

Question 1

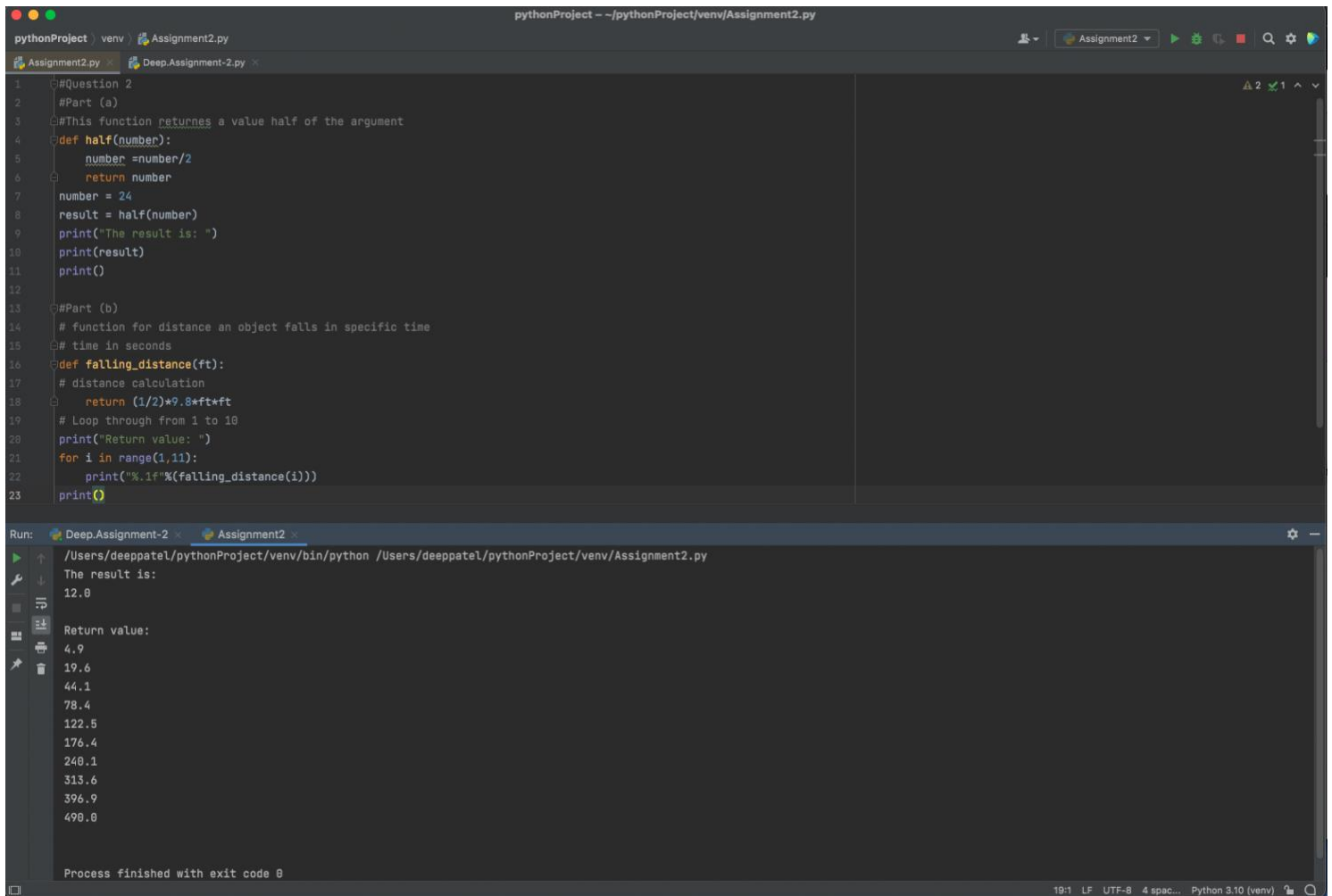
Part (a): Random module is a in-built module that generates random numbers. `random.seed()` uses system implemented sources of randomness. Seed initializes the number generator. For the first time is uses current system time

Part (b): credit will be given for this question

Part (c): Since we have `random.uniform()` in code. This code output will print a random float number between 0.1 and 0.5.

