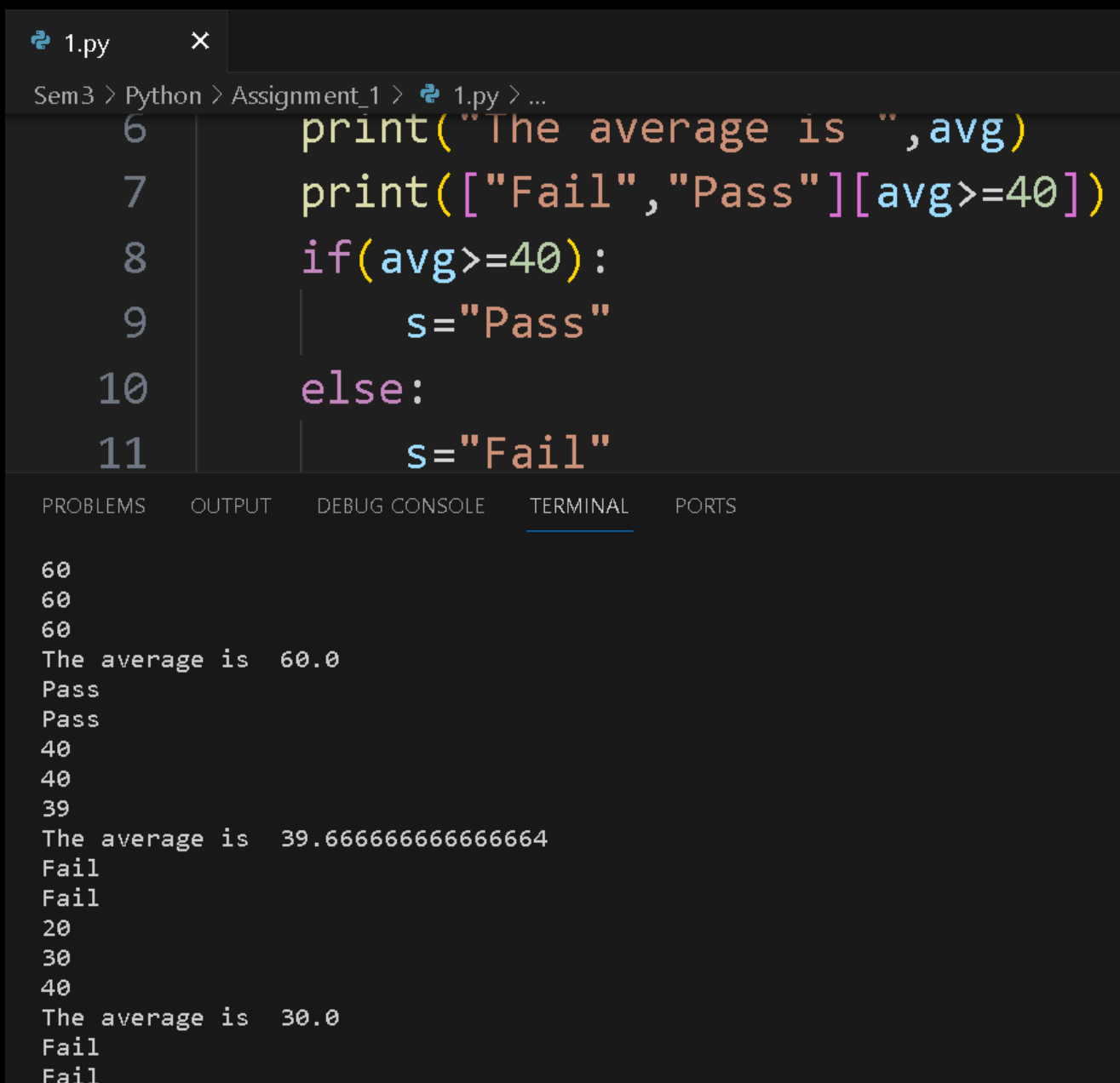


Q1. Write a program that asks the user to input marks of three subjects and computes the average for it. The average should then be compared 40, and the output display should be Pass/Fail depending upon whether the marks are greater/lesser than 40.

Solution Code:

```
a=int(input())
b=int(input())
c=int(input())
avg=(a+b+c)/3
print("The average is ",avg)
print(["fail","pass"][avg>=40])
if(avg>=40):
    s="Pass"
else:
    s="Fail"
print(s)
```

Output:



The screenshot shows a Python IDE with a file named '1.py'. The code in the editor is as follows:

```
1 print("The average is ",avg)
2 print(["Fail","Pass"][avg>=40])
3 if(avg>=40):
4     s="Pass"
5 else:
6     s="Fail"
```

The terminal output shows the results of running the program with three different sets of input marks:

