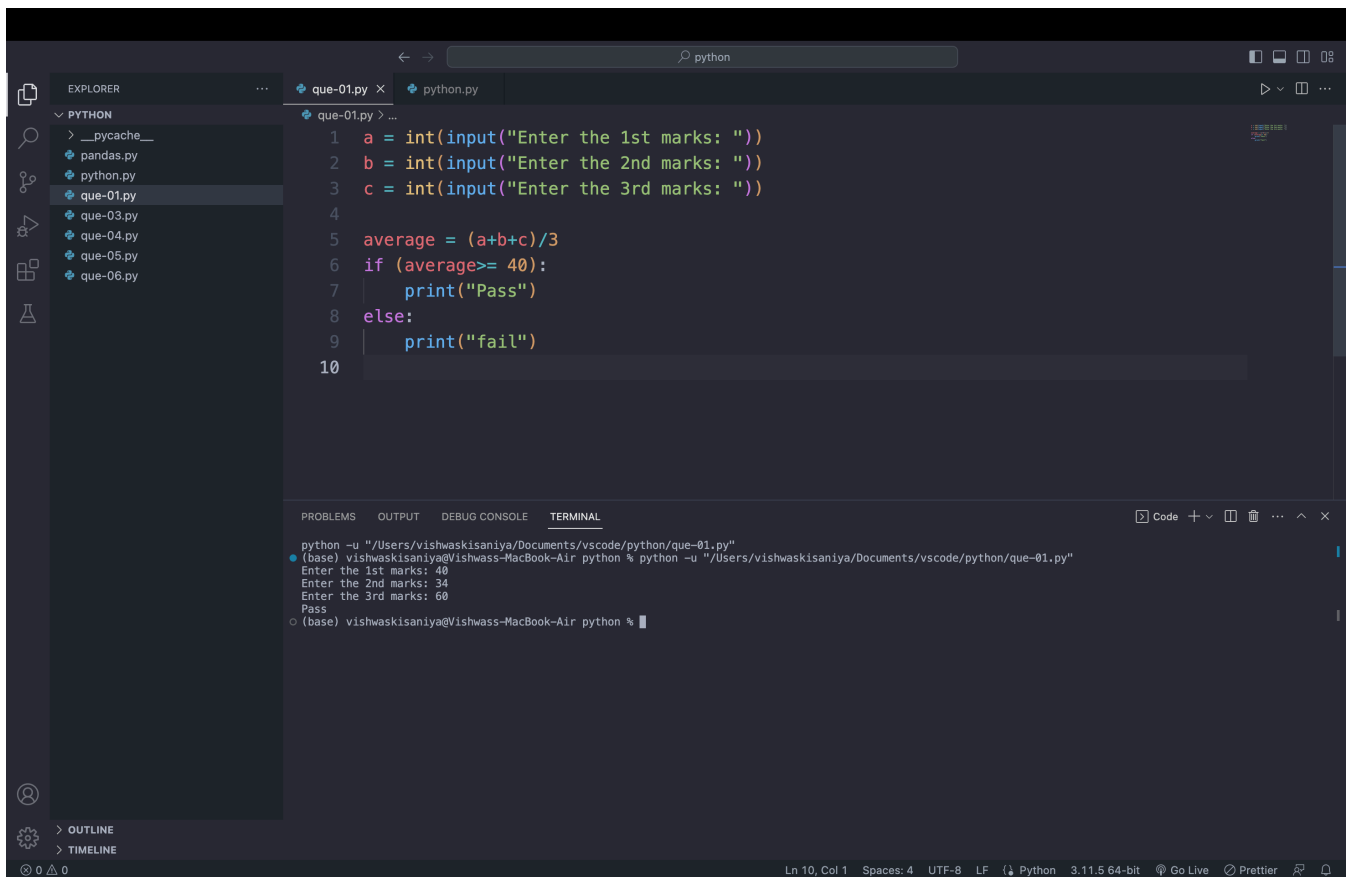


Assignment - 01

(Python for data science)

Vishwas Kisaniya
22106027
CSE(DS)

Question: 01



The screenshot displays the Visual Studio Code (VS Code) interface. On the left, the Explorer sidebar shows a file tree with a folder named 'PYTHON' containing several files: `__pycache__`, `pandas.py`, `python.py`, `que-01.py` (selected), `que-03.py`, `que-04.py`, `que-05.py`, and `que-06.py`. The main editor window shows the content of `que-01.py`, which is a Python script for calculating the average of three marks and determining if the student passes or fails. The script is as follows:

