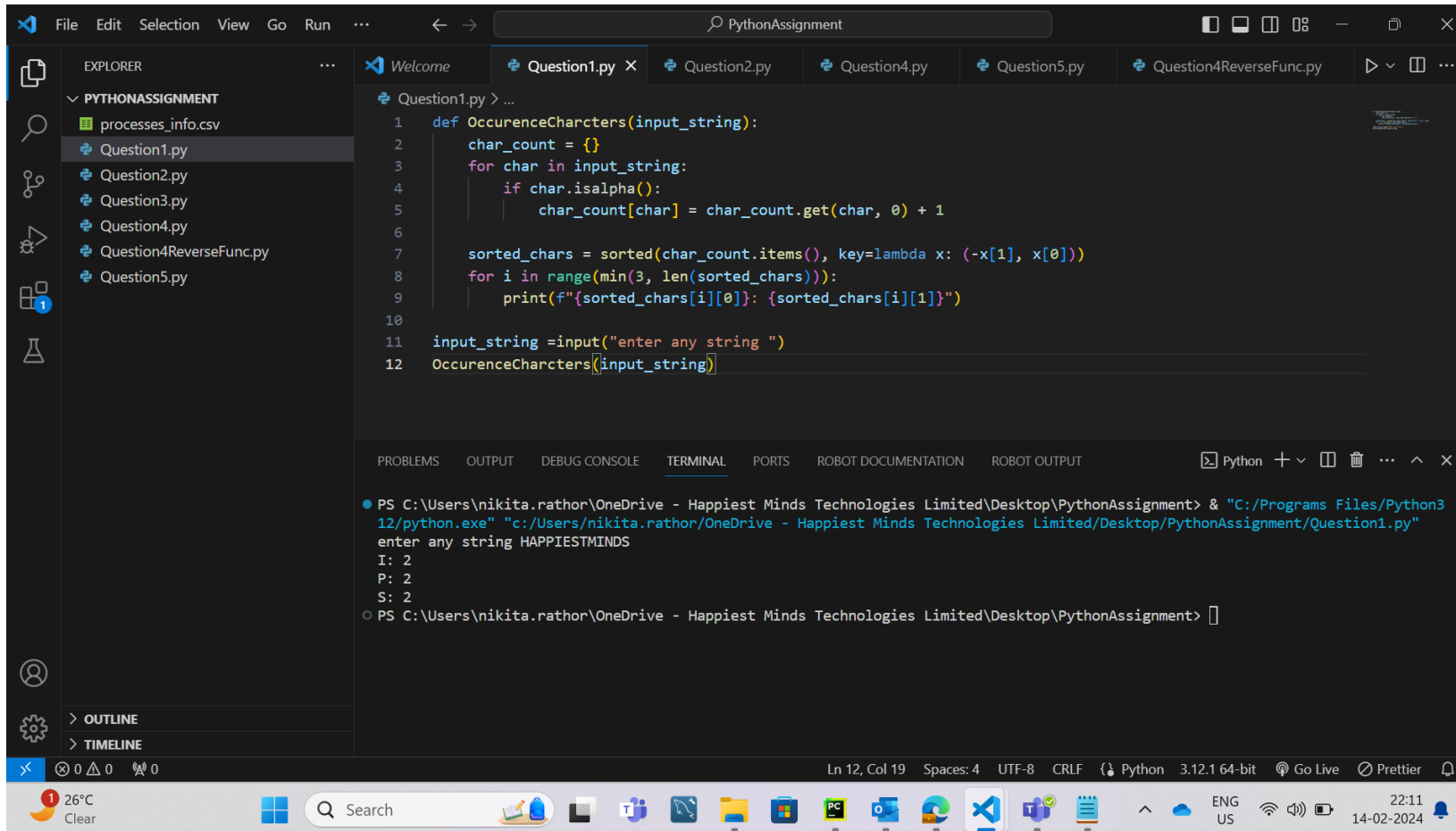


Screenshot of Outputs

Question 1



The screenshot displays the Visual Studio Code (VS Code) interface. The Explorer panel on the left shows a project named 'PYTHONASSIGNMENT' with several files, including 'Question1.py'. The main editor window is open to 'Question1.py', which contains a Python function 'OccurenceCharacters' that counts the frequency of characters in a string and prints the top 3 most frequent characters. The terminal at the bottom shows the command to run the script, followed by the input 'HAPPIESTMINDS' and the output showing the counts for 'I', 'P', and 'S'.

