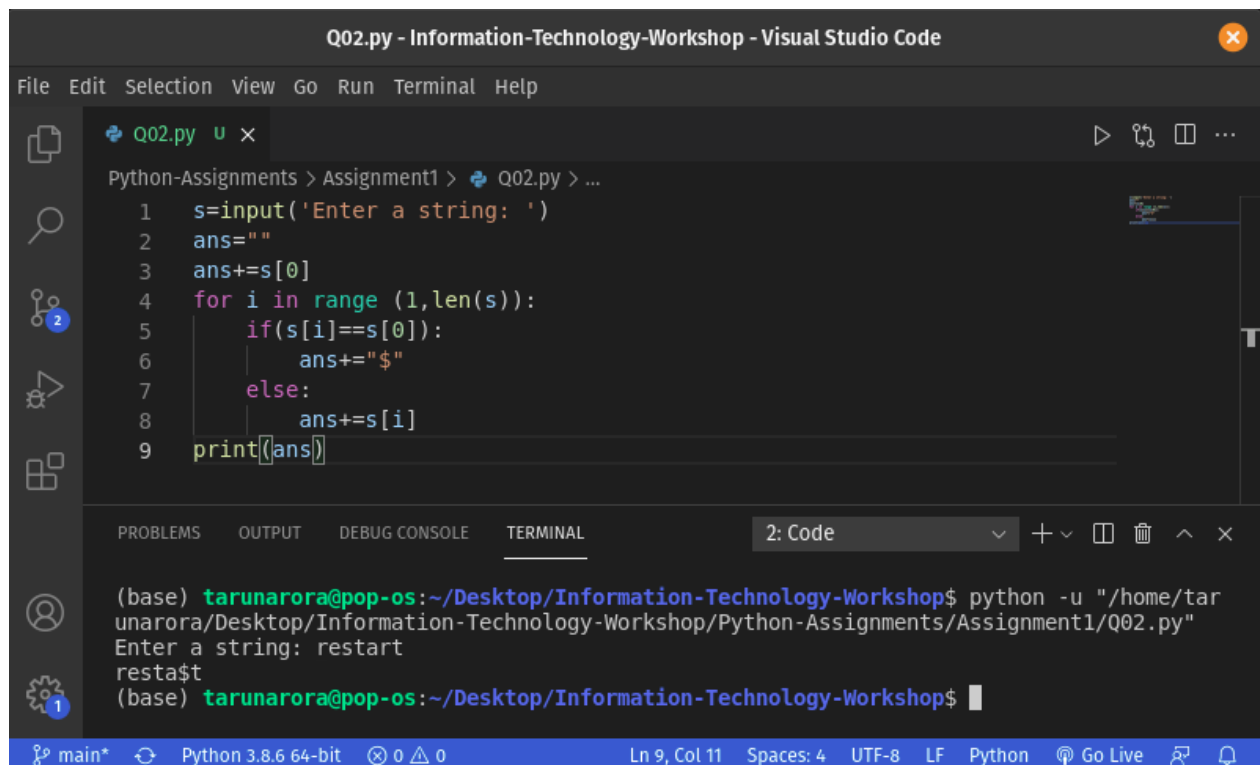
The terminal output matches the expected results provided in the problem statement. The status bar at the bottom indicates the file is "main*", the Python version is "Python 3.8.6 64-bit", and the current position is "Ln 7, Col 1".

2. Write a Python program to get a string from a given string where all occurrences of its first char have been changed to '\$', except the first char itself.

Sample String : 'restart'

Expected Result : 'resta\$t'

Solution: -



The screenshot shows the Visual Studio Code interface with a file named 'Q02.py' open. The code in the editor is as follows:

```
1 s=input('Enter a string: ')
2 ans=""
3 ans+=s[0]
4 for i in range (1,len(s)):
5     if(s[i]==s[0]):
6         ans+="$"
7     else:
8         ans+=s[i]
9 print(ans)
```

Below the code editor, the 'TERMINAL' tab is active, showing the execution of the program. The output is as follows:

```
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q02.py"
Enter a string: restart
resta$t
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

The status bar at the bottom indicates the file is 'main*', the Python version is '3.8.6 64-bit', and the current position is 'Ln 9, Col 11'.

3. Write a Python program to find the first appearance of the substring 'not' and 'poor' from a given string, if 'not' follows the 'poor', replace the whole 'not'...'poor' substring with 'good'. Return the resulting string.

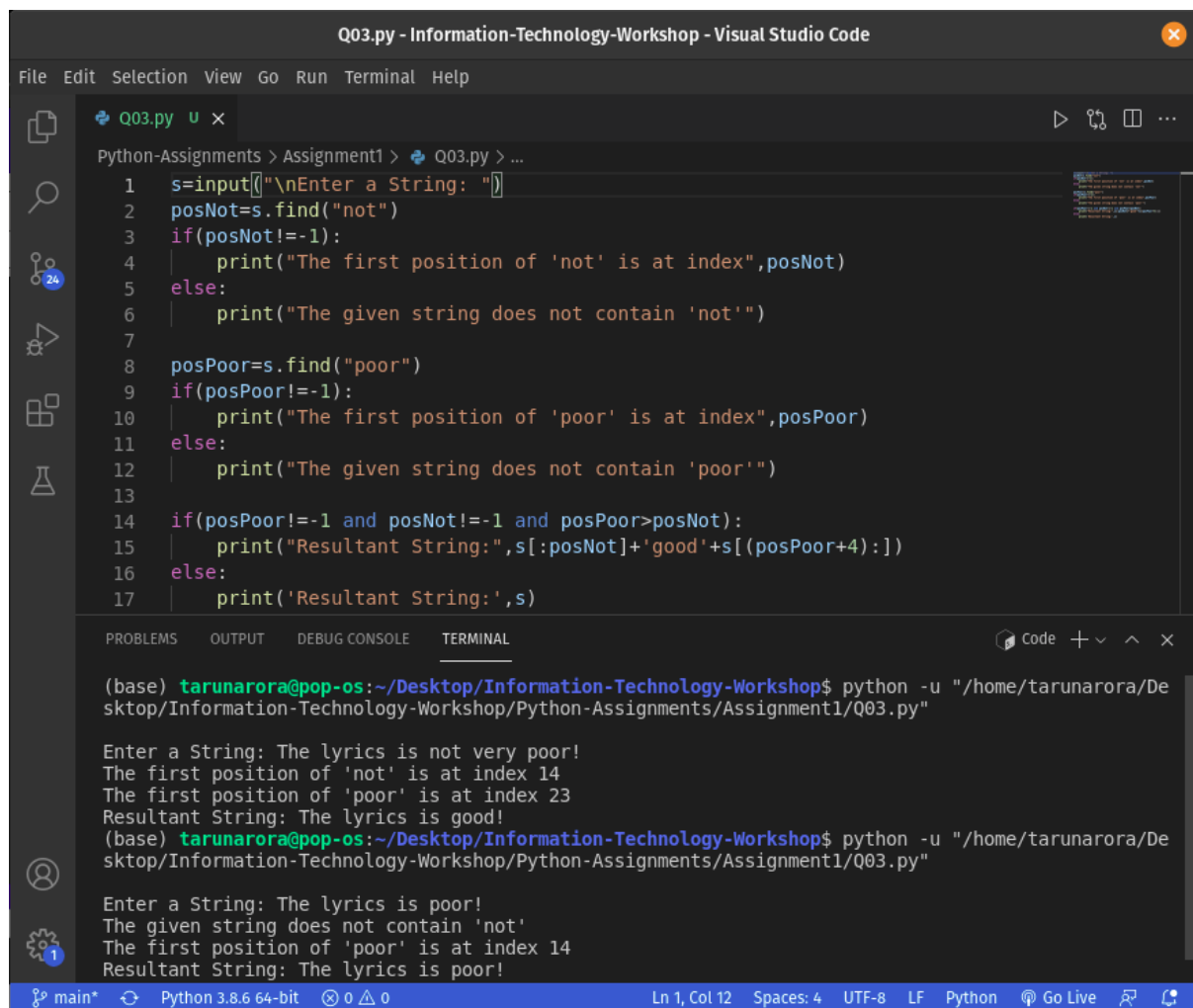
Sample String : 'The lyrics is not that poor!'

'The lyrics is poor!'

Expected Result : 'The lyrics is good!'

'The lyrics is poor!'

Solution: -



The screenshot shows a Visual Studio Code window titled "Q03.py - Information-Technology-Workshop - Visual Studio Code". The editor displays a Python script named "Q03.py" with the following code:

```
1 s=input("\nEnter a String: ")
2 posNot=s.find("not")
3 if(posNot!=-1):
4     print("The first position of 'not' is at index",posNot)
5 else:
6     print("The given string does not contain 'not'")
7
8 posPoor=s.find("poor")
9 if(posPoor!=-1):
10    print("The first position of 'poor' is at index",posPoor)
11 else:
12    print("The given string does not contain 'poor'")
13
14 if(posPoor!=-1 and posNot!=-1 and posPoor>posNot):
15    print("Resultant String:",s[:posNot]+'good'+s[(posPoor+4):])
16 else:
17    print('Resultant String:',s)
```

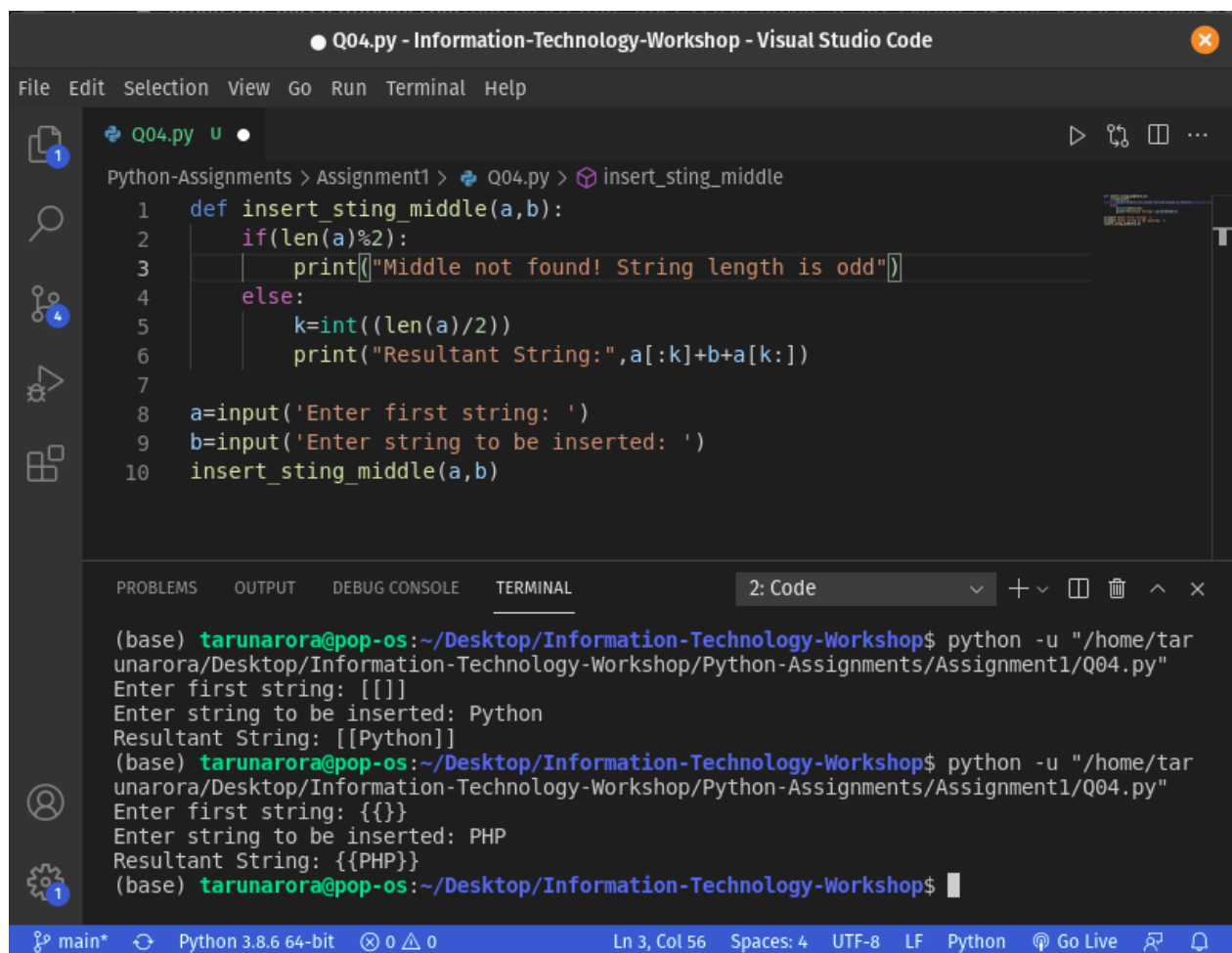
The terminal output shows the program being executed twice. The first run uses the sample string "The lyrics is not very poor!" and outputs the first positions of 'not' (index 14) and 'poor' (index 23), and the resultant string "The lyrics is good!". The second run uses the string "The lyrics is poor!" and outputs that it does not contain 'not', the first position of 'poor' is at index 14, and the resultant string is "The lyrics is poor!".

4. Write a Python function to insert a string in the middle of a string. Sample function and result :

`insert_sting_middle('[[[]]', 'Python') -> [[Python]]`

`insert_sting_middle('{{{}}}', 'PHP') -> {{{PHP}}}`

Solution: -



The screenshot shows the Visual Studio Code interface with a file named `Q04.py` open. The code defines a function `insert_sting_middle(a,b)` that checks if the length of `a` is even. If it is, it prints a message. If not, it calculates the middle index `k` and prints the resultant string `a[:k]+b+a[k:]`. Below the code, the terminal shows the execution of the script, demonstrating the function's behavior with the sample inputs provided in the problem statement.

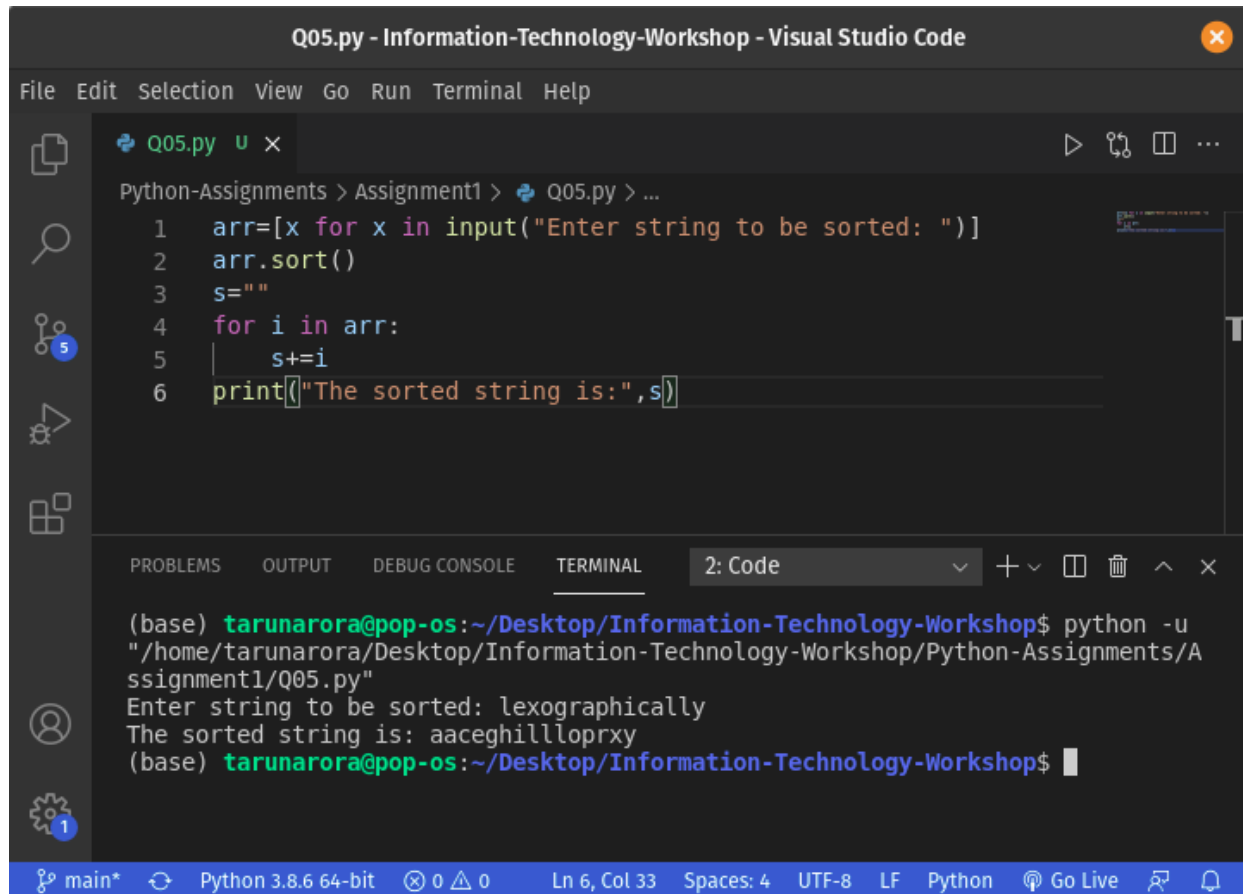
```
Q04.py - Information-Technology-Workshop - Visual Studio Code
File Edit Selection View Go Run Terminal Help

Python-Assignments > Assignment1 > Q04.py > insert_sting_middle
1 def insert_sting_middle(a,b):
2     if(len(a)%2):
3         print("Middle not found! String length is odd")
4     else:
5         k=int((len(a)/2))
6         print("Resultant String:",a[:k]+b+a[k:])
7
8 a=input('Enter first string: ')
9 b=input('Enter string to be inserted: ')
10 insert_sting_middle(a,b)

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 2: Code
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q04.py"
Enter first string: [[[]]
Enter string to be inserted: Python
Resultant String: [[Python]]
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q04.py"
Enter first string: {{{}}
Enter string to be inserted: PHP
Resultant String: {{{PHP}}}
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

5. Write a Python program to sort a string lexicographically.

Solution: -



The screenshot shows the Visual Studio Code interface with a file named 'Q05.py' open. The code in the editor is as follows:

```
1 arr=[x for x in input("Enter string to be sorted: ")]
2 arr.sort()
3 s=""
4 for i in arr:
5     s+=i
6 print("The sorted string is:",s)
```

Below the editor, the terminal window is active, showing the execution of the program. The user has entered 'lexographically' as input, and the program has output 'The sorted string is: aaceghilllloprxy'.

```
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u
"/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/A
ssignment1/Q05.py"
Enter string to be sorted: lexographically
The sorted string is: aaceghilllloprxy
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

The status bar at the bottom indicates the file is 'main*', the Python version is 'Python 3.8.6 64-bit', and the current position is 'Ln 6, Col 33'.

6. Write a Python program to count repeated characters in a string. Sample string:

'thequickbrownfoxjumpsoverthelazydog'

Expected output :

o 4

e 3

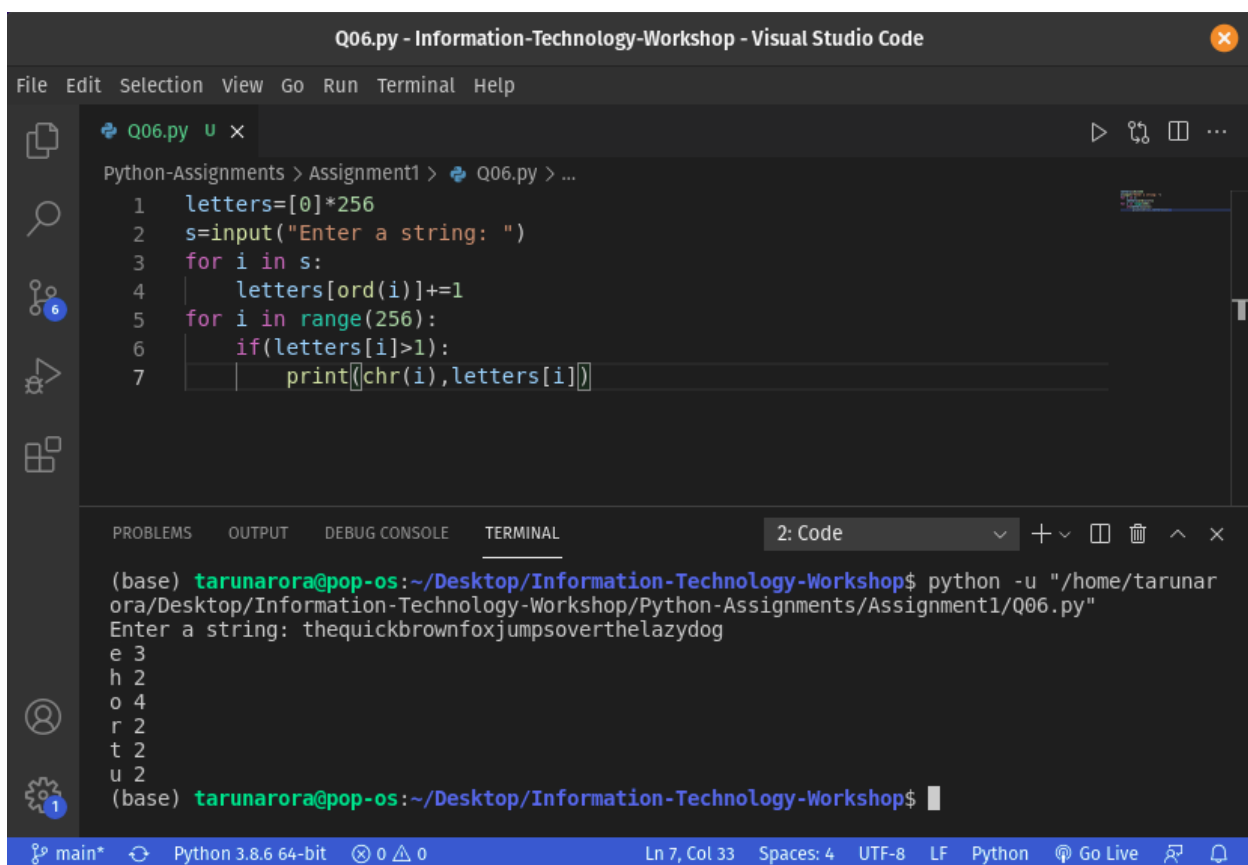
u 2

h 2

r 2

t 2

Solution: -



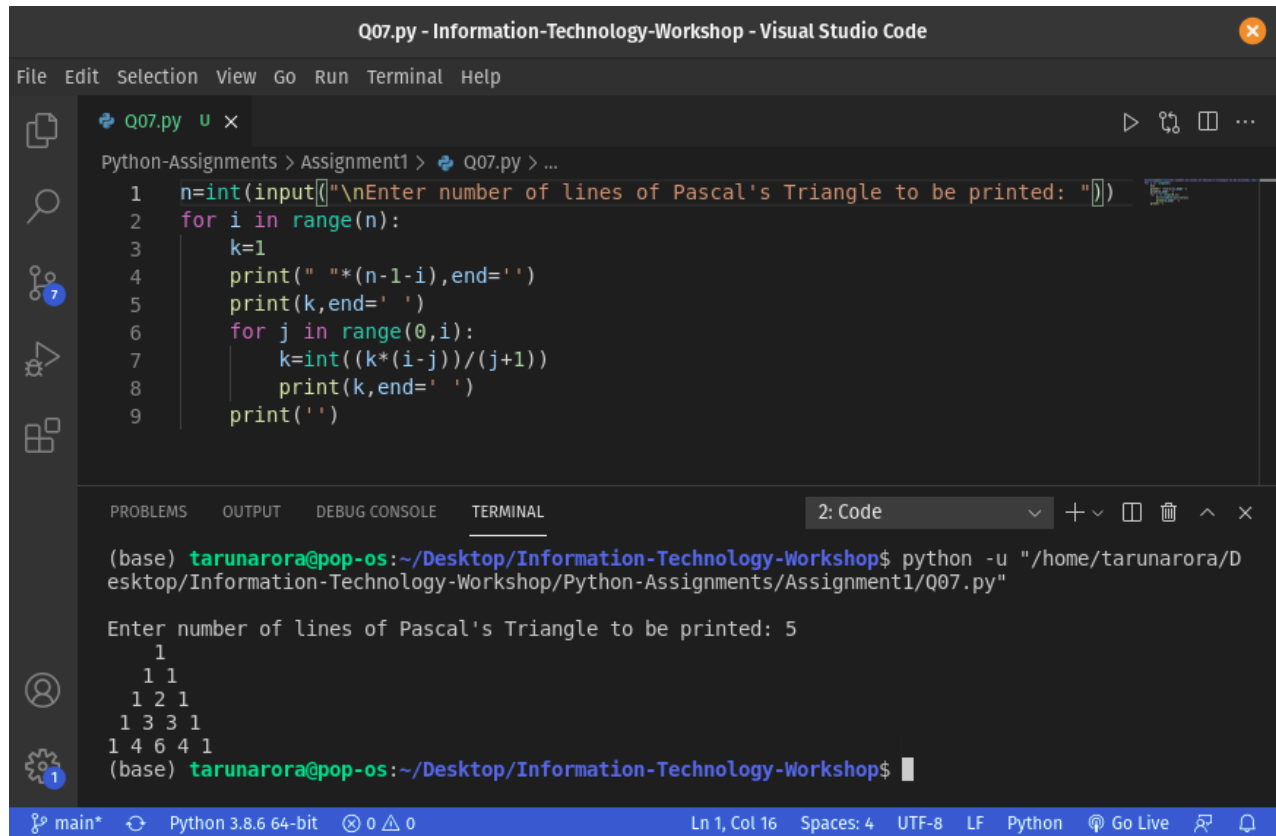
```
Q06.py - Information-Technology-Workshop - Visual Studio Code
File Edit Selection View Go Run Terminal Help