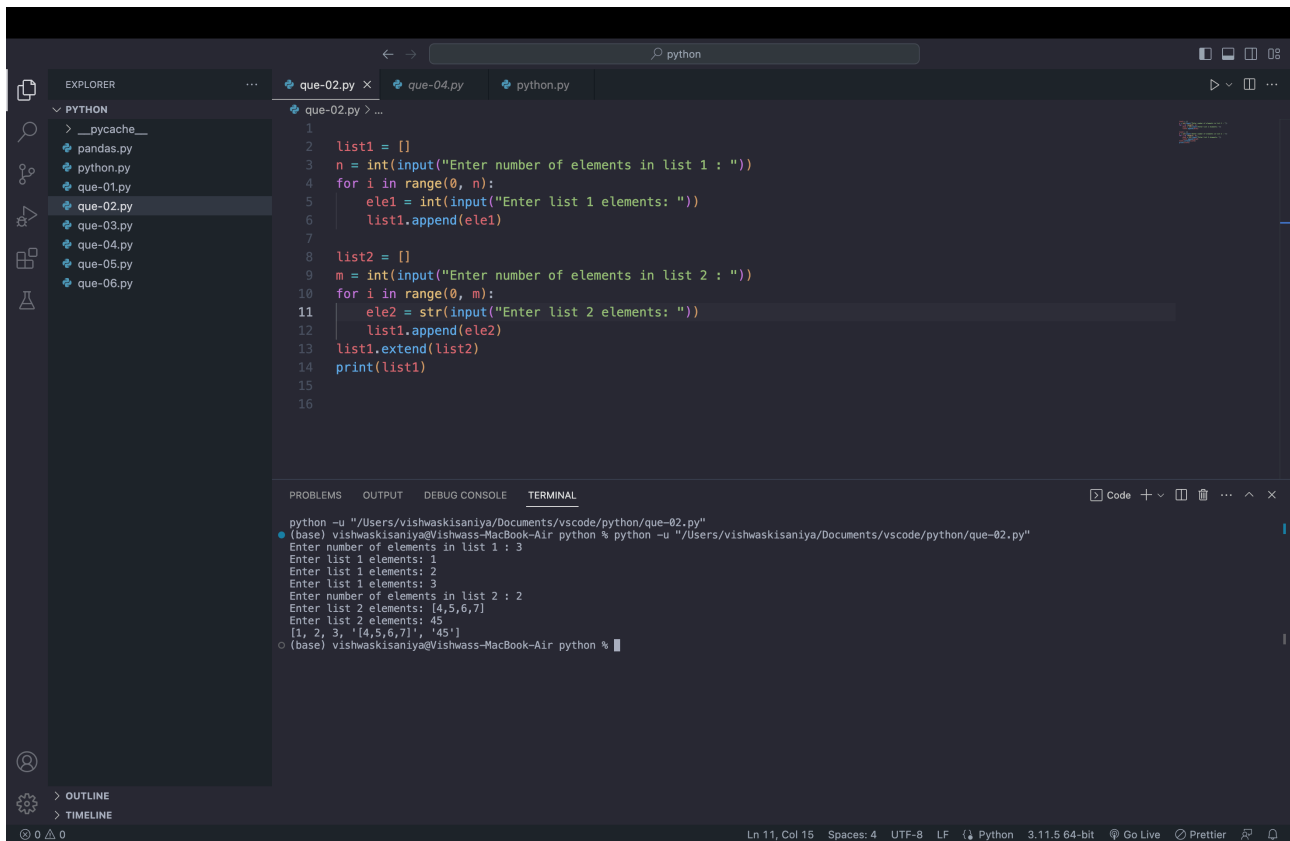
```
1 a = int(input("Enter the 1st marks: "))
2 b = int(input("Enter the 2nd marks: "))
3 c = int(input("Enter the 3rd marks: "))
4
5 average = (a+b+c)/3
6 if (average >= 40):
7     print("Pass")
8 else:
9     print("fail")
10
```

Below the editor, the TERMINAL panel shows the command prompt output for running the script:

```
python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-01.py"
(base) vishwaskisaniya@Vishwas-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-01.py"
Enter the 1st marks: 40
Enter the 2nd marks: 34
Enter the 3rd marks: 60
Pass
(base) vishwaskisaniya@Vishwas-MacBook-Air python %
```

The status bar at the bottom indicates the current cursor position is at Line 10, Column 1, with 4 spaces, UTF-8 encoding, LF line endings, and the Python 3.11.5 64-bit interpreter selected. Other icons for Go Live, Prettier, and a search icon are also visible.

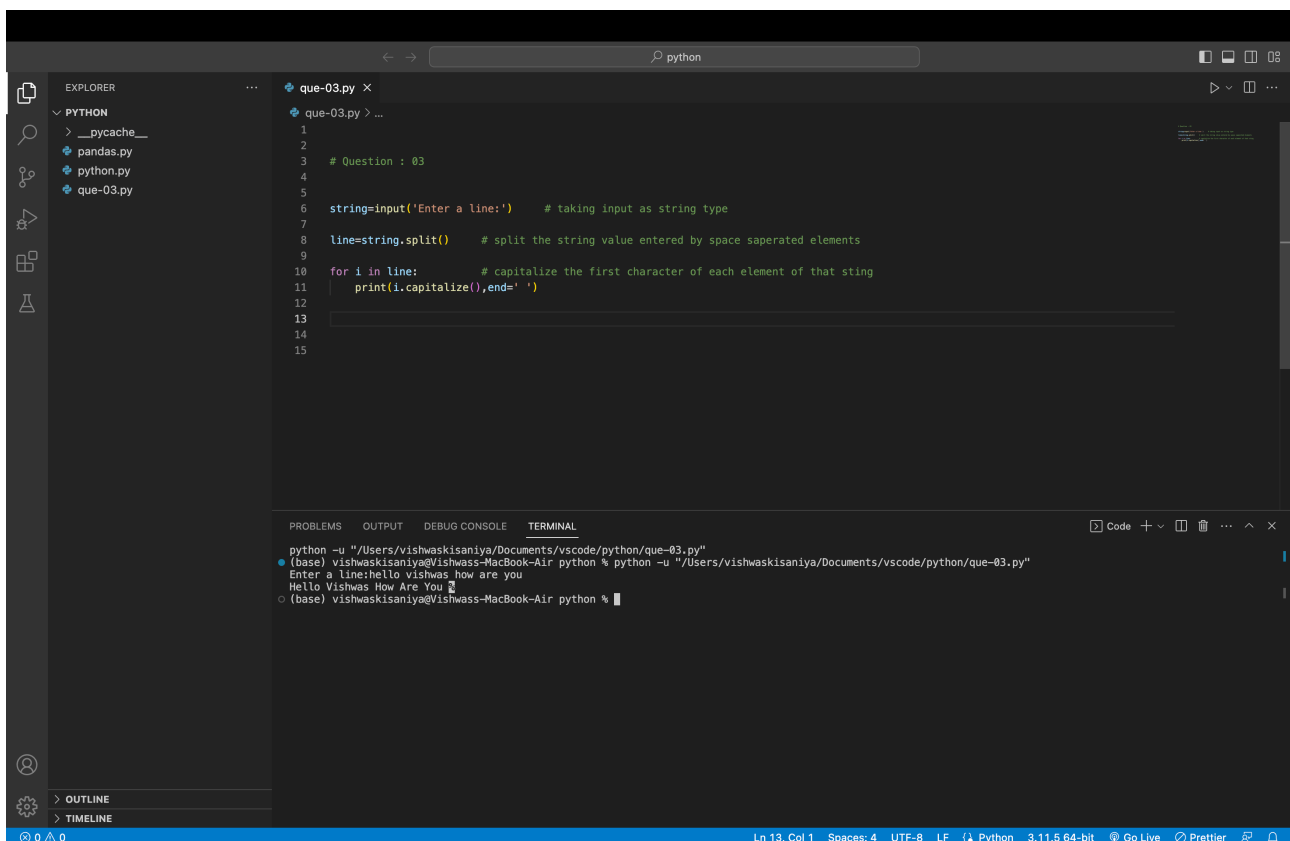
Question: 02



```
1
2 list1 = []
3 n = int(input("Enter number of elements in list 1 : "))
4 for i in range(0, n):
5     ele1 = int(input("Enter list 1 elements: "))
6     list1.append(ele1)
7
8 list2 = []
9 m = int(input("Enter number of elements in list 2 : "))
10 for i in range(0, m):
11     ele2 = str(input("Enter list 2 elements: "))
12     list1.append(ele2)
13 list1.extend(list2)
14 print(list1)
15
16
```

```
python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-02.py"
(base) vishwaskisaniya@Vishwas-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-02.py"
Enter number of elements in list 1 : 3
Enter list 1 elements: 1
Enter list 1 elements: 2
Enter list 1 elements: 3
Enter number of elements in list 2 : 2
Enter list 2 elements: [4,5,6,7]
Enter list 2 elements: 45
[1, 2, 3, '[4,5,6,7]', '45']
(base) vishwaskisaniya@Vishwas-MacBook-Air python %
```