Part (d): Global constant is a constant which is needed in more than one function. Value of global constant can be used by all the functions. Global variables are variables that are declared outside of a function. Often declared at the top of the code.

Question 2 – Code and Output



The image shows a code editor with two tabs: 'Assignment2.py' and 'Deep.Assignment-2.py'. The code in 'Assignment2.py' is as follows:

```
1  #Question 2
2  #Part (a)
3  #This function returns a value half of the argument
4  def half(number):
5      number = number/2
6      return number
7
8  number = 24
9  result = half(number)
10 print("The result is: ")
11 print(result)
12 print()
13
14 #Part (b)
15 # function for distance an object falls in specific time
16 # time in seconds
17 def falling_distance(ft):
18     # distance calculation
19     return (1/2)*9.8*ft*ft
20
21 # Loop through from 1 to 10
22 print("Return value: ")
23 for i in range(1,11):
24     print("%.1f"%(falling_distance(i)))
25 print()
```

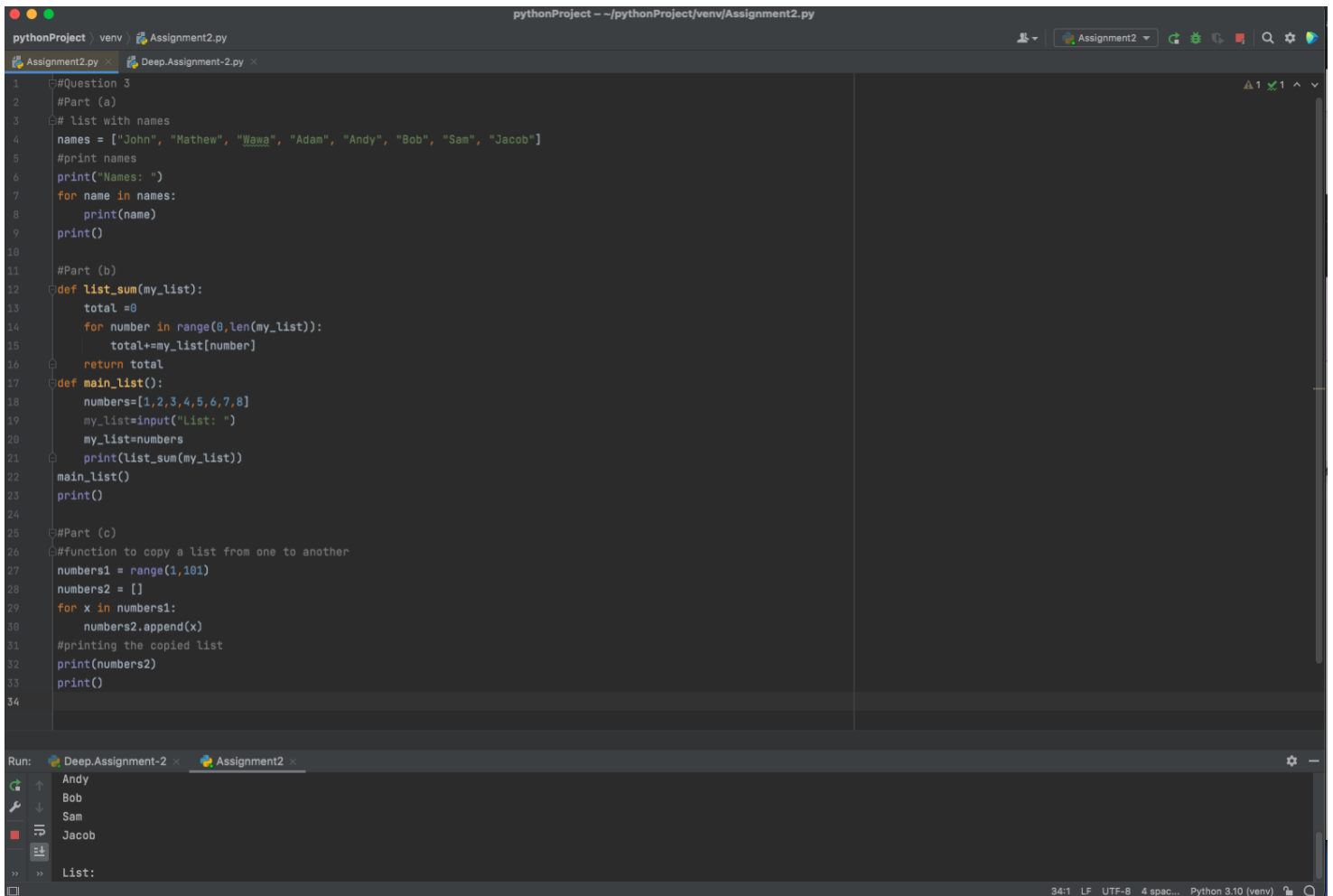
The terminal window shows the output of the code:

```
Run: /Users/deep Patel/pythonProject/venv/bin/python /Users/deep Patel/pythonProject/venv/Assignment2.py
The result is:
12.0

Return value:
4.9
19.6
44.1
78.4
122.5
176.4
240.1
313.6
396.9
490.0

Process finished with exit code 0
```