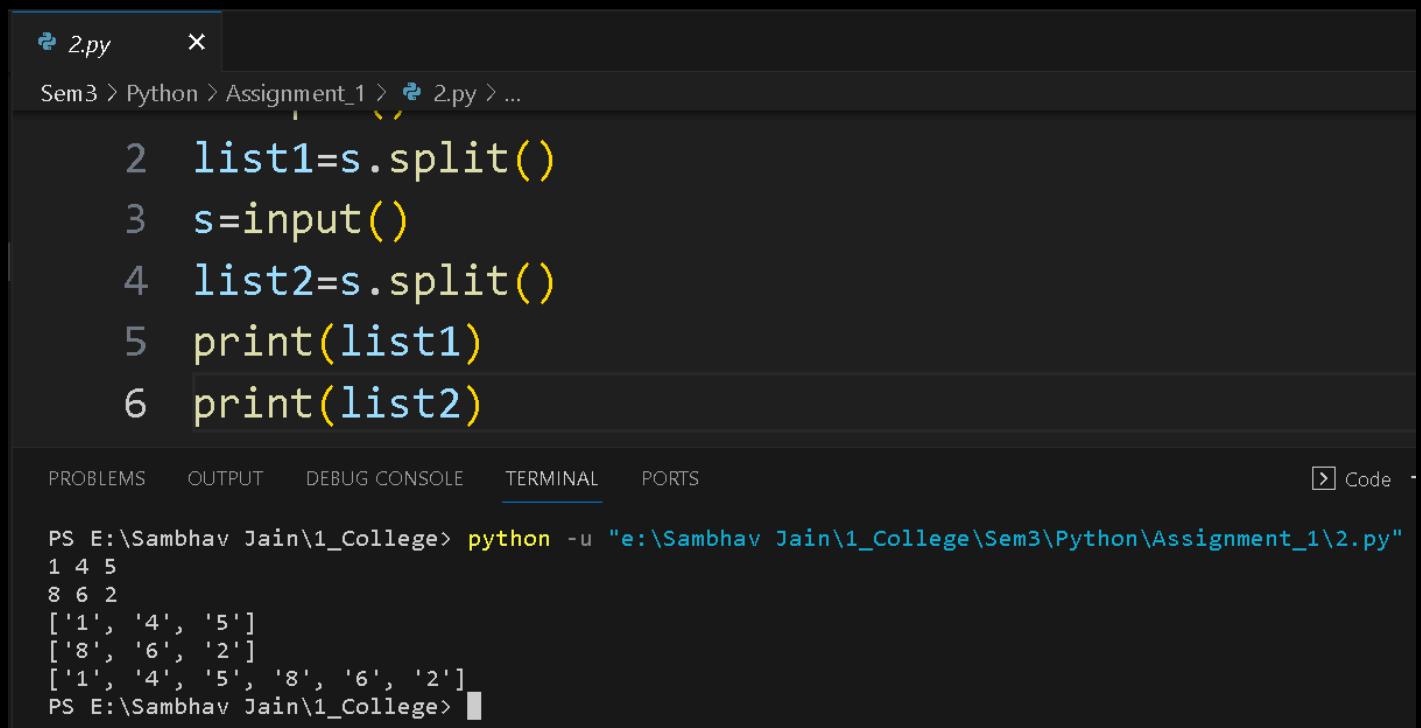
```
60
60
60
The average is  60.0
Pass
Pass
40
40
39
The average is  39.666666666666664
Fail
Fail
20
30
40
The average is  30.0
Fail
Fail
```

Q2. Write a program that takes two lists as an input and appends them. The second list could either be a single number or a list of numbers.

Solution Code:

```
s=input()
list1=s.split()
s=input()
list2=s.split()
print(list1)
print(list2)
for i in list2:
    list1.append(i)
print(list1)
```

Output:



The screenshot shows a code editor with a file named `2.py`. The code in the editor is as follows:

```
2 list1=s.split()
3 s=input()
4 list2=s.split()
5 print(list1)
6 print(list2)
```

Below the code editor is a terminal window. The terminal shows the command `python -u "e:\Sambhav Jain\1_College\Sem3\Python\Assignment_1\2.py"` being executed. The output of the program is displayed in the terminal:

```
PS E:\Sambhav Jain\1_College> python -u "e:\Sambhav Jain\1_College\Sem3\Python\Assignment_1\2.py"
1 4 5
8 6 2
['1', '4', '5']
['8', '6', '2']
['1', '4', '5', '8', '6', '2']
PS E:\Sambhav Jain\1_College>
```

Q3. Write a program with a function that inputs a string and the output has to be a new string with first letter of every word capitalized. For instance, if the sentence is "Hello how are you." the output should be "Hello How Are You"

Solution Code:

```
s=input()
list1=s.split()
s=""
for i in list1:
    t=chr(ord(i[0])-ord('a')+ord('A'))
    s+=t+i[1:]+" "

print(s)
```

Output:



The screenshot shows a code editor with a file named '3.py' open. The code is as follows:

```
1 s=input()
2 list1=s.split()
3 s=""
4 for i in list1:
5     t=chr(ord(i[0])-ord('a')+ord('A'))
6     s+=t+i[1:]+" "
```

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

```
PS E:\Sambhav Jain\1_College> python -u "e:\Sambhav Jain\1_College\Sem3\Python\Assignment_1\3.py"
hello friends how are you
Hello Friends How Are You
PS E:\Sambhav Jain\1_College>
```

Q4. Write a program for insertion and deletion of elements in a list. On selection of deletion option, a submenu should be displayed to ask if the element is to be deleted by value or by position or a slice of elements has to be deleted and accordingly the output is generated.