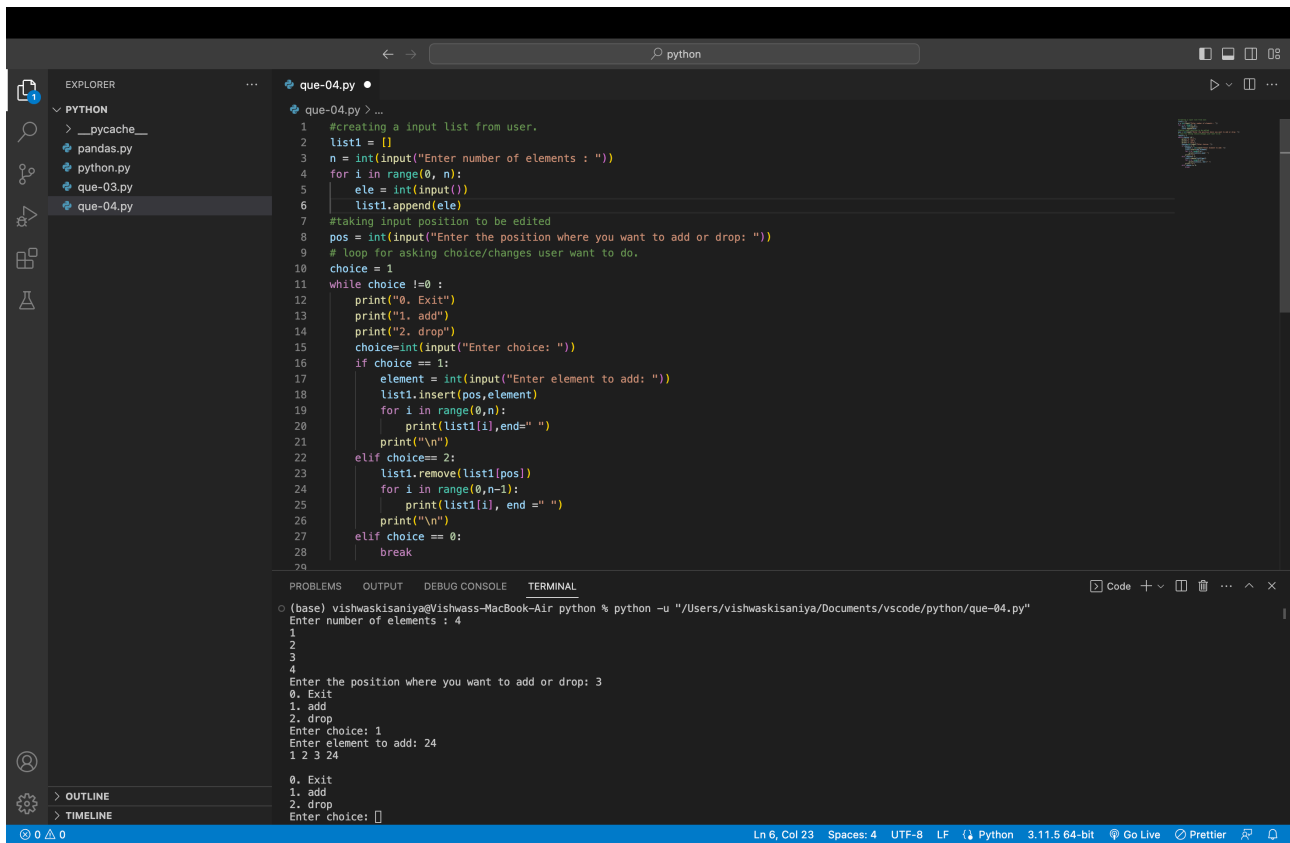
Question: 03



```
1
2
3 # Question : 03
4
5
6 string=input('Enter a line:') # taking input as string type
7
8 line=string.split() # split the string value entered by space saperated elements
9
10 for i in line:
11     print(i.capitalize(),end=' ')
12
13
14
15
```

```
python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-03.py"
(base) vishwaskisaniya@Vishwas-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-03.py"
Enter a line:hello vishwas how are you
Hello Vishwas How Are You
(base) vishwaskisaniya@Vishwas-MacBook-Air python %
```