Question 3 – CODE (Output is on the picture underneath it)



The screenshot shows a Python IDE with a dark theme. The main editor window displays a Python script for 'Question 3'. The script is divided into three parts: (a), (b), and (c). Part (a) defines a list of names and prints them. Part (b) defines a function to calculate the sum of a list and a main function that uses it. Part (c) defines a function to copy a list and prints the copied list. The output window at the bottom shows the results of running the code, including the names and the copied list.

```
1 #Question 3
2 #Part (a)
3 # list with names
4 names = ["John", "Mathew", "Wawa", "Adam", "Andy", "Bob", "Sam", "Jacob"]
5 #print names
6 print("Names: ")
7 for name in names:
8     print(name)
9 print()
10
11 #Part (b)
12 def list_sum(my_list):
13     total = 0
14     for number in range(0, len(my_list)):
15         total += my_list[number]
16     return total
17 def main_list():
18     numbers = [1, 2, 3, 4, 5, 6, 7, 8]
19     my_list = input("List: ")
20     my_list = numbers
21     print(list_sum(my_list))
22 main_list()
23 print()
24
25 #Part (c)
26 #function to copy a list from one to another
27 numbers1 = range(1, 101)
28 numbers2 = []
29 for x in numbers1:
30     numbers2.append(x)
31 #printing the copied list
32 print(numbers2)
33 print()
34
```