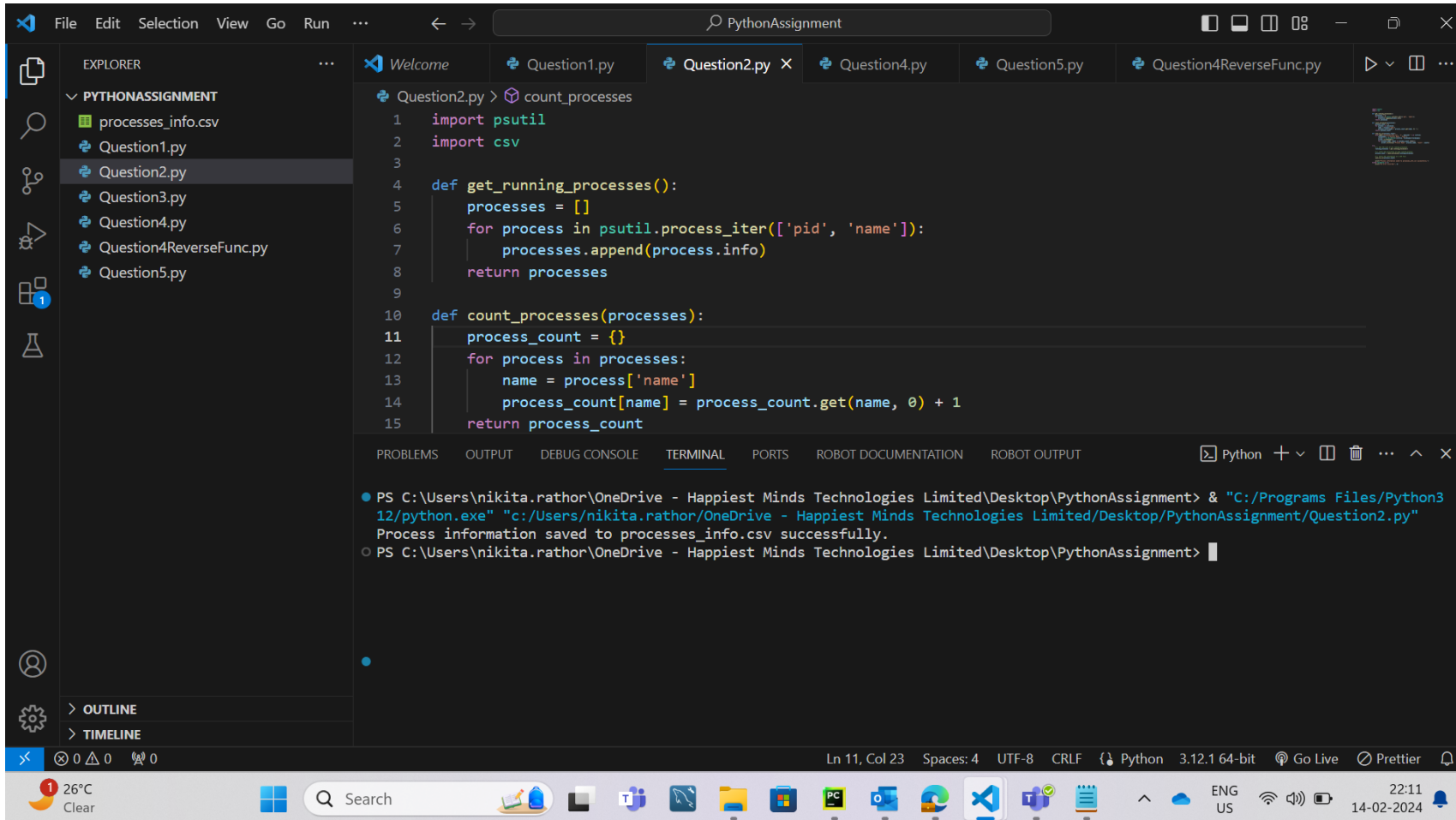
```
def OccurenceCharacters(input_string):
    char_count = {}
    for char in input_string:
        if char.isalpha():
            char_count[char] = char_count.get(char, 0) + 1

    sorted_chars = sorted(char_count.items(), key=lambda x: (-x[1], x[0]))
    for i in range(min(3, len(sorted_chars))):
        print(f"{sorted_chars[i][0]}: {sorted_chars[i][1]}")

input_string = input("enter any string ")
OccurenceCharacters(input_string)
```

```
PS C:\Users\nikita.rathor\OneDrive - Happiest Minds Technologies Limited\Desktop\PythonAssignment> "C:/Programs Files/Python3 12/python.exe" "c:/Users/nikita.rathor/OneDrive - Happiest Minds Technologies Limited/Desktop/PythonAssignment/Question1.py"
enter any string HAPPIESTMINDS
I: 2
P: 2
S: 2
PS C:\Users\nikita.rathor\OneDrive - Happiest Minds Technologies Limited\Desktop\PythonAssignment>
```