Python-Assignments > Assignment1 > Q06.py > ...
1 letters=[0]*256
2 s=input("Enter a string: ")
3 for i in s:
4     letters[ord(i)]+=1
5 for i in range(256):
6     if(letters[i]>1):
7         print(chr(i),letters[i])

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 2: Code
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q06.py"
Enter a string: thequickbrownfoxjumpsoverthelazydog
e 3
h 2
o 4
r 2
t 2
u 2
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

7. Write a Python function that prints out the first 'n' rows of Pascal's triangle. 'n' is user input.

Solution: -



The screenshot shows the Visual Studio Code editor with a file named 'Q07.py' open. The code in the editor is as follows:

```
1 n=int(input("\nEnter number of lines of Pascal's Triangle to be printed: "))
2 for i in range(n):
3     k=1
4     print(" "*(n-1-i),end='')
5     print(k,end=' ')
6     for j in range(0,i):
7         k=int((k*(i-j))/(j+1))
8         print(k,end=' ')
9     print('')
```

Below the editor, the 'TERMINAL' panel shows the command to run the script and its output:

```
(base) tarunarora@pop-os: ~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q07.py"

Enter number of lines of Pascal's Triangle to be printed: 5
    1
   1 1
  1 2 1
 1 3 3 1
1 4 6 4 1
(base) tarunarora@pop-os: ~/Desktop/Information-Technology-Workshop$
```

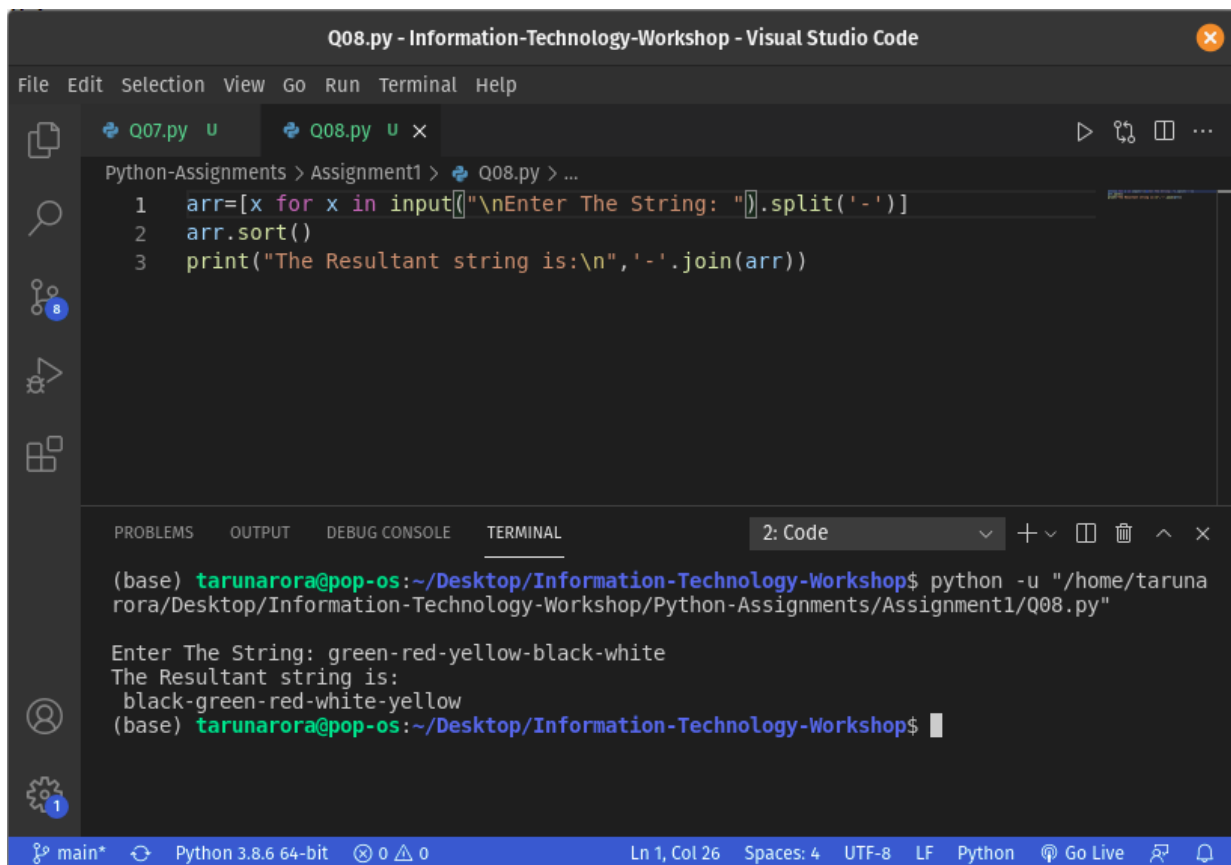
The status bar at the bottom indicates the file is 'main*', the Python version is 'Python 3.8.6 64-bit', and the encoding is 'UTF-8'.

8. Write a Python function that accepts a hyphen-separated sequence of words as input and prints the words in a hyphen-separated sequence after sorting them alphabetically.

Sample Items : green-red-yellow-black-white

Expected Result : black-green-red-white-yellow

Solution: -



The screenshot shows the Visual Studio Code interface with a file named 'Q08.py' open. The code in the editor is as follows:

```
1 arr=[x for x in input("\nEnter The String: ").split('-')]
2 arr.sort()
3 print("The Resultant string is:\n",'-'.join(arr))
```

Below the editor, the TERMINAL panel shows the execution of the script. The user has run the command `python -u "/home/tarunara/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q08.py"`. The output of the program is:

```
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunara/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q08.py"
Enter The String: green-red-yellow-black-white
The Resultant string is:
black-green-red-white-yellow
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

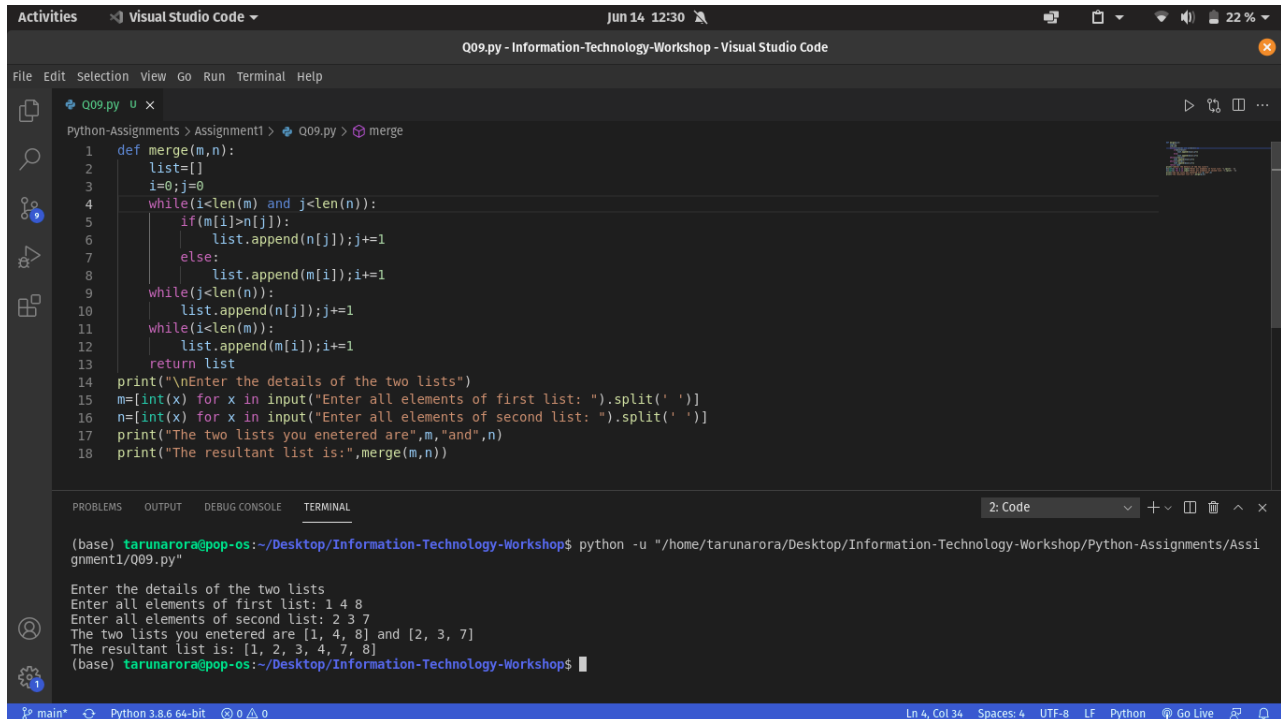
The status bar at the bottom indicates the file is 'main*', the Python version is 'Python 3.8.6 64-bit', and the cursor is at 'Ln 1, Col 26'.

9. Write a Python function to merge two sorted arrays.

Sample Items : m=[1, 4, 8] n=[2, 3, 7]

Expected Output: mn=[1, 2, 3, 4, 7, 8]

Solution: -



```
Q09.py - Information-Technology-Workshop - Visual Studio Code

Python-Assignments > Assignment1 > Q09.py > merge

1 def merge(m,n):
2     list=[]
3     i=0;j=0
4     while(i<len(m) and j<len(n)):
5         if(m[i]>n[j]):
6             list.append(n[j]);j+=1
7         else:
8             list.append(m[i]);i+=1
9     while(j<len(n)):
10        list.append(n[j]);j+=1
11    while(i<len(m)):
12        list.append(m[i]);i+=1
13    return list
14    print("\nEnter the details of the two lists")
15    m=[int(x) for x in input("Enter all elements of first list: ").split(' ')]
16    n=[int(x) for x in input("Enter all elements of second list: ").split(' ')]
17    print("The two lists you enetered are",m,"and",n)
18    print("The resultant list is:",merge(m,n))

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 2: Code

(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q09.py$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q09.py"

Enter the details of the two lists
Enter all elements of first list: 1 4 8
Enter all elements of second list: 2 3 7
The two lists you enetered are [1, 4, 8] and [2, 3, 7]
The resultant list is: [1, 2, 3, 4, 7, 8]
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

10. Write a Python function that accepts a string and calculate the number of upper case letters and lowercase letters.

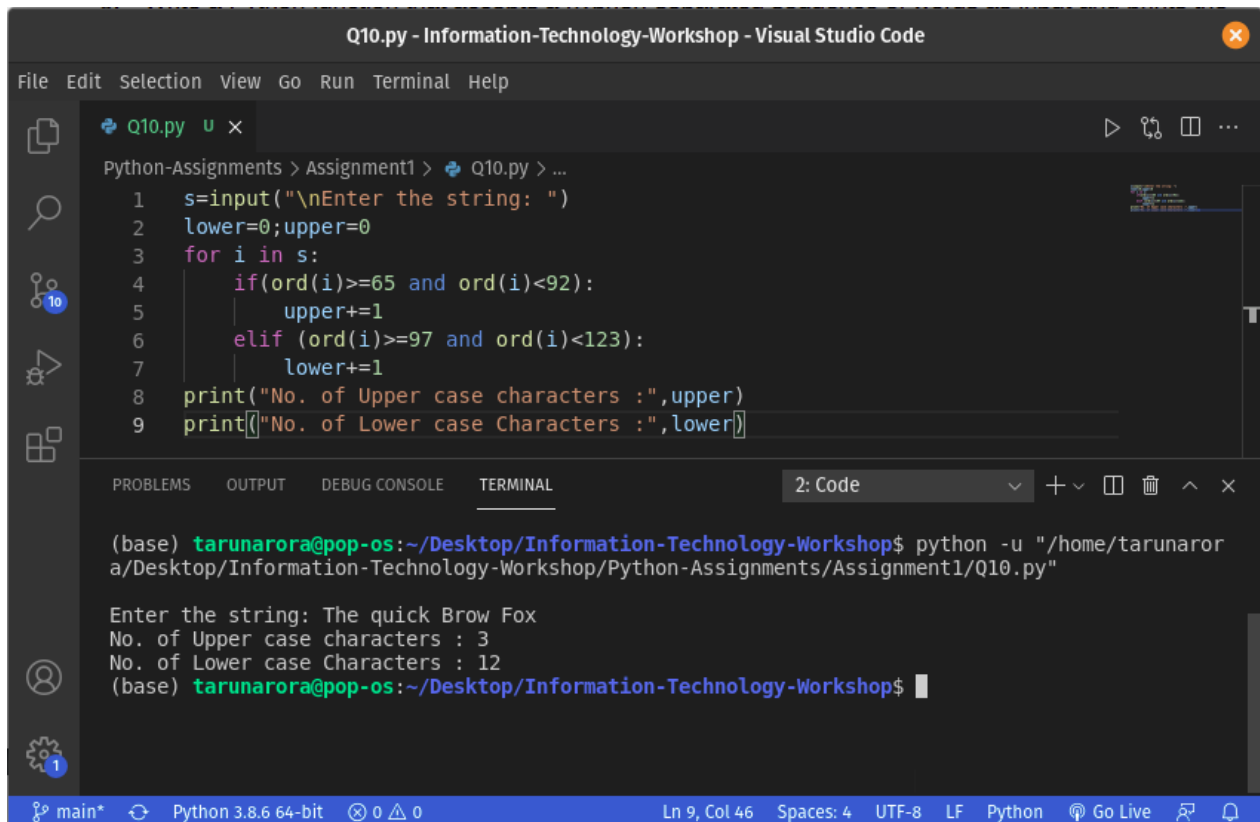
Sample String : 'The quick Brow Fox'