Solution Code:

```
s=input()
list1=s.split()
list2=[]
for i in list1:
    list2.append(int(i))
while(True):
    print("Press 0 to exit")
    print("Press 1 to insert element")
    print("Press 2 to delete element")
    n=int(input())
    if(n==0):
        break
    if(n==1):
        print("Enter the element to insert")
        ins=int(input())
        list2.append(ins)
        print(list2)
    if(n==2):
        print("Delete by value(0)")
        print("Delete by position(1)")
        print("Delete a slice(2)")
        opt=int(input())
        if(opt==0):
            print("Enter value to delete")
            val=int(input())
            list2.remove(val)
            print(list2)
        if(opt==1):
            print("Enter position to delete")
            pos=int(input())
            list2.pop(pos)
            print(list2)
        if(opt==2):
            print("Enter start pos")
            start=int(input())
            print("Enter end pos")
```

```
end=int(input())
while(end>=start):
    list2.pop(end)
    end-=1
print(list2)
```

Output:

```
PS E:\Sambhav Jain\1_College> python -u "e:\Sambhav Jain\1_College\Sem3\Python\Assignment_1\4.py"
1 2 3 4 5 6
Press 0 to exit
Press 1 to insert element
Press 2 to delete element
1
Enter the element to insert
10
[1, 2, 3, 4, 5, 6, 10]
Press 0 to exit
Press 1 to insert element
Press 2 to delete element
2
Delete by value(0)
Delete by position(1))
Delete a slice(2)
0
Enter value to delete
4
[1, 2, 3, 5, 6, 10]
Press 0 to exit
Press 1 to insert element
Press 2 to delete element
2
Delete by value(0)
Delete by position(1))
Delete a slice(2)
1
Enter position to delete
5
[1, 2, 3, 5, 6]
Press 0 to exit
Press 1 to insert element
Press 2 to delete element
2
Delete by value(0)
Delete by position(1))
Delete a slice(2)
2
Enter start pos
1
Enter end pos
3
[1, 6]
```

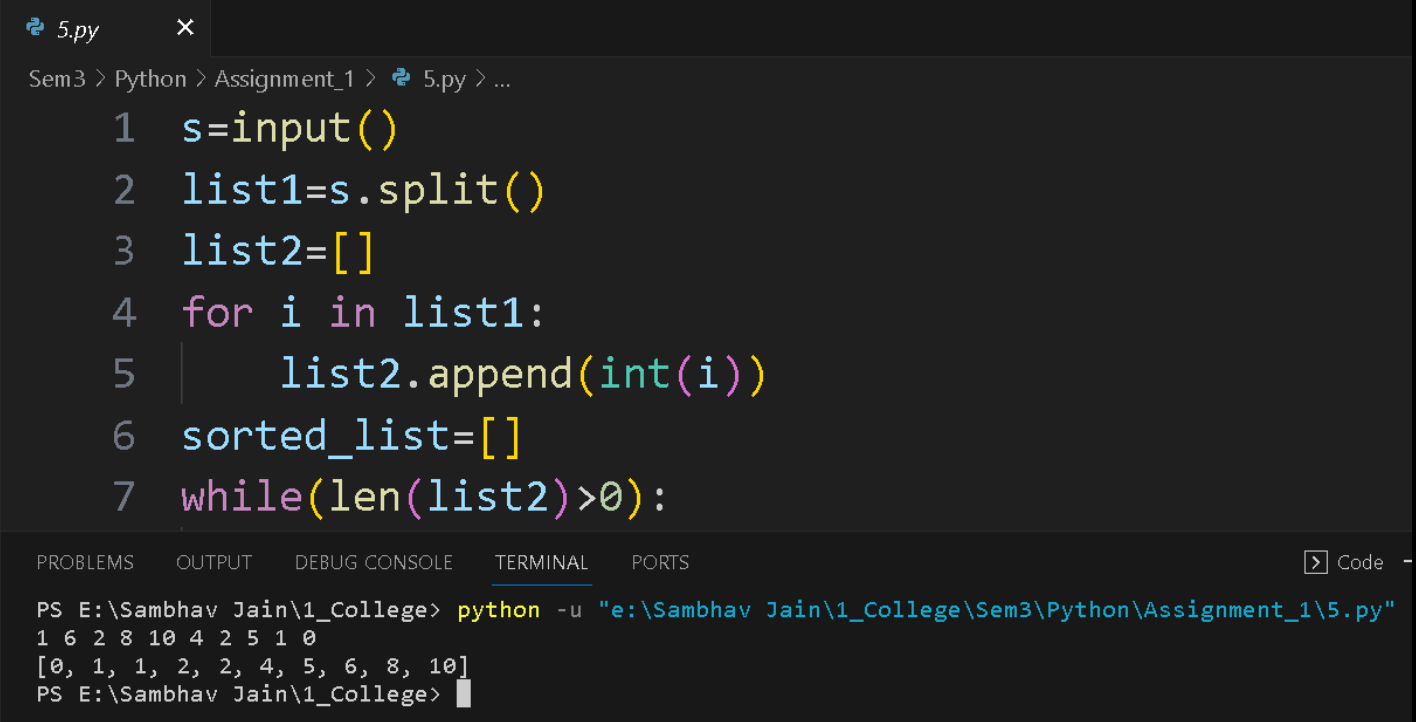
Q5. Write a program to input a string of numbers separated by a space " ". Generate a list of numbers from this string and sort the list using selection sort.