Question: 04

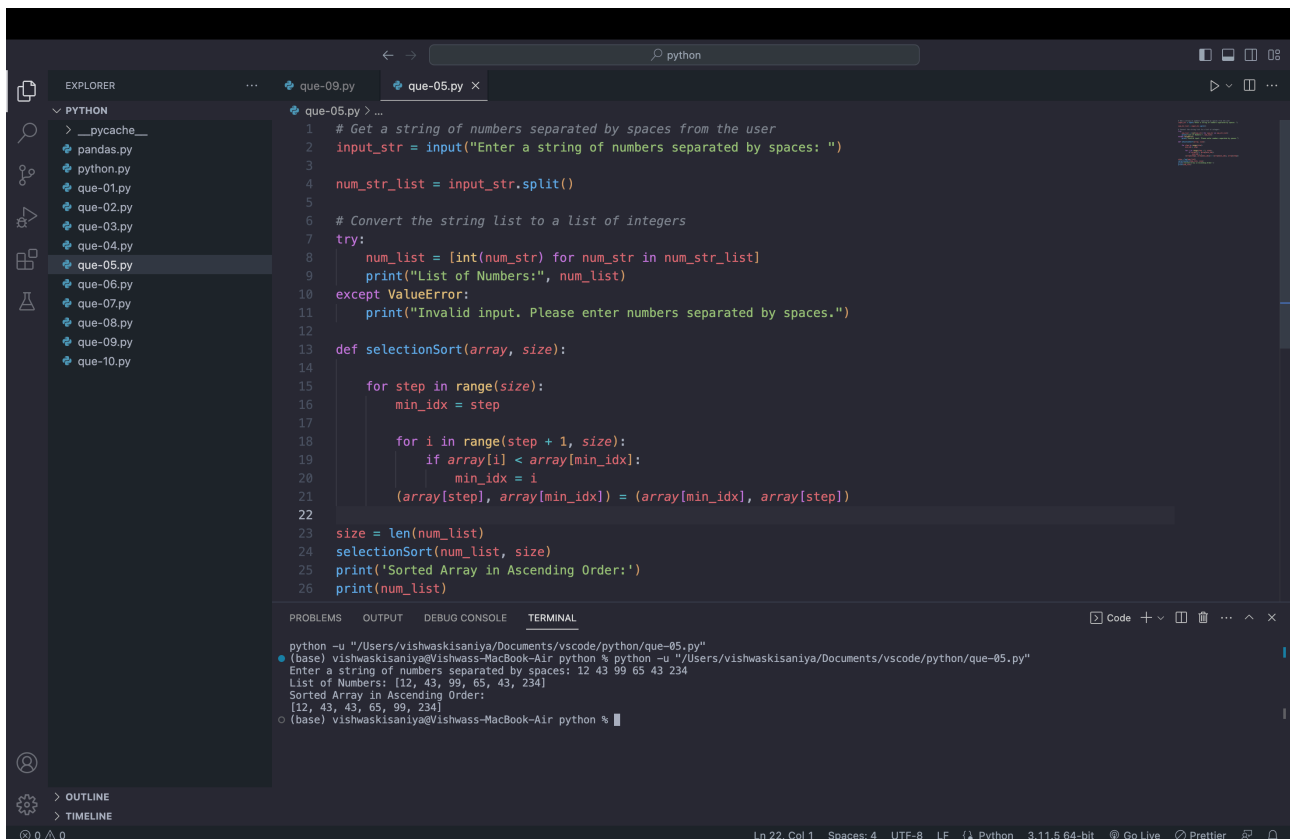


```
1 #creating a input list from user.
2 list1 = []
3 n = int(input("Enter number of elements : "))
4 for i in range(0, n):
5     ele = int(input())
6     list1.append(ele)
7 #taking input position to be edited
8 pos = int(input("Enter the position where you want to add or drop: "))
9 # loop for asking choice/changes user want to do.
10 choice = 1
11 while choice != 0 :
12     print("0. Exit")
13     print("1. add")
14     print("2. drop")
15     choice=int(input("Enter choice: "))
16     if choice == 1:
17         element = int(input("Enter element to add: "))
18         list1.insert(pos,element)
19         for i in range(0,n):
20             print(list1[i],end=" ")
21         print("\n")
22     elif choice== 2:
23         list1.remove(list1[pos])
24         for i in range(0,n-1):
25             print(list1[i], end =" ")
26         print("\n")
27     elif choice == 0:
28         break
29
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
(base) vishwaskisaniya@Vishwass-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-04.py"
Enter number of elements : 4
1
2
3
4
Enter the position where you want to add or drop: 1
0. Exit
1. add
2. drop
Enter choice: 1
Enter element to add: 24
1 2 3 24
0. Exit
1. add
2. drop
Enter choice: 0
```