Expected Output :

No. of Upper case characters : 3

No. of Lower case Characters : 12

Solution: -



The screenshot shows a Visual Studio Code window titled "Q10.py - Information-Technology-Workshop - Visual Studio Code". The editor displays a Python script in a file named "Q10.py". The script prompts the user to enter a string and then counts the number of uppercase and lowercase characters. The terminal output shows the script being executed with the sample string "The quick Brow Fox", resulting in 3 uppercase and 12 lowercase characters.

```
Q10.py - Information-Technology-Workshop - Visual Studio Code
File Edit Selection View Go Run Terminal Help

Python-Assignments > Assignment1 > Q10.py > ...
1 s=input("\nEnter the string: ")
2 lower=0;upper=0
3 for i in s:
4     if(ord(i)>=65 and ord(i)<92):
5         upper+=1
6     elif (ord(i)>=97 and ord(i)<123):
7         lower+=1
8 print("No. of Upper case characters :",upper)
9 print("No. of Lower case Characters :",lower)

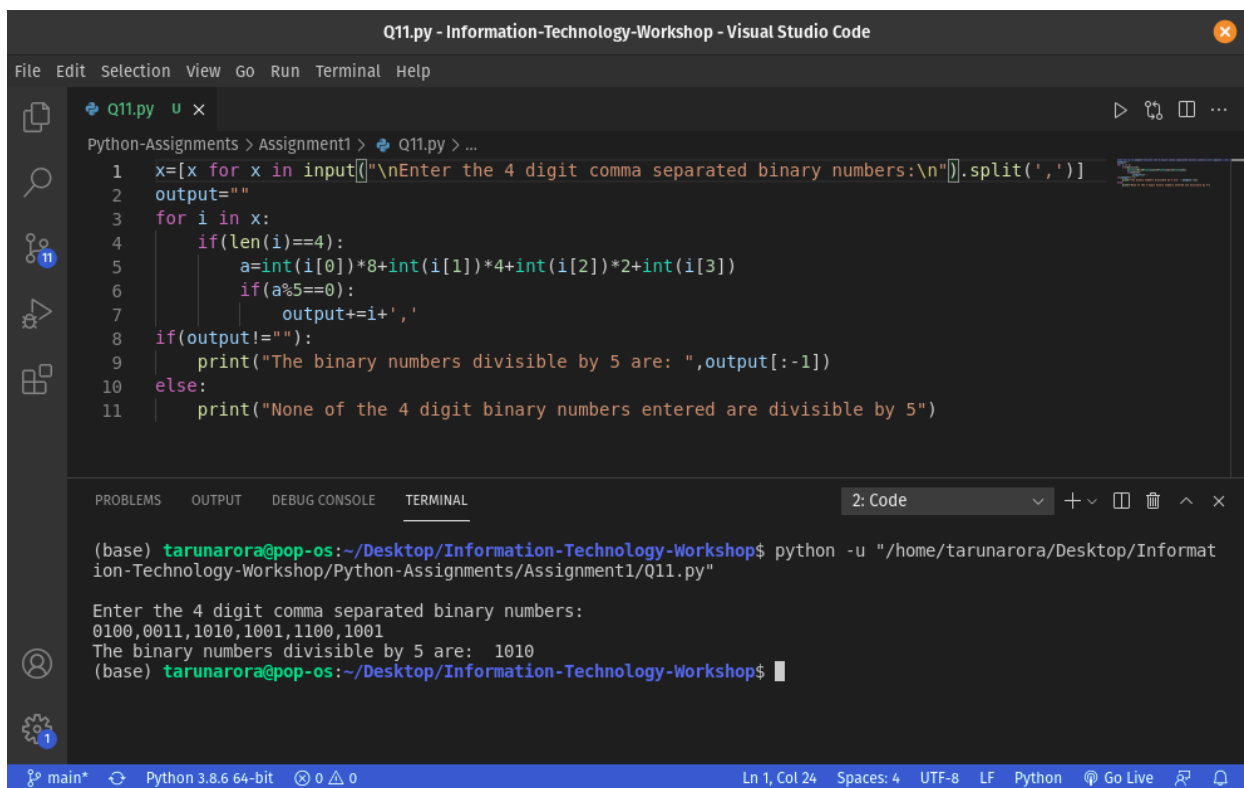
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 2: Code
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q10.py"
Enter the string: The quick Brow Fox
No. of Upper case characters : 3
No. of Lower case Characters : 12
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

11. Write a Python program which accepts a sequence of comma separated 4 digit binary numbers as its input and print the numbers that are divisible by 5 in a comma separated sequence.

Sample Data : 0100,0011,1010,1001,1100,1001

Expected Output : 1010

Solution: -



The screenshot shows a Visual Studio Code window titled "Q11.py - Information-Technology-Workshop - Visual Studio Code". The editor displays a Python script named "Q11.py" with the following code:

```
1 x=[x for x in input("\nEnter the 4 digit comma separated binary numbers:\n").split(',')]
2 output=""
3 for i in x:
4     if(len(i)==4):
5         a=int(i[0])*8+int(i[1])*4+int(i[2])*2+int(i[3])
6         if(a%5==0):
7             output+=i+' '
8 if(output!=""):
9     print("The binary numbers divisible by 5 are: ",output[:-1])
10 else:
11     print("None of the 4 digit binary numbers entered are divisible by 5")
```

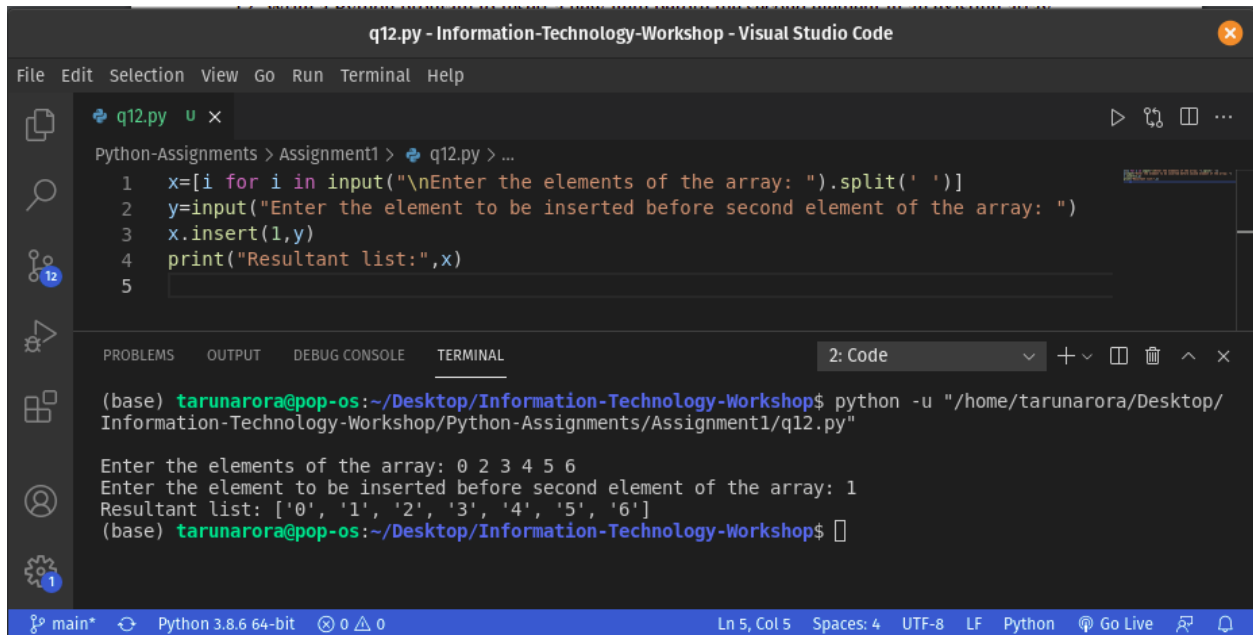
The terminal output shows the execution of the program:

```
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q11.py"
Enter the 4 digit comma separated binary numbers:
0100,0011,1010,1001,1100,1001
The binary numbers divisible by 5 are: 1010
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

The status bar at the bottom indicates the file is "main*", the Python version is "Python 3.8.6 64-bit", and the cursor is at "Ln 1, Col 24".

12. Write a Python program to insert a new item before the second element in an existing array.

Solution: -



The screenshot shows a Visual Studio Code window titled "q12.py - Information-Technology-Workshop - Visual Studio Code". The editor displays a Python script in a file named "q12.py". The script consists of five lines of code: a list 'x' is created from the input of the first line, 'y' is the input of the second line, 'x.insert(1,y)' is executed on the third line, and the resultant list is printed on the fourth line. The fifth line is empty. Below the editor, the TERMINAL panel shows the execution of the script. The prompt is "(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop\$". The command executed is "python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/q12.py"". The output shows the user entering "0 2 3 4 5 6" for the first prompt and "1" for the second prompt. The final output is "Resultant list: ['0', '1', '2', '3', '4', '5', '6']". The status bar at the bottom indicates the file is "main*", the Python version is "3.8.6 64-bit", and the cursor is at "Ln 5, Col 5".

```
q12.py - Information-Technology-Workshop - Visual Studio Code
File Edit Selection View Go Run Terminal Help

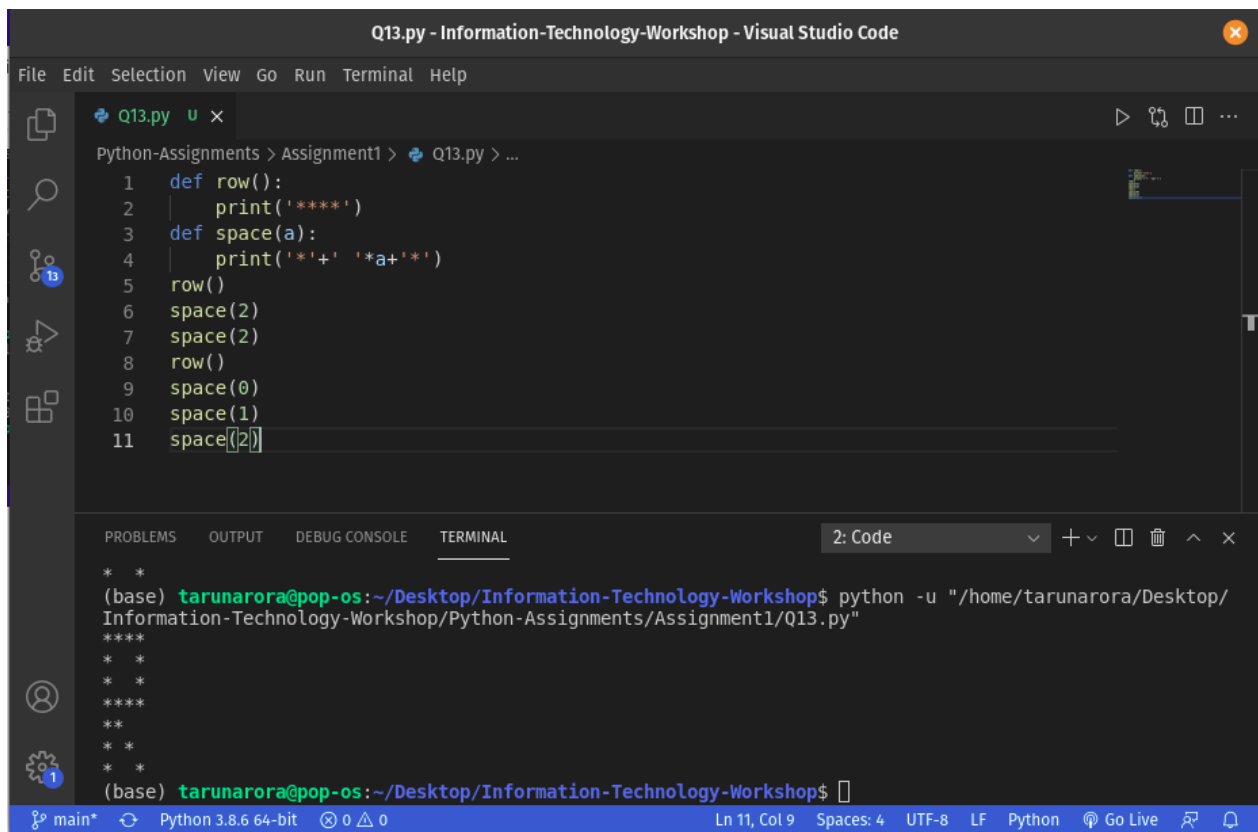
Python-Assignments > Assignment1 > q12.py > ...
1 x=[i for i in input("\nEnter the elements of the array: ").split(' ')]
2 y=input("Enter the element to be inserted before second element of the array: ")
3 x.insert(1,y)
4 print("Resultant list:",x)
5

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 2: Code
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/q12.py"
Enter the elements of the array: 0 2 3 4 5 6
Enter the element to be inserted before second element of the array: 1
Resultant list: ['0', '1', '2', '3', '4', '5', '6']
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

13. Write a Python program to print alphabet pattern 'R'.

Expected Output:

```
*****
*  *
*  *
*****
**
*  *
*  *
```



The screenshot shows a Visual Studio Code window titled "Q13.py - Information-Technology-Workshop - Visual Studio Code". The editor displays a Python file named "Q13.py" with the following code:

```
1 def row():
2     print('*****')
3 def space(a):
4     print('*' + ' '*a + '*')
5 row()
6 space(2)
7 space(2)
8 row()
9 space(0)
10 space(1)
11 space(2)
```

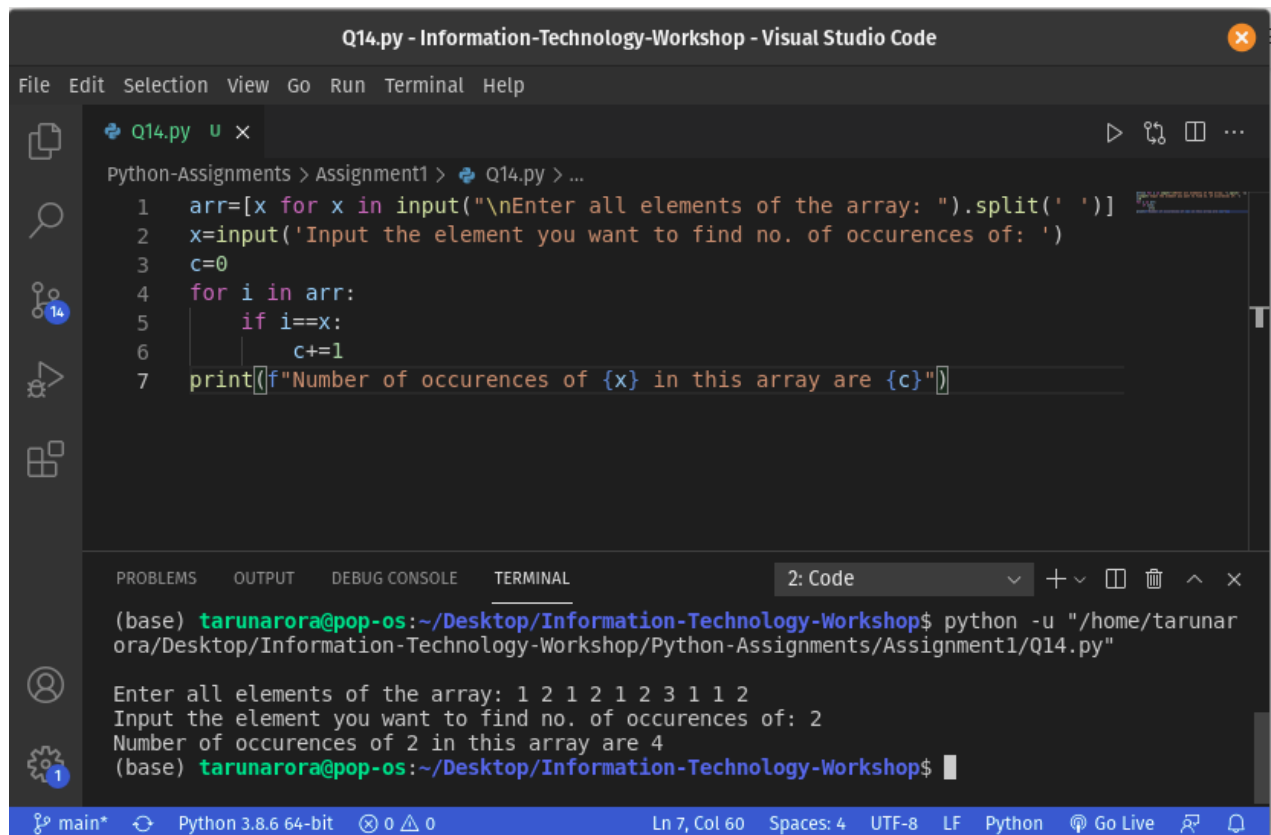
The terminal at the bottom shows the command executed: `python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q13.py"`. The output of the program is displayed in the terminal:

```
*  *
*  *
*****
**
*  *
*  *
```

The status bar at the bottom indicates the file is "main*", the Python version is "Python 3.8.6 64-bit", and the cursor is at "Ln 11, Col 9".

14. Write a Python program to get the number of occurrences of a specified element in an array

Solution: -



The screenshot shows a Visual Studio Code window titled "Q14.py - Information-Technology-Workshop - Visual Studio Code". The editor displays a Python script named "Q14.py" with the following code:

```
1 arr=[x for x in input("\nEnter all elements of the array: ").split(' ')]
2 x=input('Input the element you want to find no. of occurrences of: ')
3 c=0
4 for i in arr:
5     if i==x:
6         c+=1
7 print(f"Number of occurrences of {x} in this array are {c}")
```

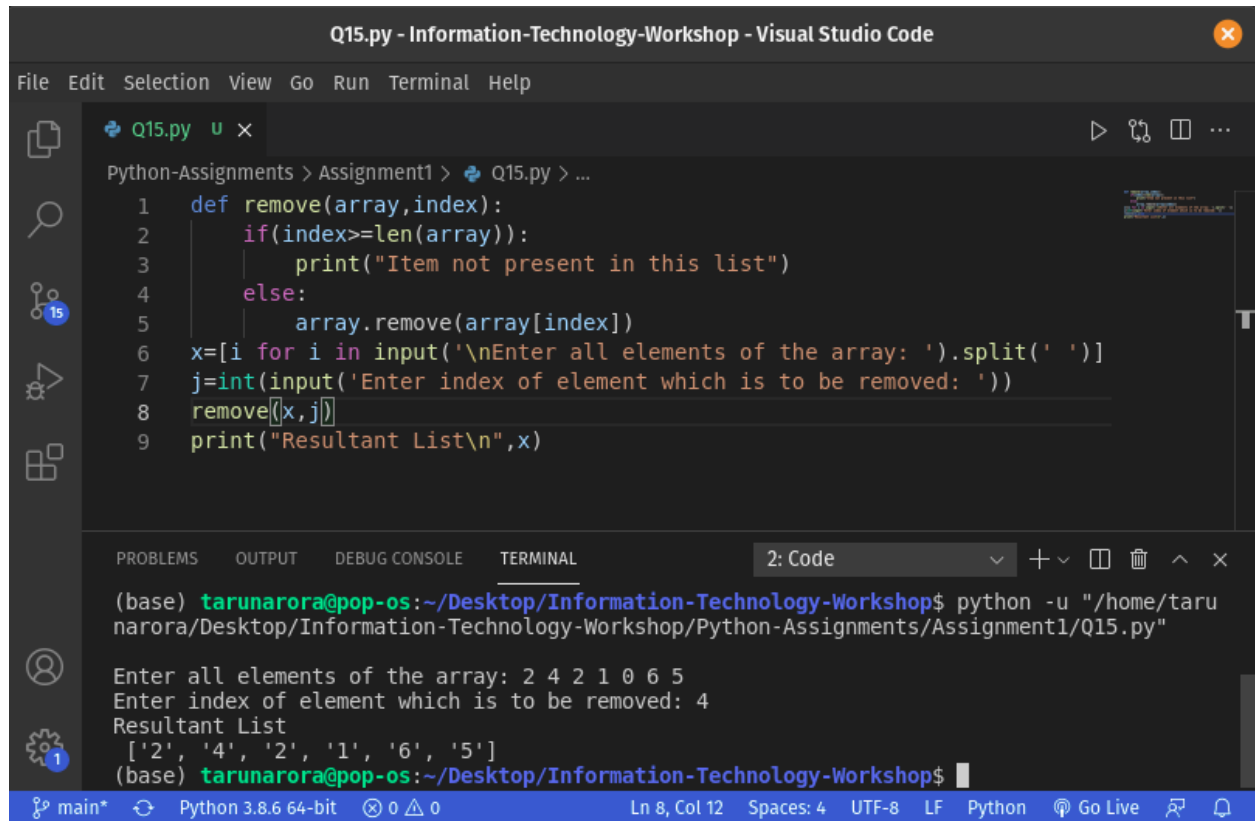
Below the editor, the terminal window shows the execution of the program. The prompt is "(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop\$". The command entered is "python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q14.py"". The output of the program is:

```
Enter all elements of the array: 1 2 1 2 1 2 3 1 1 2
Input the element you want to find no. of occurrences of: 2
Number of occurrences of 2 in this array are 4
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

The status bar at the bottom indicates the file is "main*", the Python version is "Python 3.8.6 64-bit", and the cursor is at "Ln 7, Col 60".

15. Write a Python program to remove a specified item using the index from an array.

Solution: -



```
Q15.py - Information-Technology-Workshop - Visual Studio Code
File Edit Selection View Go Run Terminal Help

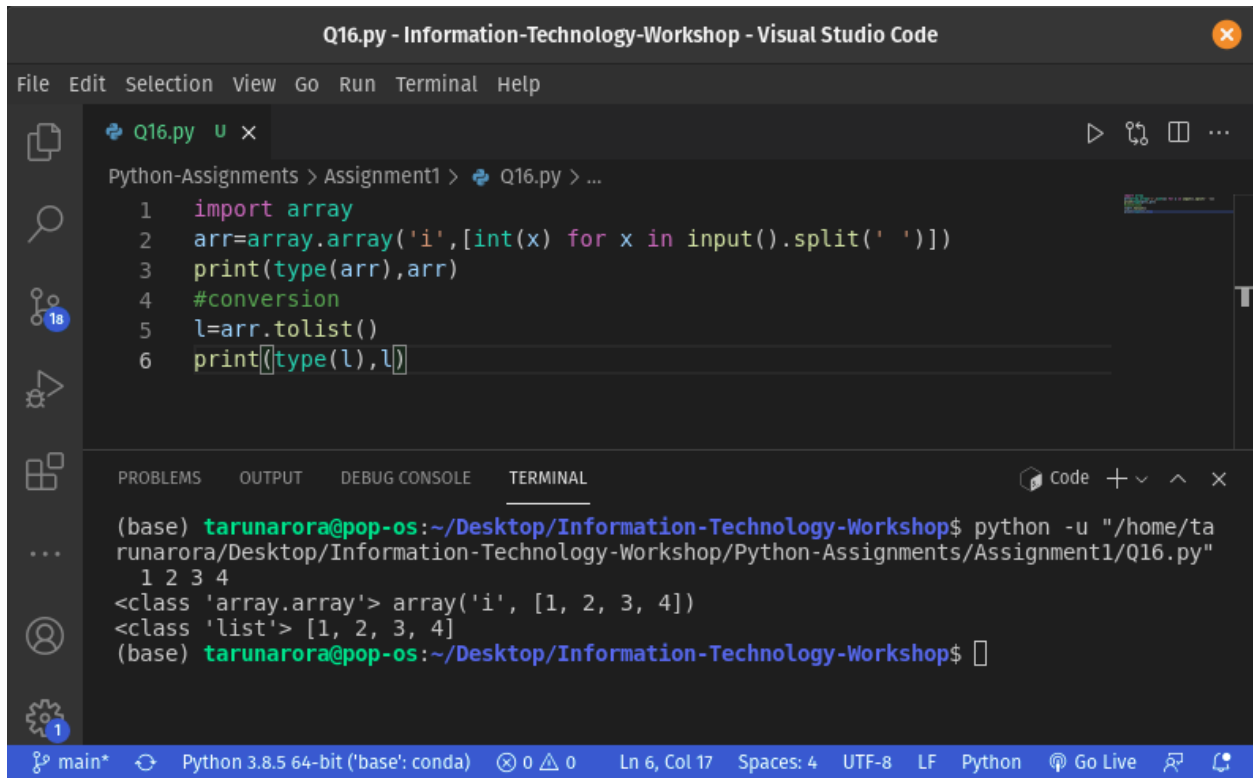
Python-Assignments > Assignment1 > Q15.py > ...
1 def remove(array,index):
2     if(index>=len(array)):
3         print("Item not present in this list")
4     else:
5         array.remove(array[index])
6 x=[i for i in input('\nEnter all elements of the array: ').split(' ')]
7 j=int(input('Enter index of element which is to be removed: '))
8 remove([x,j])
9 print("Resultant List\n",x)

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL 2: Code
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/taru
narora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q15.py"

Enter all elements of the array: 2 4 2 1 0 6 5
Enter index of element which is to be removed: 4
Resultant List
['2', '4', '2', '1', '6', '5']
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```


16. Write a Python program to convert an array to an ordinary list with the same items

Solution: -



The screenshot shows the Visual Studio Code interface with a file named 'Q16.py' open. The code in the editor is as follows:

```
1 import array
2 arr=array.array('i',[int(x) for x in input().split(' ')])
3 print(type(arr),arr)
4 #conversion
5 l=arr.tolist()
6 print(type(l),l)
```

The terminal output shows the execution of the program:

```
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Python-Assignments/Assignment1/Q16.py"
1 2 3 4
<class 'array.array'> array('i', [1, 2, 3, 4])
<class 'list'> [1, 2, 3, 4]
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

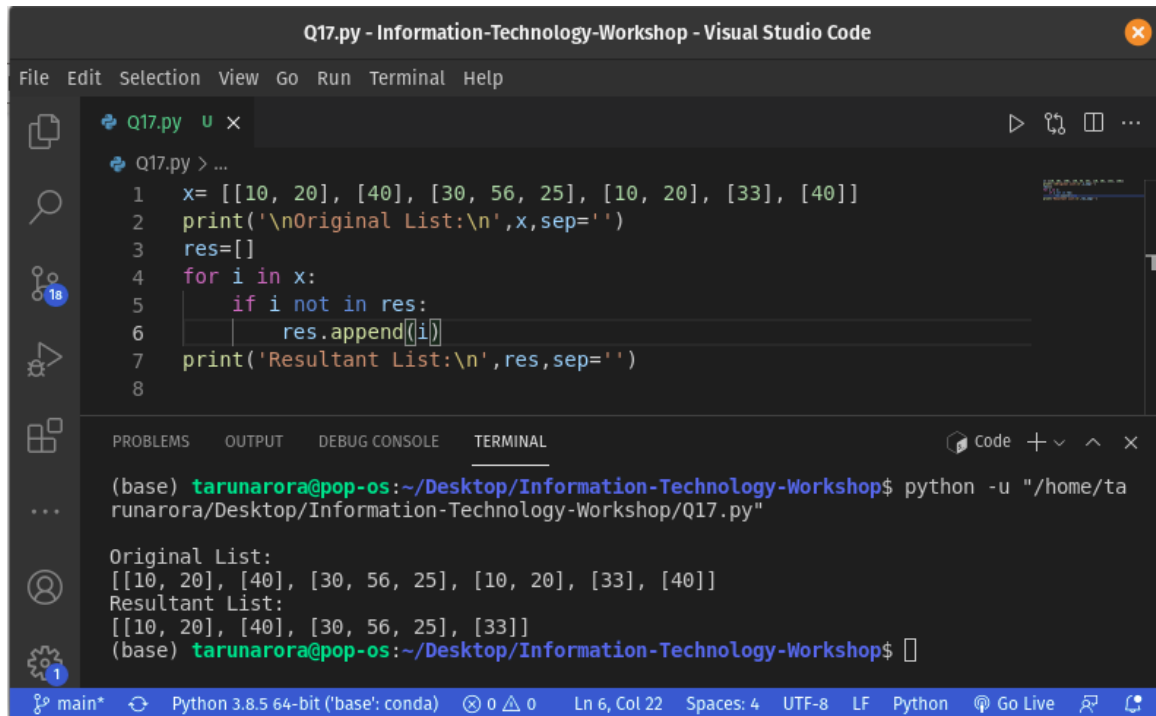
The status bar at the bottom indicates the file is 'main*', the Python version is 'Python 3.8.5 64-bit ('base': conda)', and the current position is 'Ln 6, Col 17'.

17. Write a Python program to remove duplicates from a list of lists.

Sample list : `[[10, 20], [40], [30, 56, 25], [10, 20], [33], [40]]`

New List : `[[10, 20], [30, 56, 25], [33], [40]]`

Solution: -



```
Q17.py - Information-Technology-Workshop - Visual Studio Code
File Edit Selection View Go Run Terminal Help

Q17.py x
Q17.py > ...
1 x= [[10, 20], [40], [30, 56, 25], [10, 20], [33], [40]]
2 print('\nOriginal List:\n',x,sep='')
3 res=[]
4 for i in x:
5     if i not in res:
6         res.append(i)
7 print('Resultant List:\n',res,sep='')
8

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Q17.py"

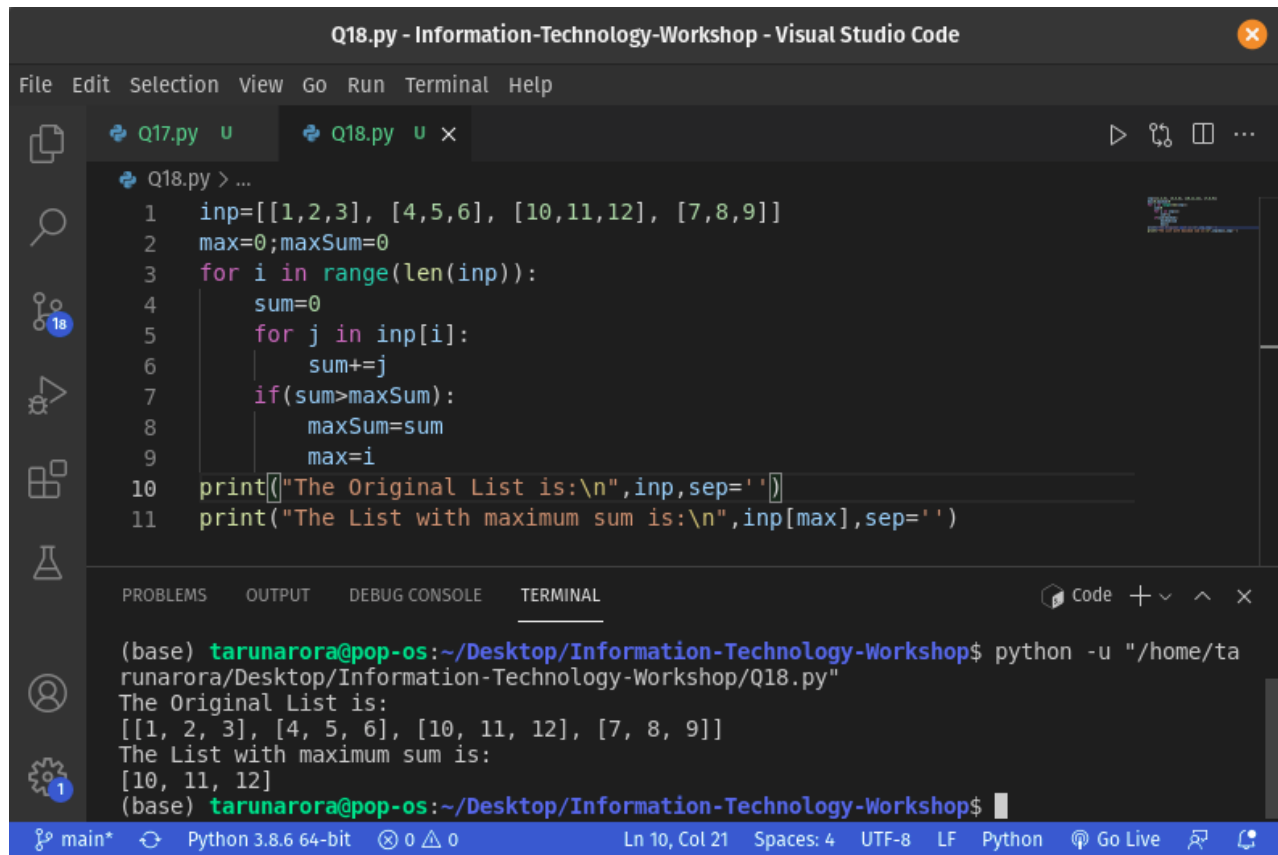
Original List:
[[10, 20], [40], [30, 56, 25], [10, 20], [33], [40]]
Resultant List:
[[10, 20], [40], [30, 56, 25], [33]]
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

18. Write a Python program to find the list in a list of lists whose sum of elements is the highest.

Sample lists: [1,2,3], [4,5,6], [10,11,12], [7,8,9]

Expected Output: [10, 11, 12]

Solution: -



The screenshot shows a Visual Studio Code window titled "Q18.py - Information-Technology-Workshop - Visual Studio Code". The editor displays a Python script in a file named "Q18.py". The script defines a list of lists, iterates through them to find the one with the highest sum, and prints the results. The output of the script is shown in the terminal panel at the bottom.

```
Q18.py > ...
1 inp=[[1,2,3], [4,5,6], [10,11,12], [7,8,9]]
2 max=0;maxSum=0
3 for i in range(len(inp)):
4     sum=0
5     for j in inp[i]:
6         sum+=j
7     if(sum>maxSum):
8         maxSum=sum
9         max=i
10 print("The Original List is:\n",inp,sep='\n')
11 print("The List with maximum sum is:\n",inp[max],sep='')

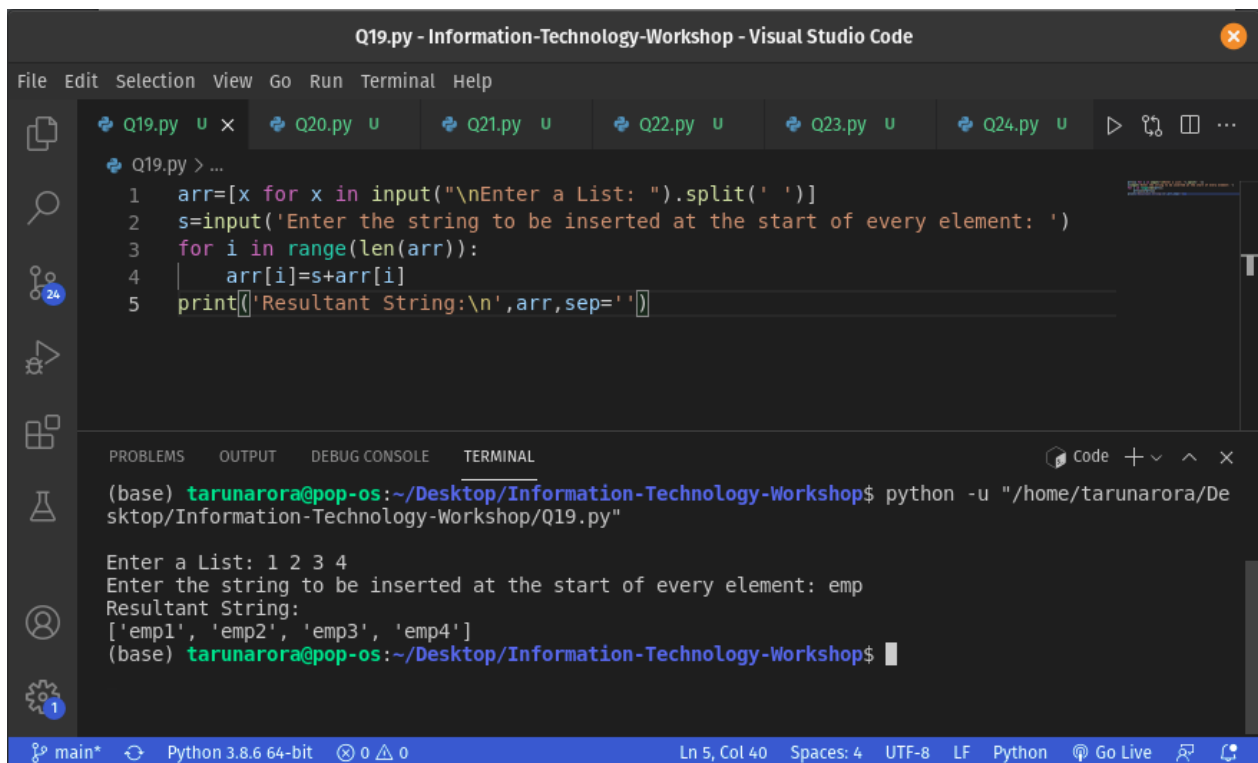
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Q18.py"
The Original List is:
[[1, 2, 3], [4, 5, 6], [10, 11, 12], [7, 8, 9]]
The List with maximum sum is:
[10, 11, 12]
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