Solution Code:

```
s=input()
list1=s.split()
list2=[]
for i in list1:
    list2.append(int(i))
sorted_list=[]
while(len(list2)>0):
    next=list2[0]
    for i in list2:
        next=min(next,i)
    list2.remove(next)
    sorted_list.append(next)

print(sorted_list)
```

Output:



The screenshot shows a code editor with a file named 5.py. The code is a Python program that implements selection sort. It takes a string of numbers separated by spaces as input, splits it into a list, and then sorts it using selection sort. The output is printed as a list.

```
Sem3 > Python > Assignment_1 > 5.py > ...
1 s=input()
2 list1=s.split()
3 list2=[]
4 for i in list1:
5     list2.append(int(i))
6 sorted_list=[]
7 while(len(list2)>0):
```

The terminal output shows the execution of the program. It prompts for input, which is "1 6 2 8 10 4 2 5 1 0". The output is "[0, 1, 1, 2, 2, 4, 5, 6, 8, 10]".

```
PS E:\Sambhav Jain\1_College> python -u "e:\Sambhav Jain\1_College\Sem3\Python\Assignment_1\5.py"
1 6 2 8 10 4 2 5 1 0
[0, 1, 1, 2, 2, 4, 5, 6, 8, 10]
PS E:\Sambhav Jain\1_College>
```

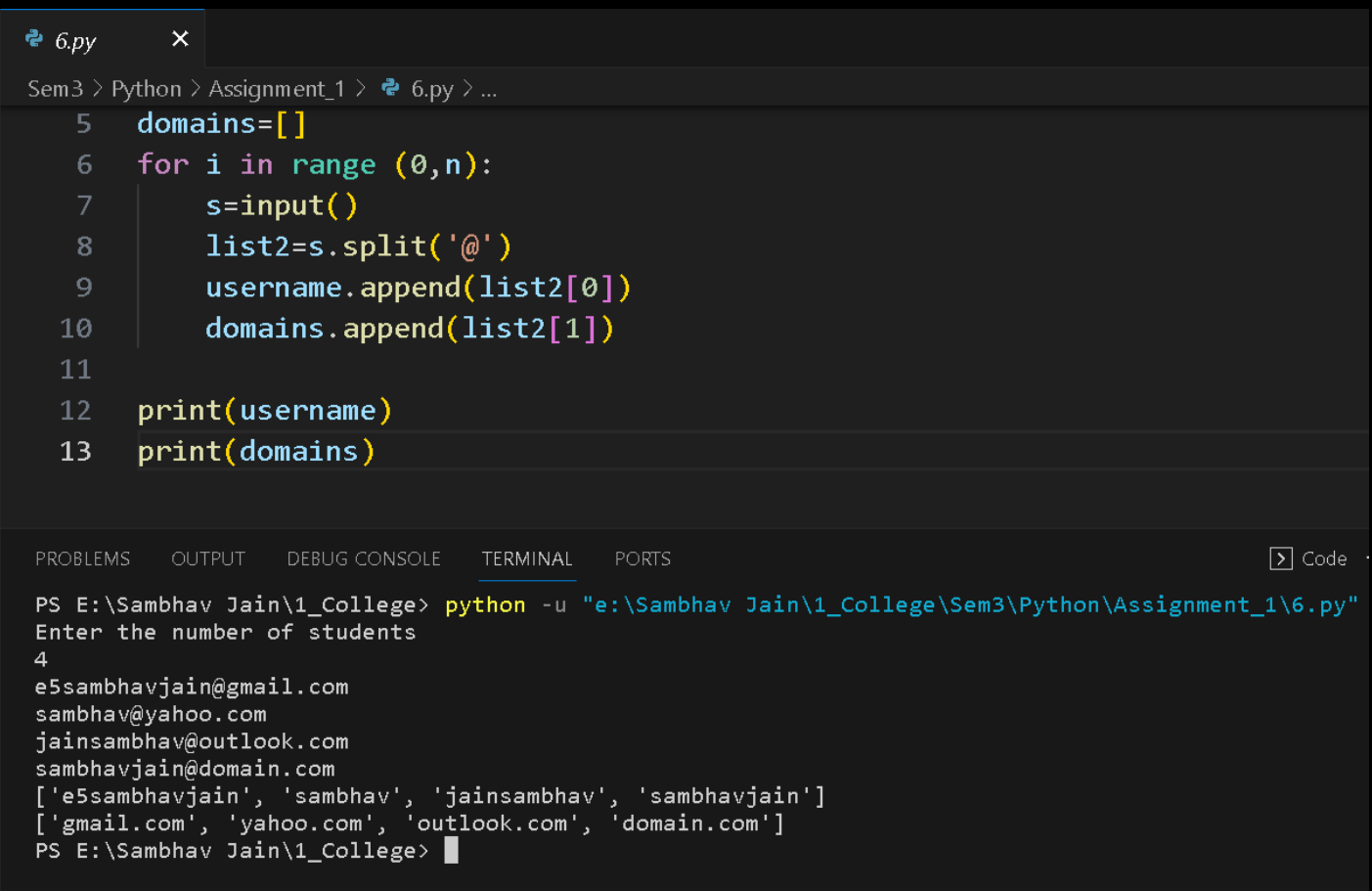
Q6. Write a program which takes email IDs of n students and stores in a tuple. Two new tuples are to be created from it- first one having the user names of the email IDs and the second one having the domain names only. The final output should display all three tuples.