Question: 05



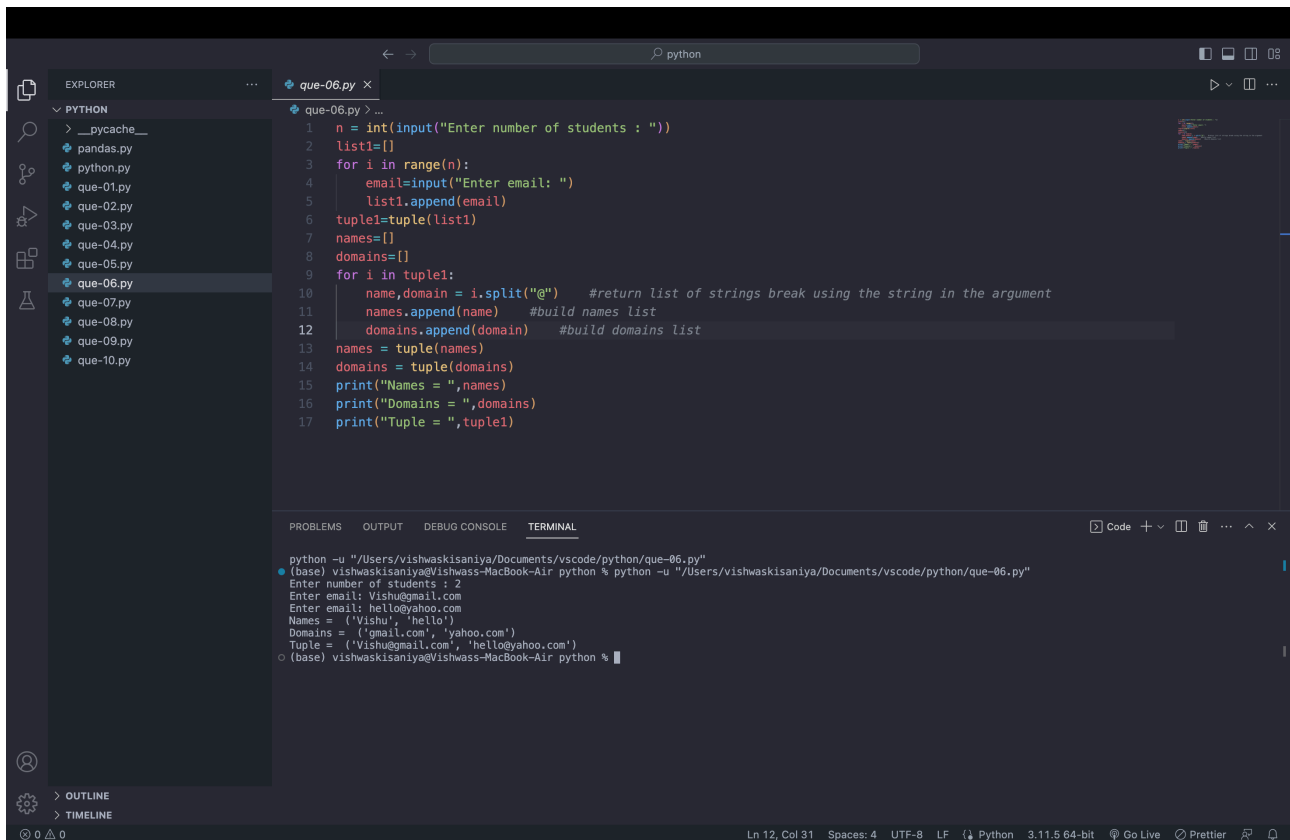
```
1 # Get a string of numbers separated by spaces from the user
2 input_str = input("Enter a string of numbers separated by spaces: ")
3
4 num_str_list = input_str.split()
5
6 # Convert the string list to a list of integers
7 try:
8     num_list = [int(num_str) for num_str in num_str_list]
9     print("List of Numbers:", num_list)
10 except ValueError:
11     print("Invalid input. Please enter numbers separated by spaces.")
12
13 def selectionSort(array, size):
14
15     for step in range(size):
16         min_idx = step
17
18         for i in range(step + 1, size):
19             if array[i] < array[min_idx]:
20                 min_idx = i
21             (array[step], array[min_idx]) = (array[min_idx], array[step])
22
23 size = len(num_list)
24 selectionSort(num_list, size)
25 print('Sorted Array in Ascending Order:')
26 print(num_list)

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

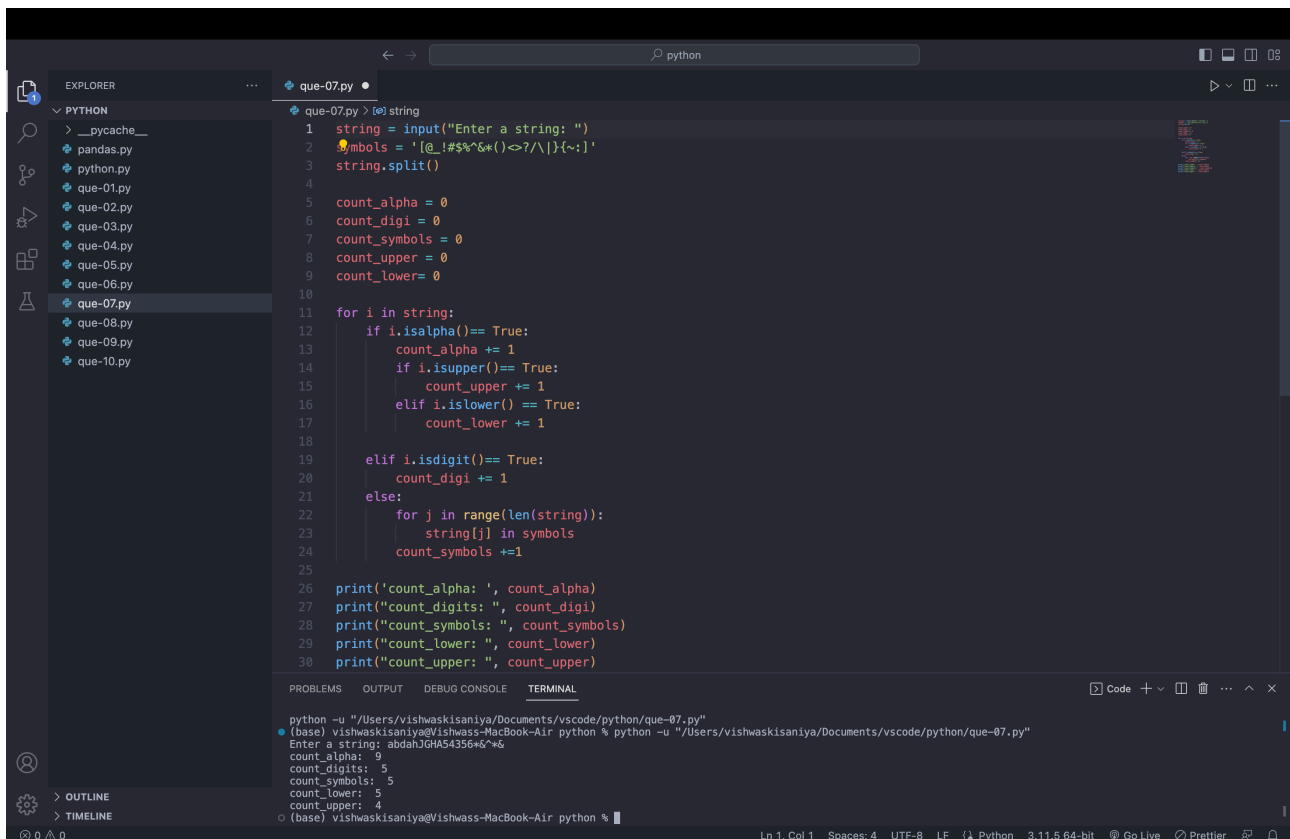
```
python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-05.py"
(base) vishwaskisaniya@Vishwass-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-05.py"
Enter a string of numbers separated by spaces: 12 43 99 65 43 234
List of Numbers: [12, 43, 99, 65, 43, 234]
Sorted Array in Ascending Order:
[12, 43, 43, 65, 99, 234]
(base) vishwaskisaniya@Vishwass-MacBook-Air python %
```

Question: 06



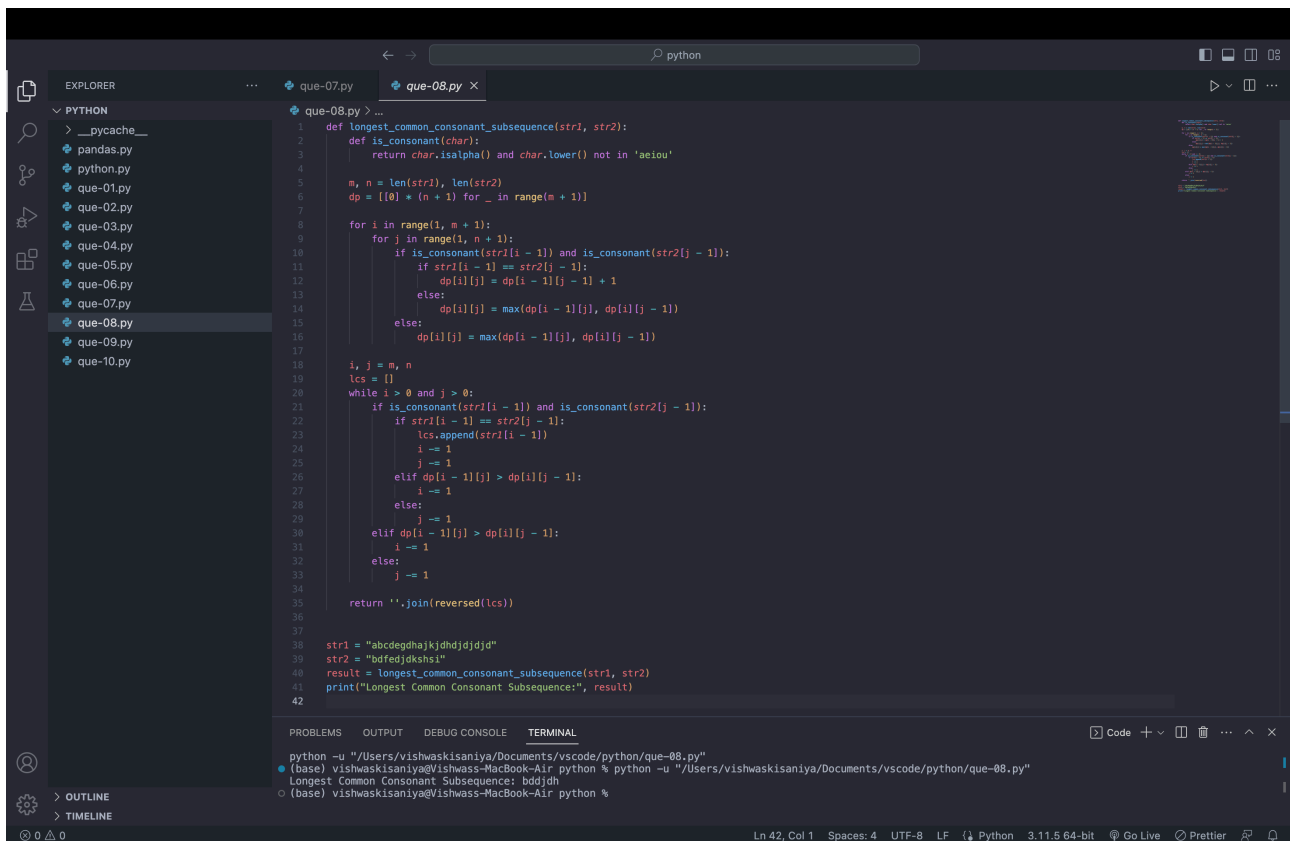
```
python
python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-06.py"
(base) vishwaskisaniya@Vishwass-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-06.py"
Enter number of students : 2
Enter email: Vishu@gmail.com
Enter email: hello@yahoo.com
Names = ('Vishu', 'hello')
Domains = ('gmail.com', 'yahoo.com')
Tuple = ('Vishu@gmail.com', 'hello@yahoo.com')
(base) vishwaskisaniya@Vishwass-MacBook-Air python %
```

Question: 07