19. Write a Python program to insert a given string at the beginning of all items in a list.

Sample list : [1,2,3,4], string : emp

Expected output : ['emp1', 'emp2', 'emp3', 'emp4']

Solution: -



The screenshot shows a Visual Studio Code window titled "Q19.py - Information-Technology-Workshop - Visual Studio Code". The editor displays a Python script in Q19.py with the following code:

```
1 arr=[x for x in input("\nEnter a List: ").split(' ')]
2 s=input('Enter the string to be inserted at the start of every element: ')
3 for i in range(len(arr)):
4     arr[i]=s+arr[i]
5 print('Resultant String:\n',arr,sep=' ')
```

The bottom panel shows the terminal output for the command `python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Q19.py"`:

```
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Q19.py"
Enter a List: 1 2 3 4
Enter the string to be inserted at the start of every element: emp
Resultant String:
['emp1', 'emp2', 'emp3', 'emp4']
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

The status bar at the bottom indicates the file is "main*", the Python version is "Python 3.8.6 64-bit", and the cursor is at "Ln 5, Col 40".

20. Write a Python program to compute the similarity between two lists.

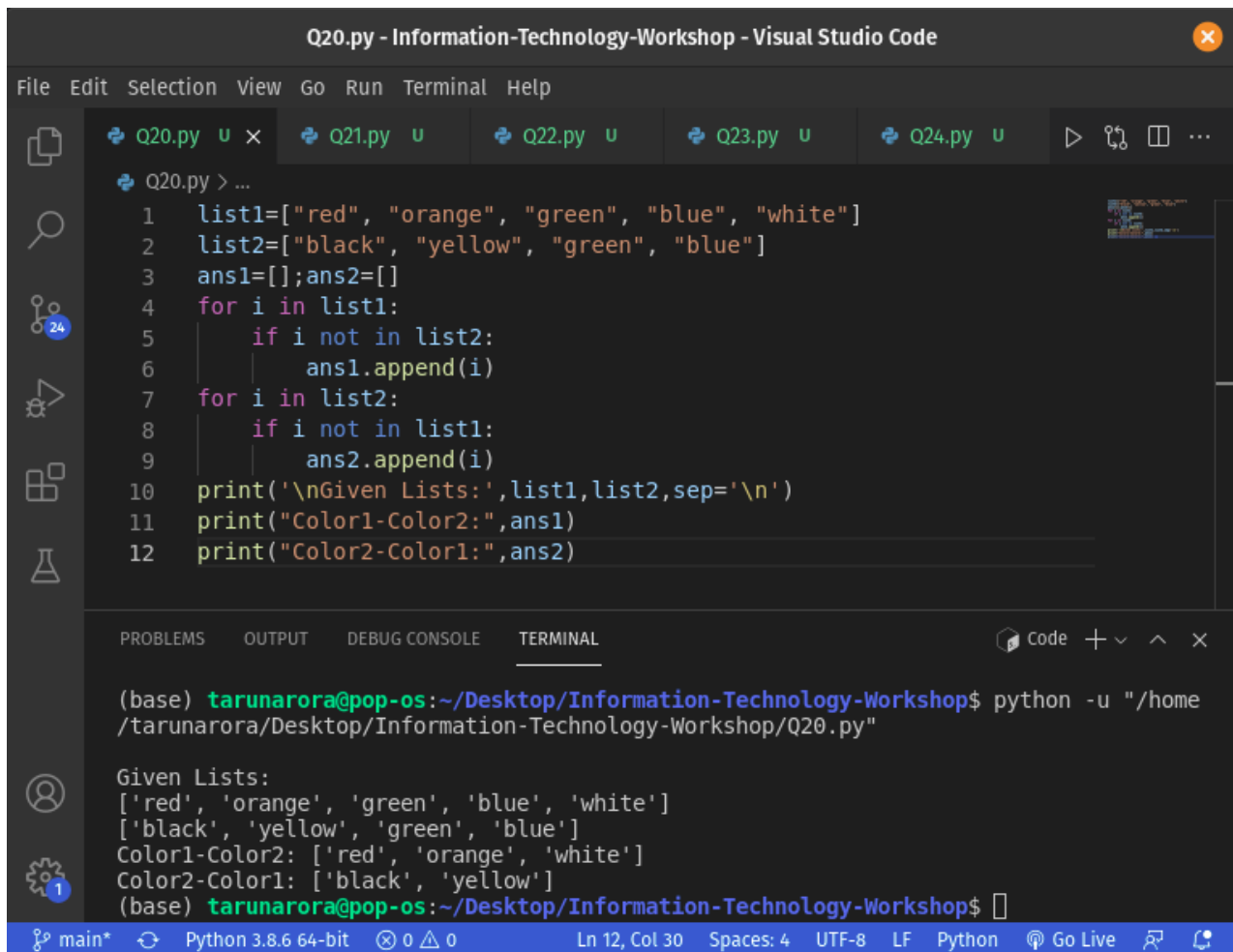
Sample data: ["red", "orange", "green", "blue", "white"],
["black", "yellow", "green", "blue"]

Expected Output:

Color1-Color2: ['white', 'orange', 'red']

Color2-Color1: ['black', 'yellow']

Solution: -



The screenshot shows a Visual Studio Code window titled "Q20.py - Information-Technology-Workshop - Visual Studio Code". The editor displays a Python script in Q20.py with the following code:

```
1 list1=["red", "orange", "green", "blue", "white"]
2 list2=["black", "yellow", "green", "blue"]
3 ans1=[];ans2=[]
4 for i in list1:
5     if i not in list2:
6         ans1.append(i)
7 for i in list2:
8     if i not in list1:
9         ans2.append(i)
10 print('\nGiven Lists:',list1,list2,sep='\n')
11 print("Color1-Color2:",ans1)
12 print("Color2-Color1:",ans2)
```

The bottom panel shows the terminal output of the program:

```
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Q20.py"

Given Lists:
['red', 'orange', 'green', 'blue', 'white']
['black', 'yellow', 'green', 'blue']
Color1-Color2: ['red', 'orange', 'white']
Color2-Color1: ['black', 'yellow']
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

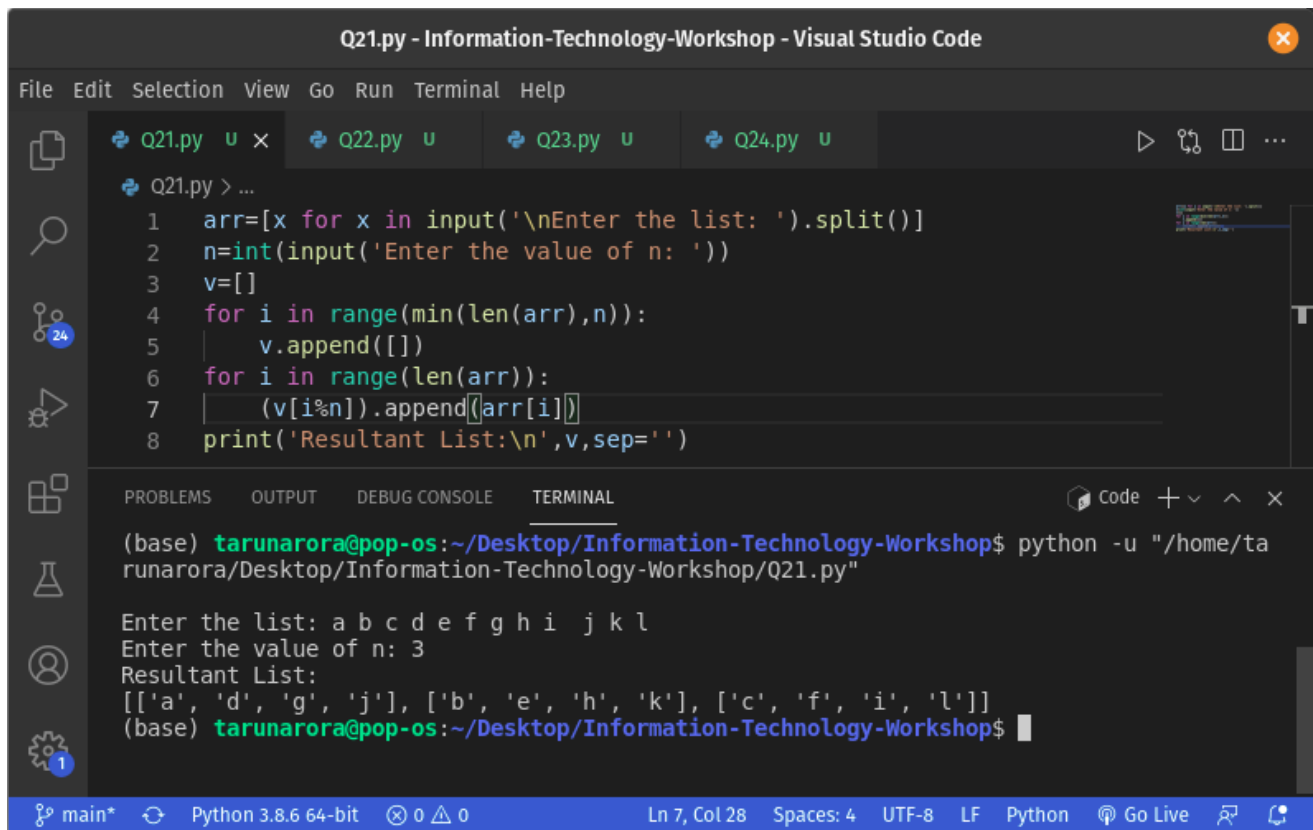
The status bar at the bottom indicates the file is "main*", the Python version is "3.8.6 64-bit", and the cursor is at "Ln 12, Col 30".

21. Write a Python program to split a list every Nth element.

Sample list: ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n']

Expected Output: [['a', 'd', 'g', 'j', 'm'], ['b', 'e', 'h', 'k', 'n'], ['c', 'f', 'i', 'l']]

Solution: -



The screenshot shows a Visual Studio Code window titled "Q21.py - Information-Technology-Workshop - Visual Studio Code". The editor has four tabs: Q21.py, Q22.py, Q23.py, and Q24.py. The Q21.py tab is active, showing the following Python code:

```
Q21.py > ...
1 arr=[x for x in input('\nEnter the list: ').split()]
2 n=int(input('Enter the value of n: '))
3 v=[]
4 for i in range(min(len(arr),n)):
5     v.append([])
6 for i in range(len(arr)):
7     (v[i%n]).append(arr[i])
8 print('Resultant List:\n',v,sep='')
```