Solution Code:

```
print("Enter the number of students")
n=int(input())
list1=[]
username=[]
domains=[]
for i in range (0,n):
    s=input()
    list2=s.split('@')
    username.append(list2[0])
    domains.append(list2[1])

print(username)
print(domains)
```

Output:



The screenshot shows a code editor with a file named 6.py. The code is a Python program that takes the number of students (n) and then n email addresses. It splits each email at the '@' symbol to extract the username and domain, storing them in separate lists. Finally, it prints both lists. Below the code editor, the terminal window shows the execution of the program. It prompts for the number of students (4) and then for 4 email addresses. The output shows the extracted usernames and domains as lists.

```
6.py x
Sem3 > Python > Assignment_1 > 6.py > ...
5 domains=[]
6 for i in range (0,n):
7     s=input()
8     list2=s.split('@')
9     username.append(list2[0])
10    domains.append(list2[1])
11
12 print(username)
13 print(domains)

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS E:\Sambhav Jain\1_College> python -u "e:\Sambhav Jain\1_College\Sem3\Python\Assignment_1\6.py"
Enter the number of students
4
e5sambhavjain@gmail.com
sambhav@yahoo.com
jainsambhav@outlook.com
sambhavjain@domain.com
['e5sambhavjain', 'sambhav', 'jainsambhav', 'sambhavjain']
['gmail.com', 'yahoo.com', 'outlook.com', 'domain.com']
PS E:\Sambhav Jain\1_College>
```

Q7. Write a program that inputs a string and print following information about that string:

Number of alphabets

Number of digits

Number of symbols

Number of uppercase alphabets

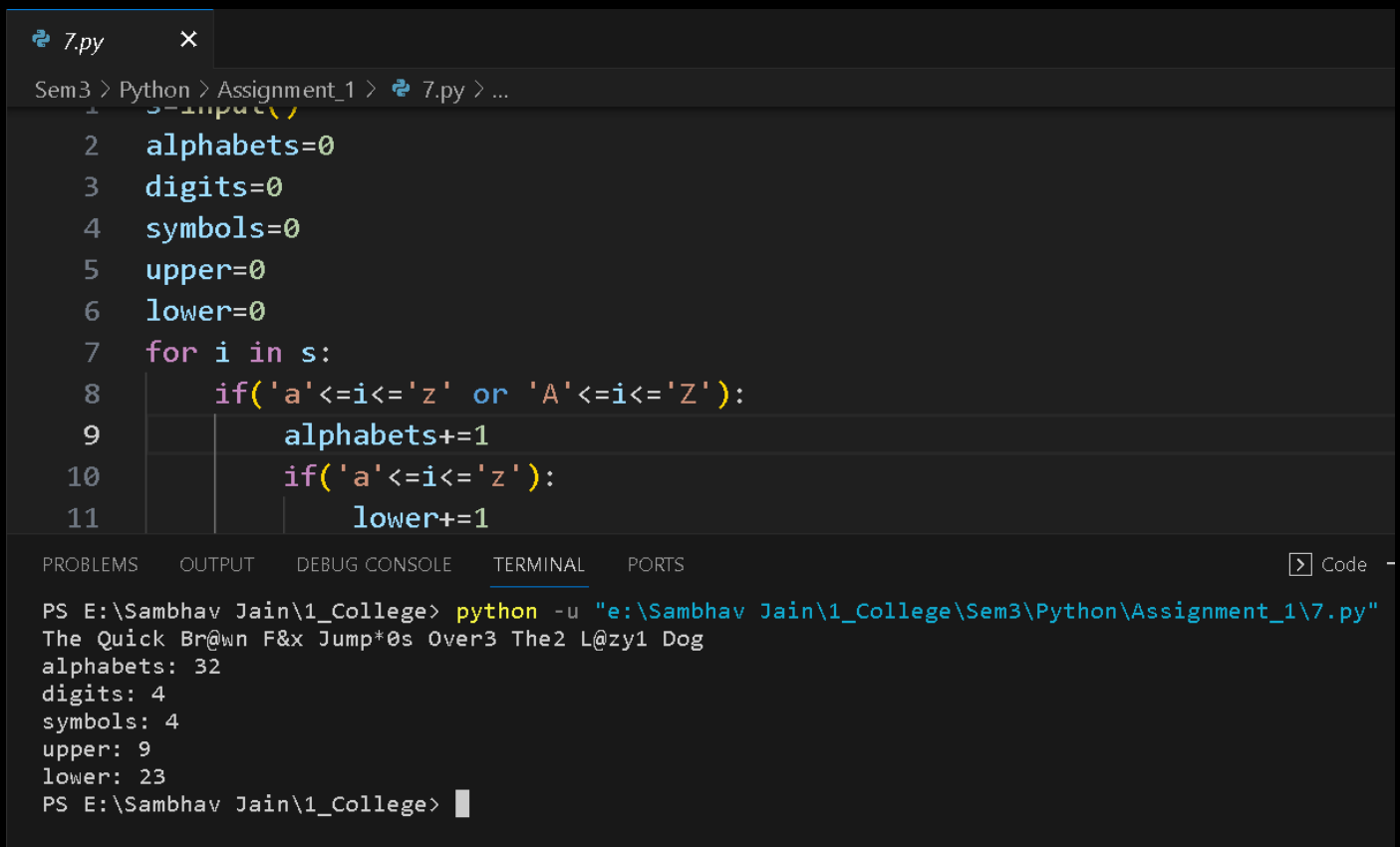
Number of lowercase alphabets

Solution Code:

```
s=input()
alphabets=0
digits=0
symbols=0
upper=0
lower=0
for i in s:
    if('a'<=i<='z' or 'A'<=i<='Z'):
        alphabets+=1
        if('a'<=i<='z'):
            lower+=1
        else:
            upper+=1
    elif('0'<=i<='9'):
        digits+=1
    elif(i!=' '):
        symbols+=1

print("alphabets:",alphabets)
print("digits:",digits)
print("symbols:",symbols)
print("upper:",upper)
print("lower:",lower)
```


Output:



The image shows a code editor window with a file named `7.py` open. The code is a Python script that counts the frequency of alphabets, digits, symbols, upper case letters, and lower case letters in a given string. The string being processed is "The Quick Brown Fox Jump*0s Over3 The2 L@zy1 Dog".

```
1 s=input()
2 alphabets=0
3 digits=0
4 symbols=0
5 upper=0
6 lower=0
7 for i in s:
8     if('a'<=i<='z' or 'A'<=i<='Z'):
9         alphabets+=1
10    if('a'<=i<='z'):
11        lower+=1
```

Below the code editor, the terminal window shows the execution of the script. The command used is `python -u "e:\Sambhav Jain\1_College\Sem3\Python\Assignment_1\7.py"`. The output displays the counts for each category: alphabets: 32, digits: 4, symbols: 4, upper: 9, and lower: 23.

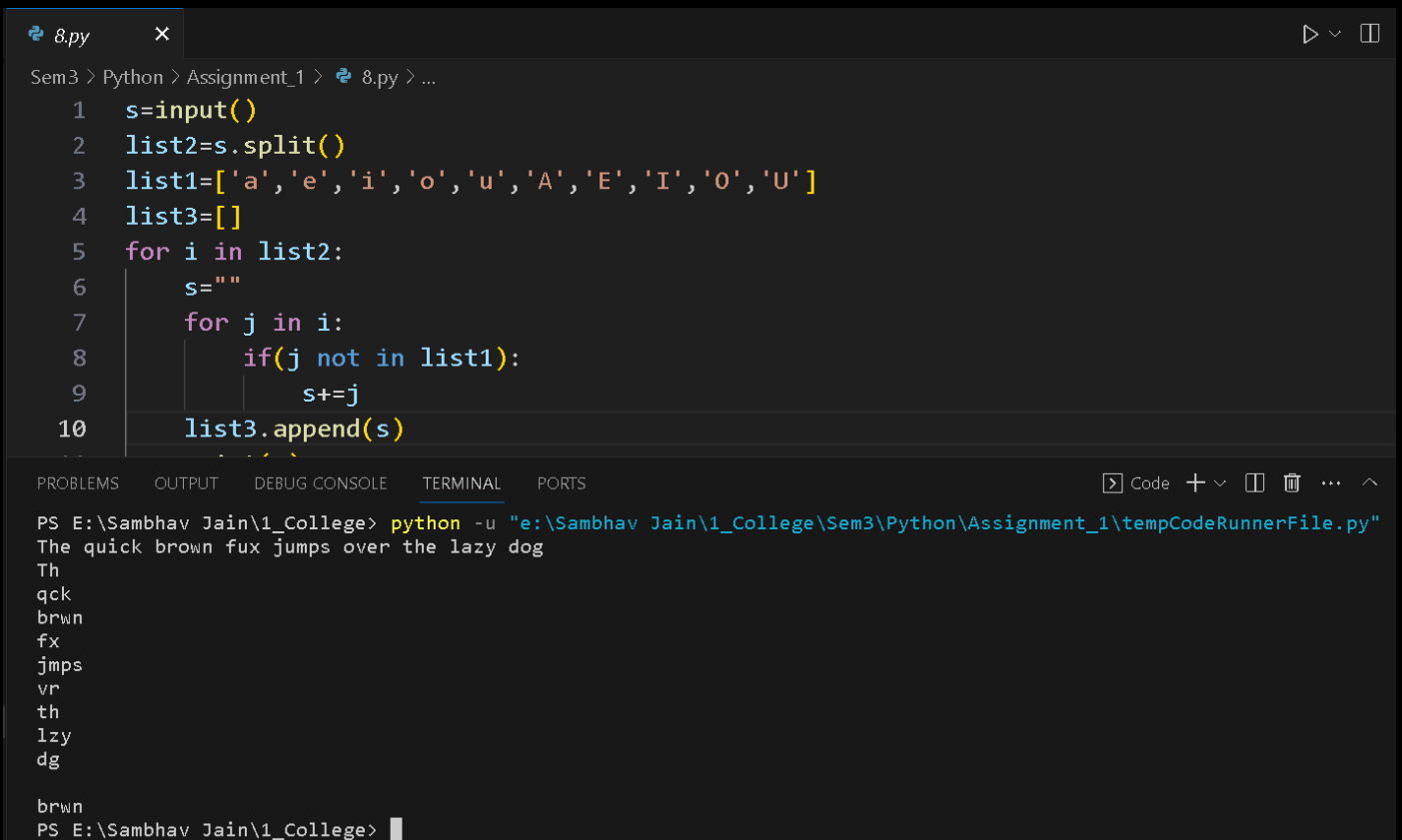
```
PS E:\Sambhav Jain\1_College> python -u "e:\Sambhav Jain\1_College\Sem3\Python\Assignment_1\7.py"
The Quick Brown Fox Jump*0s Over3 The2 L@zy1 Dog
alphabets: 32
digits: 4
symbols: 4
upper: 9
lower: 23
PS E:\Sambhav Jain\1_College>
```