Question 2



The screenshot shows a Visual Studio Code editor window titled "PythonAssignment". The Explorer sidebar on the left displays a file tree for "PYTHONASSIGNMENT" containing "processes_info.csv" and five Python files: "Question1.py", "Question2.py" (selected), "Question3.py", "Question4.py", and "Question4ReverseFunc.py". The main editor area shows the code for "Question2.py":

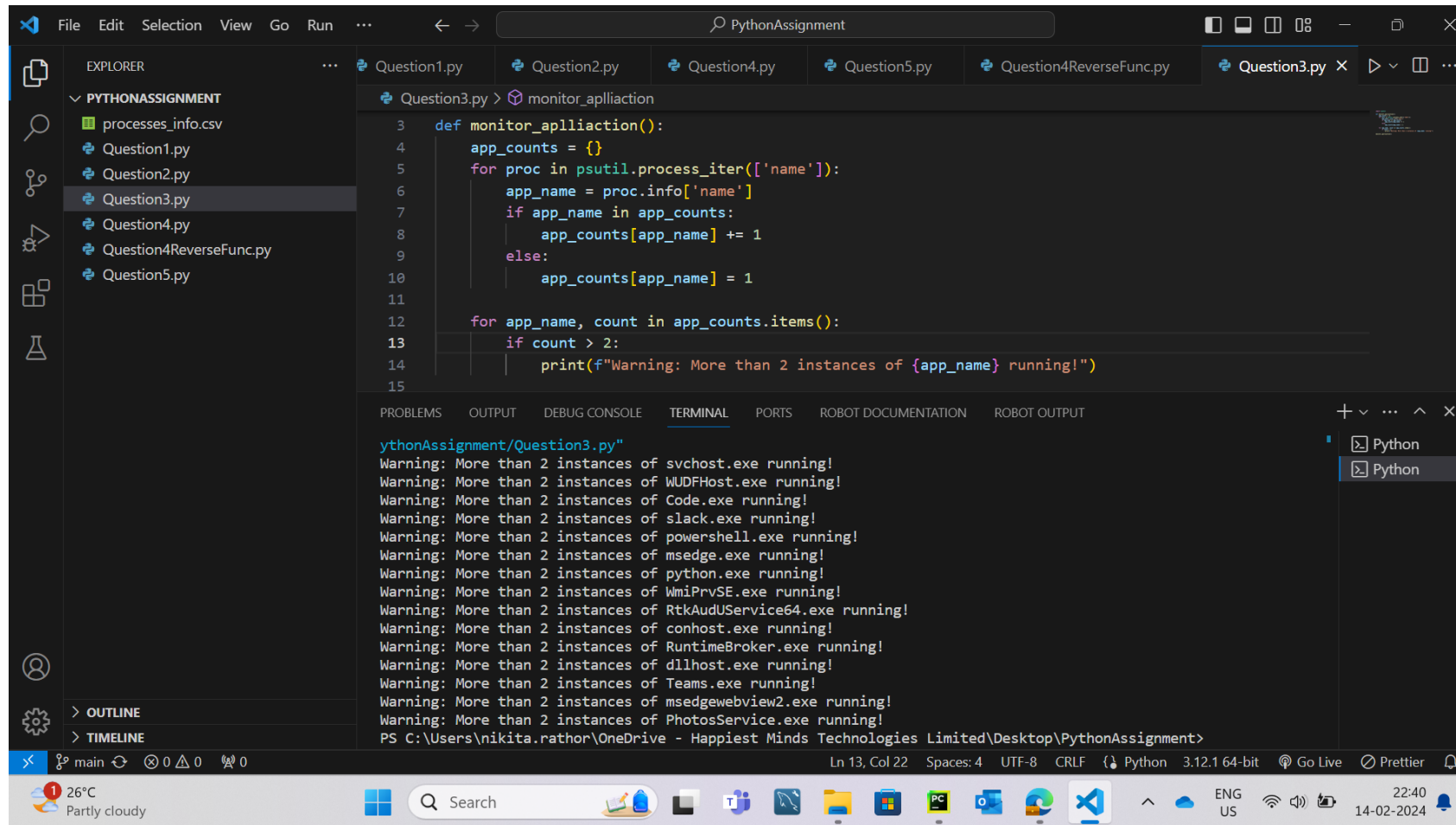
```
1 import psutil
2 import csv
3
4 def get_running_processes():
5     processes = []
6     for process in psutil.process_iter(['pid', 'name']):
7         processes.append(process.info)
8     return processes
9
10 def count_processes(processes):
11     process_count = {}
12     for process in processes:
13         name = process['name']
14         process_count[name] = process_count.get(name, 0) + 1
15     return process_count
```