Below the code editor is a terminal window. The terminal shows the command to run the program and its output:

```
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Q21.py"

Enter the list: a b c d e f g h i j k l
Enter the value of n: 3
Resultant List:
[['a', 'd', 'g', 'j'], ['b', 'e', 'h', 'k'], ['c', 'f', 'i', 'l']]
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

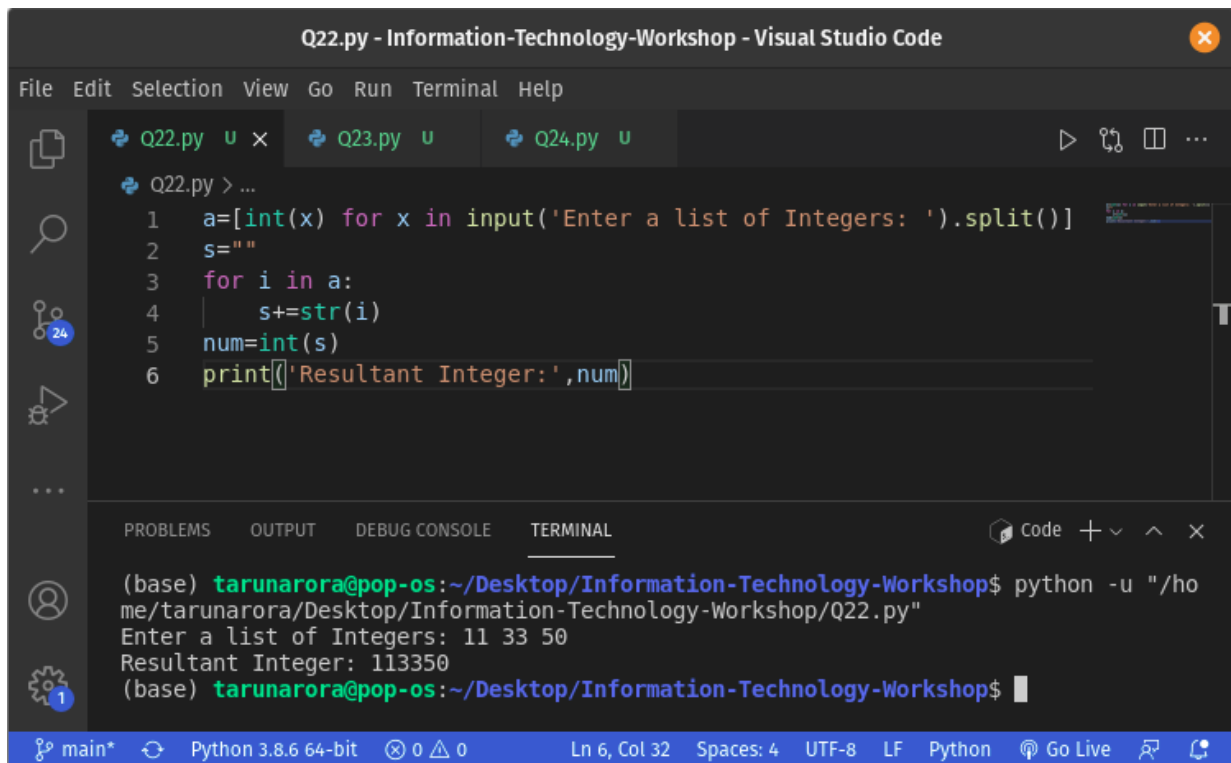
The status bar at the bottom indicates the file is "main*", the Python version is "Python 3.8.6 64-bit", there are "0" errors, and the cursor is at "Ln 7, Col 28". Other settings shown are "Spaces: 4", "UTF-8", "LF", and "Python".

22. Write a Python program to convert a list of multiple integers into a single integer.

Sample list: [11, 33, 50]

Expected Output: 113350

Solution: -



The screenshot shows the Visual Studio Code interface with a file named 'Q22.py' open. The code in the editor is as follows:

```
Q22.py > ...
1 a=[int(x) for x in input('Enter a list of Integers: ').split()]
2 s=""
3 for i in a:
4     s+=str(i)
5 num=int(s)
6 print('Resultant Integer:',num)
```

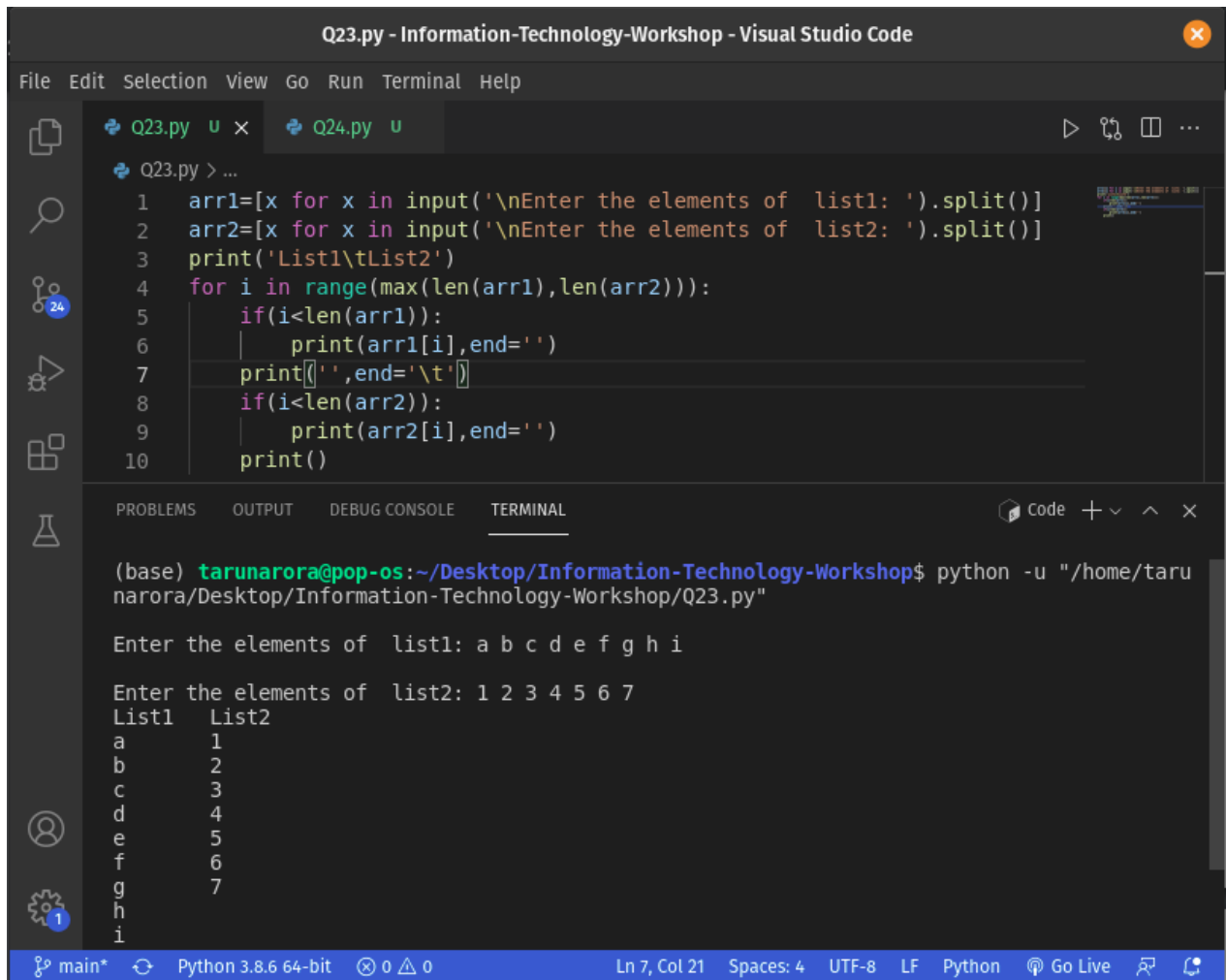
The bottom panel shows the terminal output:

```
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Q22.py"
Enter a list of Integers: 11 33 50
Resultant Integer: 113350
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

The status bar at the bottom indicates the file is 'main*', the Python version is 'Python 3.8.6 64-bit', and the cursor is at 'Ln 6, Col 32'.

23. Write a Python program to iterate over two lists simultaneously.

Solution: -



The screenshot shows the Visual Studio Code interface with a file named 'Q23.py' open. The code in the editor is as follows:

```
Q23.py > ...
1 arr1=[x for x in input('\nEnter the elements of list1: ').split()]
2 arr2=[x for x in input('\nEnter the elements of list2: ').split()]
3 print('List1\tList2')
4 for i in range(max(len(arr1),len(arr2))):
5     if(i<len(arr1)):
6         print(arr1[i],end='')
7     print('\t',end='\t')
8     if(i<len(arr2)):
9         print(arr2[i],end='')
10    print()
```

The terminal window shows the execution of the program. It prompts the user to enter elements for list1 and list2. The output displays the two lists side-by-side, padded with tabs.

```
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/taru
narora/Desktop/Information-Technology-Workshop/Q23.py"

Enter the elements of list1: a b c d e f g h i

Enter the elements of list2: 1 2 3 4 5 6 7
List1 List2
a      1
b      2
c      3
d      4
e      5
f      6
g      7
h
i
```

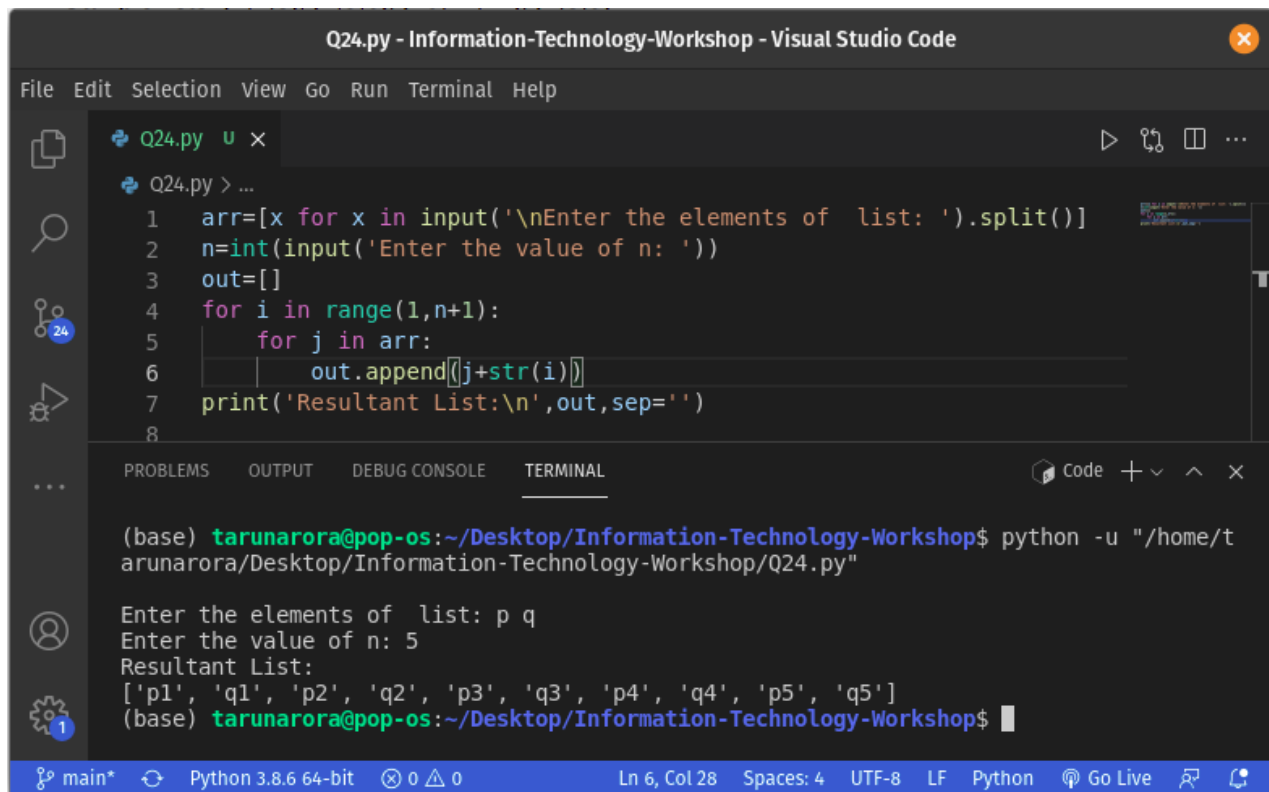
The status bar at the bottom indicates the file is 'main*', the Python version is 'Python 3.8.6 64-bit', and the cursor is at 'Ln 7, Col 21'.

24. Write a Python program to create a list by concatenating a given list which range goes from 1 to n.

Sample list : ['p', 'q'] n =5

Sample Output : ['p1', 'q1', 'p2', 'q2', 'p3', 'q3', 'p4', 'q4', 'p5', 'q5']

Solution: -



The screenshot shows a Visual Studio Code window titled "Q24.py - Information-Technology-Workshop - Visual Studio Code". The editor displays a Python script in Q24.py:

```
1 arr=[x for x in input('\nEnter the elements of list: ').split()]
2 n=int(input('Enter the value of n: '))
3 out=[]
4 for i in range(1,n+1):
5     for j in arr:
6         out.append(j+str(i))
7 print('Resultant List:\n',out,sep='')
8
```

The terminal output shows the program being executed with the following input and output:

```
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$ python -u "/home/tarunarora/Desktop/Information-Technology-Workshop/Q24.py"
Enter the elements of list: p q
Enter the value of n: 5
Resultant List:
['p1', 'q1', 'p2', 'q2', 'p3', 'q3', 'p4', 'q4', 'p5', 'q5']
(base) tarunarora@pop-os:~/Desktop/Information-Technology-Workshop$
```

The status bar at the bottom indicates the file is "main*", the Python version is "Python 3.8.6 64-bit", and the cursor is at "Ln 6, Col 28".

*****EOF*****