Q8. Write a program to find out longest common subsequence from an input string just having the consonants.

Solution Code:

```
s=input()
list2=s.split()
list1=['a','e','i','o','u','A','E','I','O','U']
list3=[]
for i in list2:
    s=""
    for j in i:
        if(j not in list1):
            s+=j
    list3.append(s)
    print(s)
maxlength=0
s=""
for i in list3:
    if(len(i)>maxlength):
        maxlength=len(i)
        s=i
print()
print(s)
```

Output:



The screenshot shows a code editor with a file named 8.py. The code is the same as provided in the solution. The output pane shows the execution results for the input string "The quick brown fox jumps over the lazy dog". The output is a list of consonants from each word: qck, brwn, fx, jmps, vr, th, lzy, dg, followed by a blank line and then brwn.

```
Sem3 > Python > Assignment_1 > 8.py > ...
1  s=input()
2  list2=s.split()
3  list1=['a','e','i','o','u','A','E','I','O','U']
4  list3=[]
5  for i in list2:
6      s=""
7      for j in i:
8          if(j not in list1):
9              s+=j
10     list3.append(s)
...
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS
PS E:\Sambhav Jain\1_College> python -u "e:\Sambhav Jain\1_College\Sem3\Python\Assignment_1\tempCodeRunnerFile.py"
The quick brown fux jumps over the lazy dog
Th
qck
brwn
fx
jmps
vr
th
lzy
dg

brwn
PS E:\Sambhav Jain\1_College>
```

Q9. Write a program in python that takes a string as input to setup a password. Your entered password must meet the following requirements:

The password must be at least five characters long.

It must contain the symbol "&".

It must contain at least one uppercase and one lowercase letter.

Solution Code:

```
def func():
    s=input()
    ampersand=0
    upper=0
    lower=0
    for i in s:
        if('a'<=i<='z' or 'A'<=i<='Z'):
            if('a'<=i<='z'):
                lower+=1
            else:
                upper+=1
        elif(i=='&'):
            ampersand+=1
    if(len(s)<5):
        print("password must contain at least 5 character")
    if(ampersand<1):
        print("password must contain at least one '&' character")
    if(upper<1):
        print("password must contain at least 1 uppercase letter")
    if(lower<1):
        print("password must contain at least 1 lowercase letter")
while(True):
    func()
```