Below the code editor is a terminal window with the following output:

```
PS C:\Users\nikita.rathor\OneDrive - Happiest Minds Technologies Limited\Desktop\PythonAssignment> & "C:/Programs Files/Python3 12/python.exe" "c:/Users/nikita.rathor/OneDrive - Happiest Minds Technologies Limited/Desktop/PythonAssignment/Question2.py"
Process information saved to processes_info.csv successfully.
PS C:\Users\nikita.rathor\OneDrive - Happiest Minds Technologies Limited\Desktop\PythonAssignment>
```

The status bar at the bottom indicates the current cursor position is "Ln 11, Col 23", with 4 spaces, UTF-8 encoding, CRLF line endings, Python 3.12.1 64-bit interpreter, and Prettier formatting.

Question 3



The screenshot displays the Visual Studio Code (VS Code) interface. The Explorer pane on the left shows a project named 'PYTHONASSIGNMENT' with several files: 'processes_info.csv', 'Question1.py', 'Question2.py', 'Question3.py' (selected), 'Question4.py', 'Question4ReverseFunc.py', and 'Question5.py'. The main editor window shows the code for 'Question3.py', which defines a function 'monitor_appliaction()' (note the typo). This function uses 'psutil.process_iter()' to iterate over running processes, checks for multiple instances of the same application name, and prints a warning if more than two instances are found. The terminal pane at the bottom shows the output of running the script, displaying multiple warning messages for various system and application processes, such as 'svchost.exe', 'WUDFHost.exe', 'Code.exe', 'slack.exe', 'powershell.exe', 'msedge.exe', 'python.exe', 'WmiPrvSE.exe', 'RtkAudUService64.exe', 'conhost.exe', 'RuntimeBroker.exe', 'dllhost.exe', 'Teams.exe', 'msedgewebview2.exe', and 'PhotosService.exe'. The status bar at the bottom indicates the current file is 'main', the encoding is 'UTF-8', and the line/col position is 'Ln 13, Col 22'.

```
def monitor_appliaction():
    app_counts = {}
    for proc in psutil.process_iter(['name']):
        app_name = proc.info['name']
        if app_name in app_counts:
            app_counts[app_name] += 1
        else:
            app_counts[app_name] = 1

    for app_name, count in app_counts.items():
        if count > 2:
            print(f"Warning: More than 2 instances of {app_name} running!")
```

PythonAssignment/Question3.py

Warning: More than 2 instances of svchost.exe running!
Warning: More than 2 instances of WUDFHost.exe running!
Warning: More than 2 instances of Code.exe running!
Warning: More than 2 instances of slack.exe running!
Warning: More than 2 instances of powershell.exe running!
Warning: More than 2 instances of msedge.exe running!
Warning: More than 2 instances of python.exe running!
Warning: More than 2 instances of WmiPrvSE.exe running!
Warning: More than 2 instances of RtkAudUService64.exe running!
Warning: More than 2 instances of conhost.exe running!
Warning: More than 2 instances of RuntimeBroker.exe running!
Warning: More than 2 instances of dllhost.exe running!
Warning: More than 2 instances of Teams.exe running!
Warning: More than 2 instances of msedgewebview2.exe running!
Warning: More than 2 instances of PhotosService.exe running!