```
python
python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-07.py"
(base) vishwaskisaniya@Vishwass-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-07.py"
Enter a string: abdashJGHAS4356*%&
count_alpha: 9
count_digits: 5
count_symbols: 5
count_lower: 5
count_upper: 4
(base) vishwaskisaniya@Vishwass-MacBook-Air python %
```

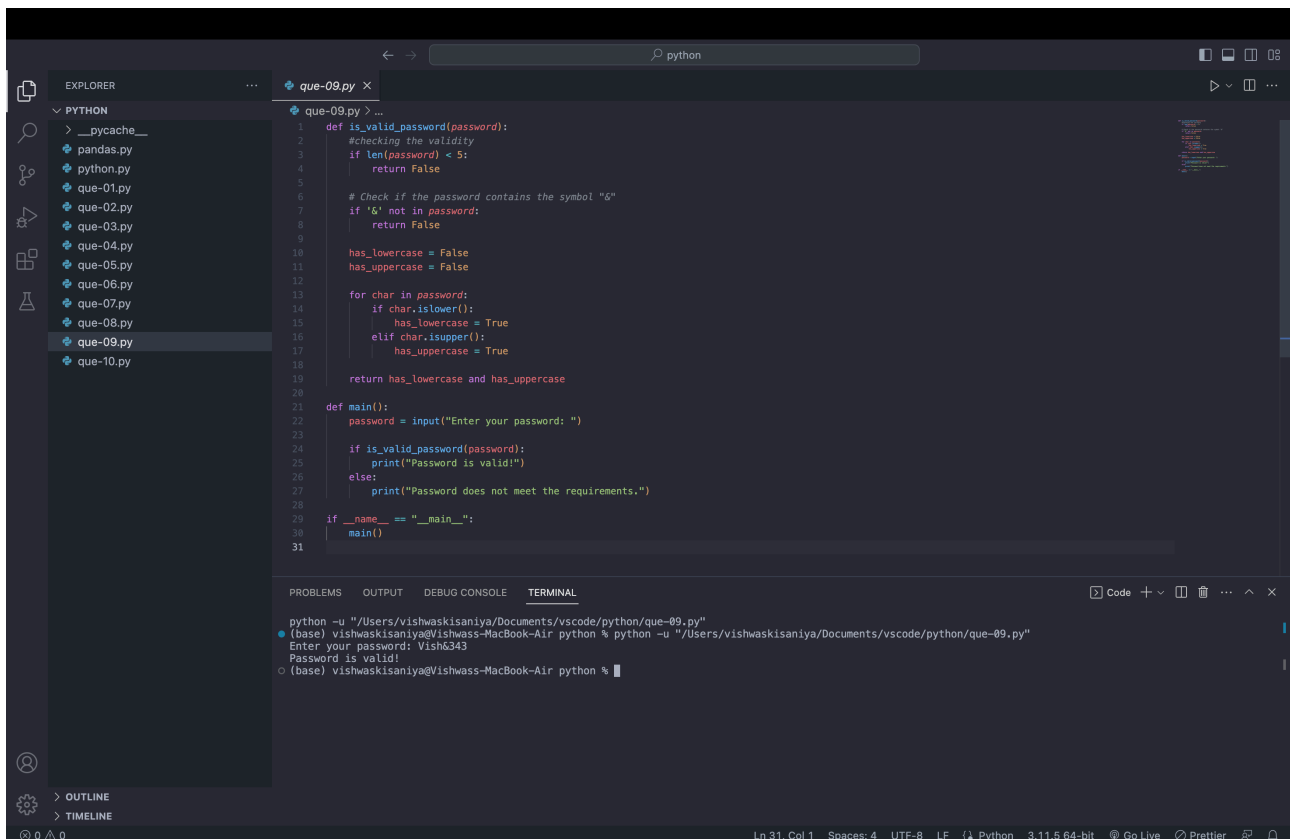
Question: 08