Output:

```
9.py x
Sem3 > Python > Assignment_1 > 9.py > ...

15     print("password must contain at least 5 character")
16     if(ampersand<1):
17         print("password must contain at least one '&' character")
18     if(upper<1):
19         print("password must contain at least 1 uppercase letter")
20     if(lower<1):
21         print("password must contain at least 1 lowercase letter")
22 while(True):
23     func()
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Code +

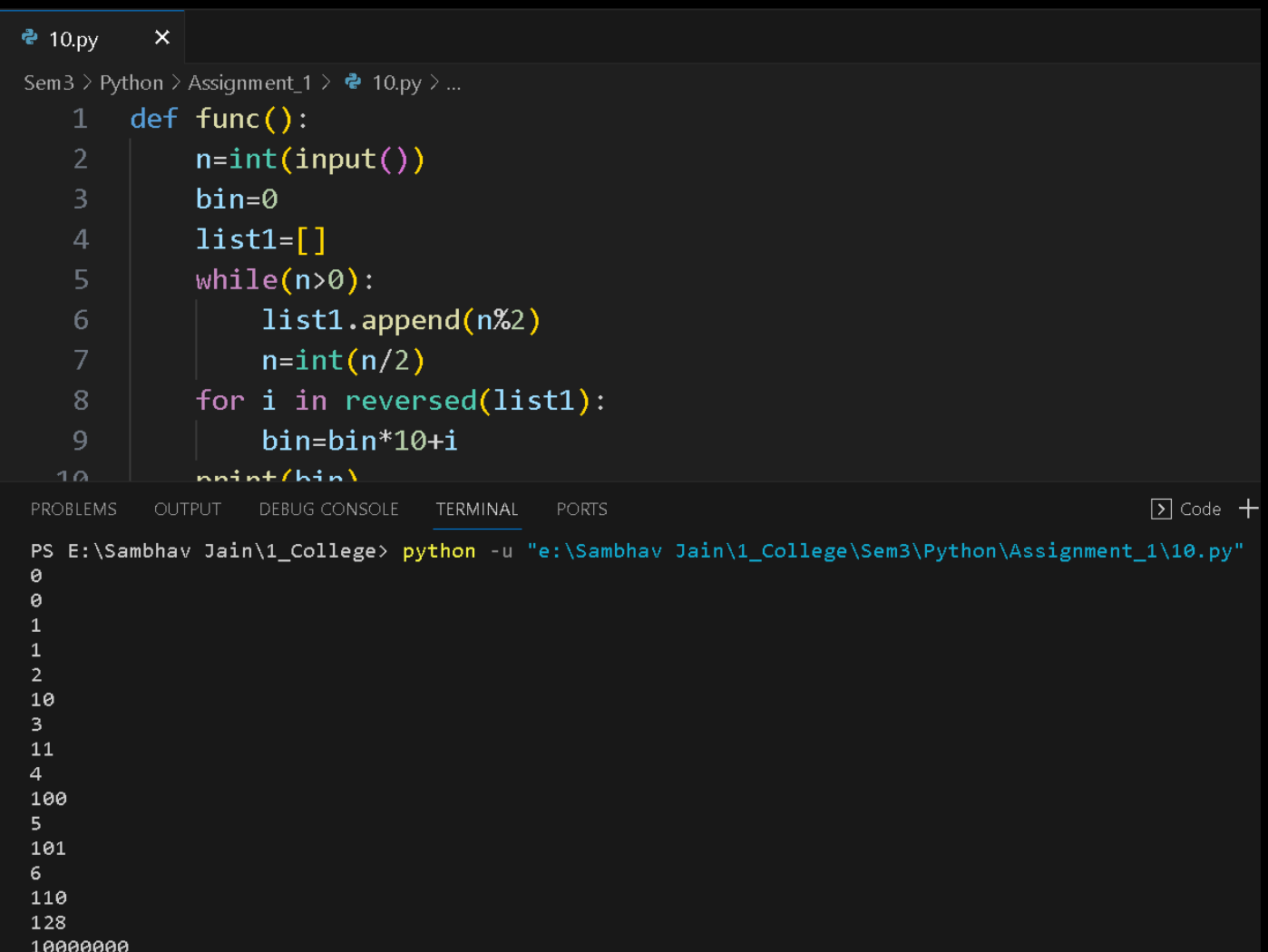
```
PS E:\Sambhav Jain\1_College> python -u "e:\Sambhav Jain\1_College\Sem3\Python\Assignment_1\9.py"
Ab2&
password must contain at least 5 character
abcd
password must contain at least 5 character
password must contain at least one '&' character
password must contain at least 1 uppercase letter
abcde
password must contain at least one '&' character
password must contain at least 1 uppercase letter
ab&cD
ab&cf
password must contain at least 1 uppercase letter
```

Q.10 Write a program that takes an integer as an input and generates its binary equivalent.

Solution Code:

```
def func():
    n=int(input())
    bin=0
    list1=[]
    while(n>0):
        list1.append(n%2)
        n=int(n/2)
    for i in reversed(list1):
        bin=bin*10+i
    print(bin)
while(True):
    func()
```

Output:



The screenshot shows a code editor with a file named 10.py. The code is a Python function that takes an integer input and prints its binary equivalent. The function uses a list to store the remainders of the number divided by 2, then reverses the list and constructs the binary string. The terminal shows the execution of the program, with the input 0 and the output 0, and the input 1 and the output 1, and the input 2 and the output 10, and the input 10 and the output 1010, and the input 11 and the output 1011, and the input 4 and the output 100, and the input 5 and the output 101, and the input 6 and the output 110, and the input 128 and the output 10000000.

```
10.py x
Sem3 > Python > Assignment_1 > 10.py > ...
1 def func():
2     n=int(input())
3     bin=0
4     list1=[]
5     while(n>0):
6         list1.append(n%2)
7         n=int(n/2)
8     for i in reversed(list1):
9         bin=bin*10+i
10    print(bin)

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS E:\Sambhav Jain\1_College> python -u "e:\Sambhav Jain\1_College\Sem3\Python\Assignment_1\10.py"
0
0
1
1
2
10
3
11
4
100
5
101
6
110
128
10000000
```