PS C:\Users\nikita.rathor\OneDrive - Happiest Minds Technologies Limited\Desktop\PythonAssignment>

Question 4

The image shows a Visual Studio Code editor window with a Python file named `Question4.py` open. The file contains a function `reverse` that takes an input string, splits it into words, reverses the order of the words, and joins them back into a string. The main part of the script prompts the user to enter a string and prints the reversed string.

```
1 def reverse(input_string):
2     words=input_string.split()
3     reversed_words=words[::-1]
4     reverse_string=' '.join(reversed_words)
5     return reverse_string
6 user_input=input("enter a sttring ")
7 reversed_string=reverse(user_input)
8 print(reversed_string)
9
10
11
12
13
```

The terminal at the bottom shows the command prompt running the script. The user enters "My name is Suraj" and the output is "Suraj is name My".

```
PS C:\Users\nikita.rathor\OneDrive - Happiest Minds Technologies Limited\Desktop\PythonAssignment> & "C:/Programs Files/Python312/python.exe" "c:/Users/nikita.rathor/OneDrive - Happiest Minds Technologies Limited/Desktop/PythonAssignment/Question4.py"
enter a sttring My name is Suraj
Suraj is name My
PS C:\Users\nikita.rathor\OneDrive - Happiest Minds Technologies Limited\Desktop\PythonAssignment>
```

The status bar at the bottom indicates the current line is 10, column 1, with 4 spaces, UTF-8 encoding, CRLF line endings, Python 3.12.1 64-bit, and the Go Live and Prettier extensions are active.

Question 4

The screenshot shows the Visual Studio Code editor interface. The Explorer sidebar on the left displays a project named 'PYTHONASSIGNMENT' containing a 'processes_info.csv' file and five Python files: 'Question1.py', 'Question2.py', 'Question3.py', 'Question4.py', and 'Question4ReverseFunc.py'. The 'Question4ReverseFunc.py' file is selected and open in the editor. The code in this file is as follows:

```
1 input_String=input("enter any string ")
2 words = input_String.strip('').split()
3 reversed_string = ''.join(reversed(words))
4 result = f'{reversed_string}'
5 print(result)
```

Below the editor, the TERMINAL panel is active, showing the command prompt output:

```
PS C:\Users\nikita.rathor\OneDrive - Happiest Minds Technologies Limited\Desktop\PythonAssignment> & "C:/Programs Files/Python3 12/python.exe" "c:/Users/nikita.rathor/OneDrive - Happiest Minds Technologies Limited/Desktop/PythonAssignment/Question4Reverse Func.py"
enter any string "My name is Suraj"
"Suraj is name My"
PS C:\Users\nikita.rathor\OneDrive - Happiest Minds Technologies Limited\Desktop\PythonAssignment>
```

The status bar at the bottom indicates the current cursor position is 'Ln 1, Col 38', the file encoding is 'UTF-8', and the Python interpreter is 'Python 3.12.1 64-bit'. The Windows taskbar at the very bottom shows the system clock as 22:15 on 14-02-2024.

Question 5

The image shows a Visual Studio Code editor window with a Python file named `Question5.py` open. The file contains a function `fibonacci(n)` that generates a Fibonacci sequence up to `n`. The sequence is stored in a list `fib_series` and returned. The main part of the script prompts the user to enter a number, checks if it is positive, and then prints the Fibonacci series.

```
1 def fibonacci(n):
2     fib_series=[]
3     a,b=0,1
4     for e in range(n):
5         fib_series.append(a)
6         a,b=b,a+b
7     return fib_series
8 num=int(input("enter the number "))
9
10 if num<=0:
11     print("enter postive number")
12 else:
13     result=fibonacci(num)
14     print("fibonacci series ",result)
15
```

The terminal output shows the execution of the script. The user enters the number 9, and the program outputs the Fibonacci series: `[0, 1, 1, 2, 3, 5, 8, 13, 21]`.

```
PS C:\Users\nikita.rathor\OneDrive - Happiest Minds Technologies Limited\Desktop\PythonAssignment> & "C:/Programs Files/Python3 12/python.exe" "c:/Users/nikita.rathor/OneDrive - Happiest Minds Technologies Limited/Desktop/PythonAssignment/Question5.py"
enter the number 9
fibonacci series [0, 1, 1, 2, 3, 5, 8, 13, 21]
PS C:\Users\nikita.rathor\OneDrive - Happiest Minds Technologies Limited\Desktop\PythonAssignment>
```