```
1 def longest_common_consonant_subsequence(str1, str2):
2     def is_consonant(char):
3         return char.isalpha() and char.lower() not in 'aeiou'
4
5     m, n = len(str1), len(str2)
6     dp = [[0] * (n + 1) for _ in range(m + 1)]
7
8     for i in range(1, m + 1):
9         for j in range(1, n + 1):
10            if is_consonant(str1[i - 1]) and is_consonant(str2[j - 1]):
11                if str1[i - 1] == str2[j - 1]:
12                    dp[i][j] = dp[i - 1][j - 1] + 1
13                else:
14                    dp[i][j] = max(dp[i - 1][j], dp[i][j - 1])
15            else:
16                dp[i][j] = max(dp[i - 1][j], dp[i][j - 1])
17
18     i, j = m, n
19     lcs = []
20     while i > 0 and j > 0:
21         if is_consonant(str1[i - 1]) and is_consonant(str2[j - 1]):
22             if str1[i - 1] == str2[j - 1]:
23                 lcs.append(str1[i - 1])
24                 i -= 1
25                 j -= 1
26             elif dp[i - 1][j] > dp[i][j - 1]:
27                 i -= 1
28             else:
29                 j -= 1
30             elif dp[i - 1][j] > dp[i][j - 1]:
31                 i -= 1
32             else:
33                 j -= 1
34
35     return ''.join(reversed(lcs))
36
37 str1 = "abcdedghajkdhdjdjdjd"
38 str2 = "bdfedjkskhsi"
39 result = longest_common_consonant_subsequence(str1, str2)
40 print("Longest Common Consonant Subsequence:", result)
41
42
```

python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-08.py"
• (base) vishwaskisaniya@Vishwass-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-08.py"
Longest Common Consonant Subsequence: bddjd
○ (base) vishwaskisaniya@Vishwass-MacBook-Air python %

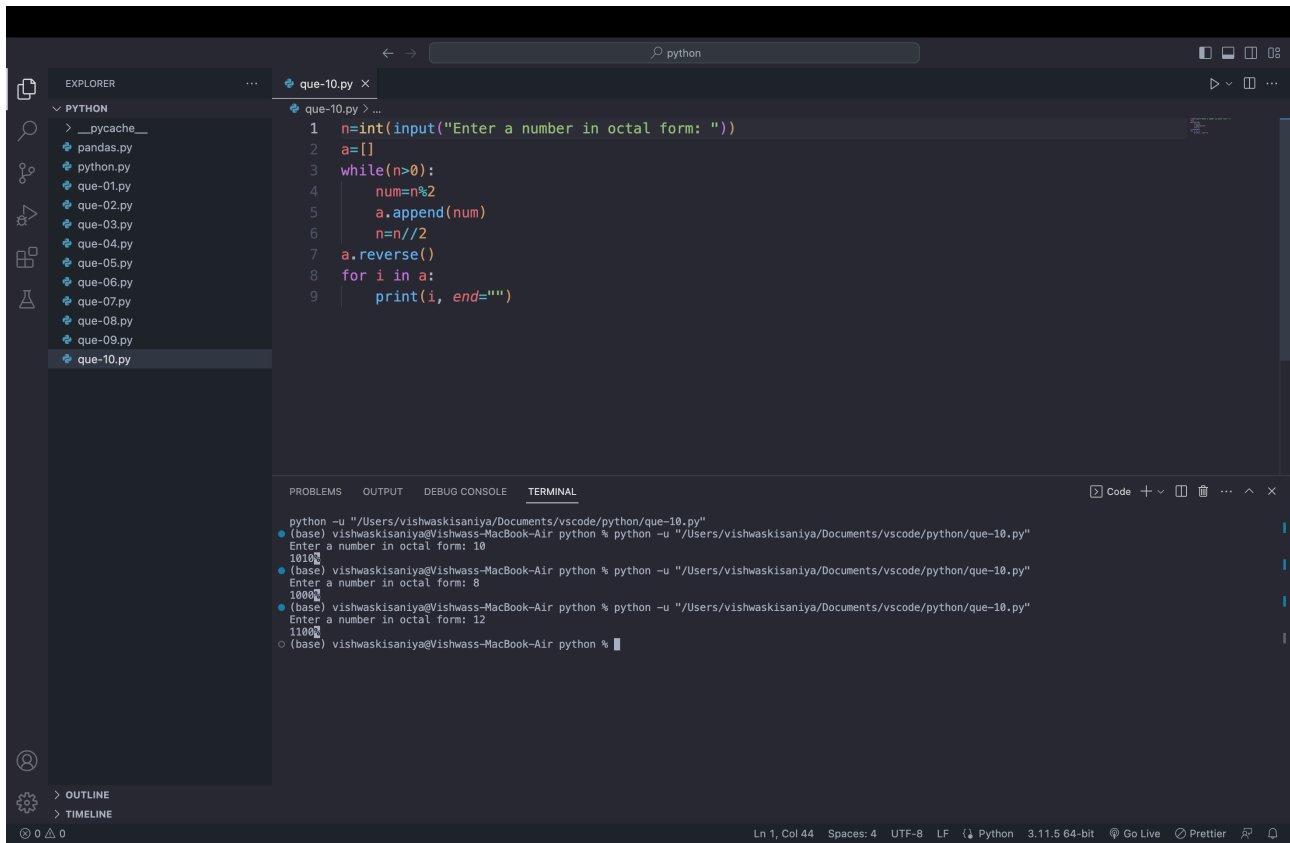
Question: 09



```
1 def is_valid_password(password):
2     #checking the validity
3     if len(password) < 5:
4         return False
5
6     # Check if the password contains the symbol "6"
7     if '6' not in password:
8         return False
9
10    has_lowercase = False
11    has_uppercase = False
12
13    for char in password:
14        if char.islower():
15            has_lowercase = True
16        elif char.isupper():
17            has_uppercase = True
18
19    return has_lowercase and has_uppercase
20
21 def main():
22     password = input("Enter your password: ")
23
24     if is_valid_password(password):
25         print("Password is valid!")
26     else:
27         print("Password does not meet the requirements.")
28
29 if __name__ == "__main__":
30     main()
31
```

python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-09.py"
• (base) vishwaskisaniya@Vishwass-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-09.py"
Enter your password: Vish6343
Password is valid!
○ (base) vishwaskisaniya@Vishwass-MacBook-Air python %

Question: 10



The screenshot shows a VS Code editor with a Python file named `que-10.py` open. The file contains a script that takes an octal number as input, converts it to decimal, and then prints its digits in reverse order. The terminal shows the script being executed three times with inputs 10, 8, and 12, resulting in the outputs 010, 000, and 1100 respectively.

```
1 n=int(input("Enter a number in octal form: "))
2 a=[]
3 while(n>0):
4     num=n%2
5     a.append(num)
6     n=n//2
7 a.reverse()
8 for i in a:
9     print(i, end="")
```

Terminal Output:

```
python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-10.py"
(base) vishwaskisaniya@Vishwass-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-10.py"
Enter a number in octal form: 10
1010
(base) vishwaskisaniya@Vishwass-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-10.py"
Enter a number in octal form: 8
1000
(base) vishwaskisaniya@Vishwass-MacBook-Air python % python -u "/Users/vishwaskisaniya/Documents/vscode/python/que-10.py"
Enter a number in octal form: 12
1100
(base) vishwaskisaniya@Vishwass-MacBook-Air python %
```