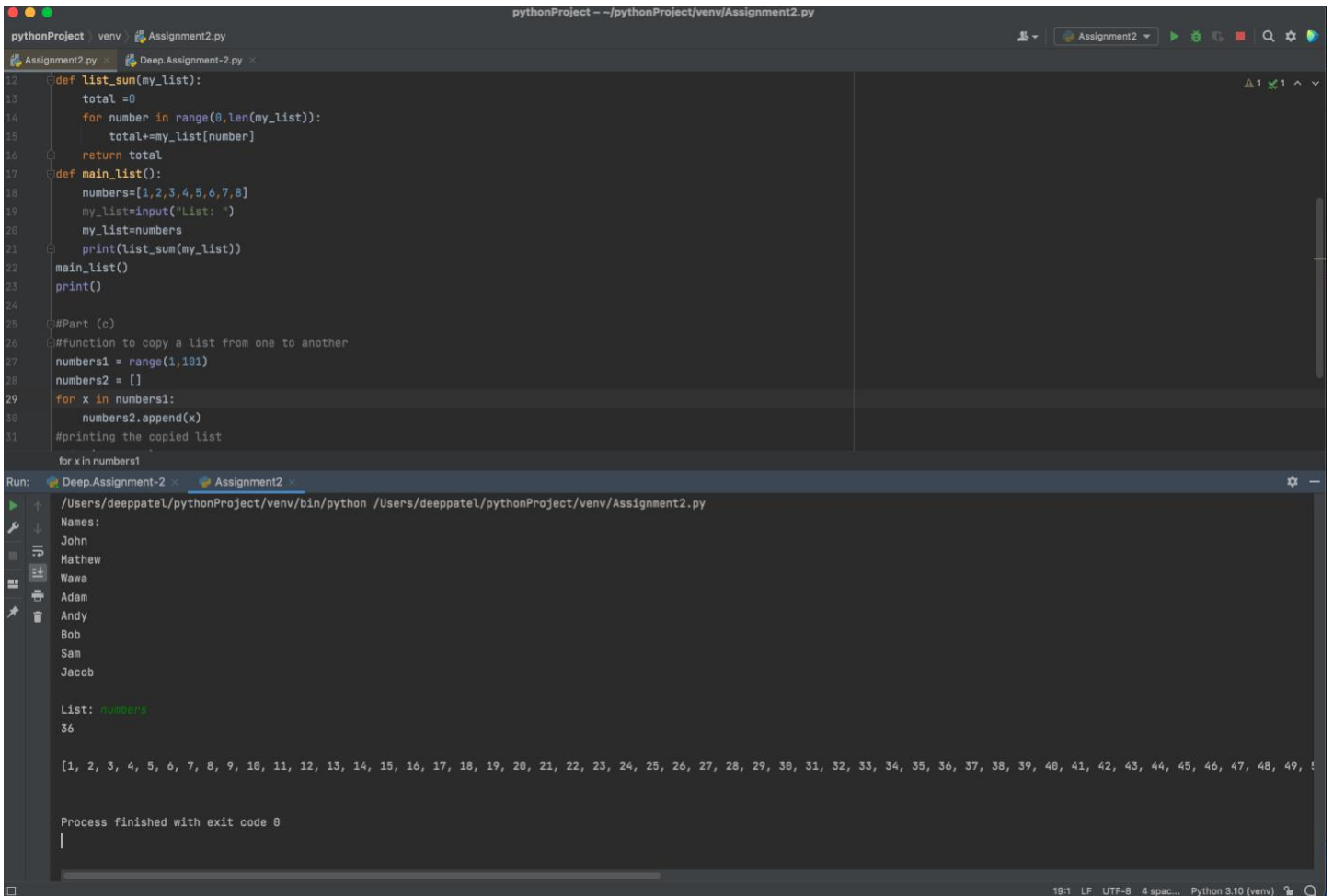
Run: Deep.Assignment-2 × Assignment2 ×

Andy
Bob
Sam
Jacob

List:

34:1 LF UTF-8 4 spac... Python 3.10 (venv)

Question 3 – OUTPUT



The screenshot shows a Python IDE with a file named `Assignment2.py`. The code defines a function `list_sum` to calculate the sum of a list, a `main_list` function that uses `list_sum` on a predefined list, and a `#Part (c)` section that copies a list from `numbers1` to `numbers2`. The output window shows the execution of the program, displaying the names of a list, the list itself, and the sum of its elements.

```
pythonProject -- ~/pythonProject/venv/Assignment2.py
pythonProject venv Assignment2.py
Assignment2.py Deep.Assignment-2.py
12 def list_sum(my_list):
13     total = 0
14     for number in range(0, len(my_list)):
15         total += my_list[number]
16     return total
17 def main_list():
18     numbers = [1, 2, 3, 4, 5, 6, 7, 8]
19     my_list = input("List: ")
20     my_list = numbers
21     print(list_sum(my_list))
22 main_list()
23 print()
24
25 #Part (c)
26 #function to copy a list from one to another
27 numbers1 = range(1, 101)
28 numbers2 = []
29 for x in numbers1:
30     numbers2.append(x)
31 #printing the copied list
32 for x in numbers2:
```

Run: Deep.Assignment-2 x Assignment2 x
/Users/deeppatel/pythonProject/venv/bin/python /Users/deeppatel/pythonProject/venv/Assignment2.py


Names:
John
Mathew
Wawa
Adam
Andy
Bob
Sam
Jacob

List: numbers
36

[1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100]

Process finished with exit code 0

19:1 LF UTF-8 4 spac... Python 3.10 (venv)

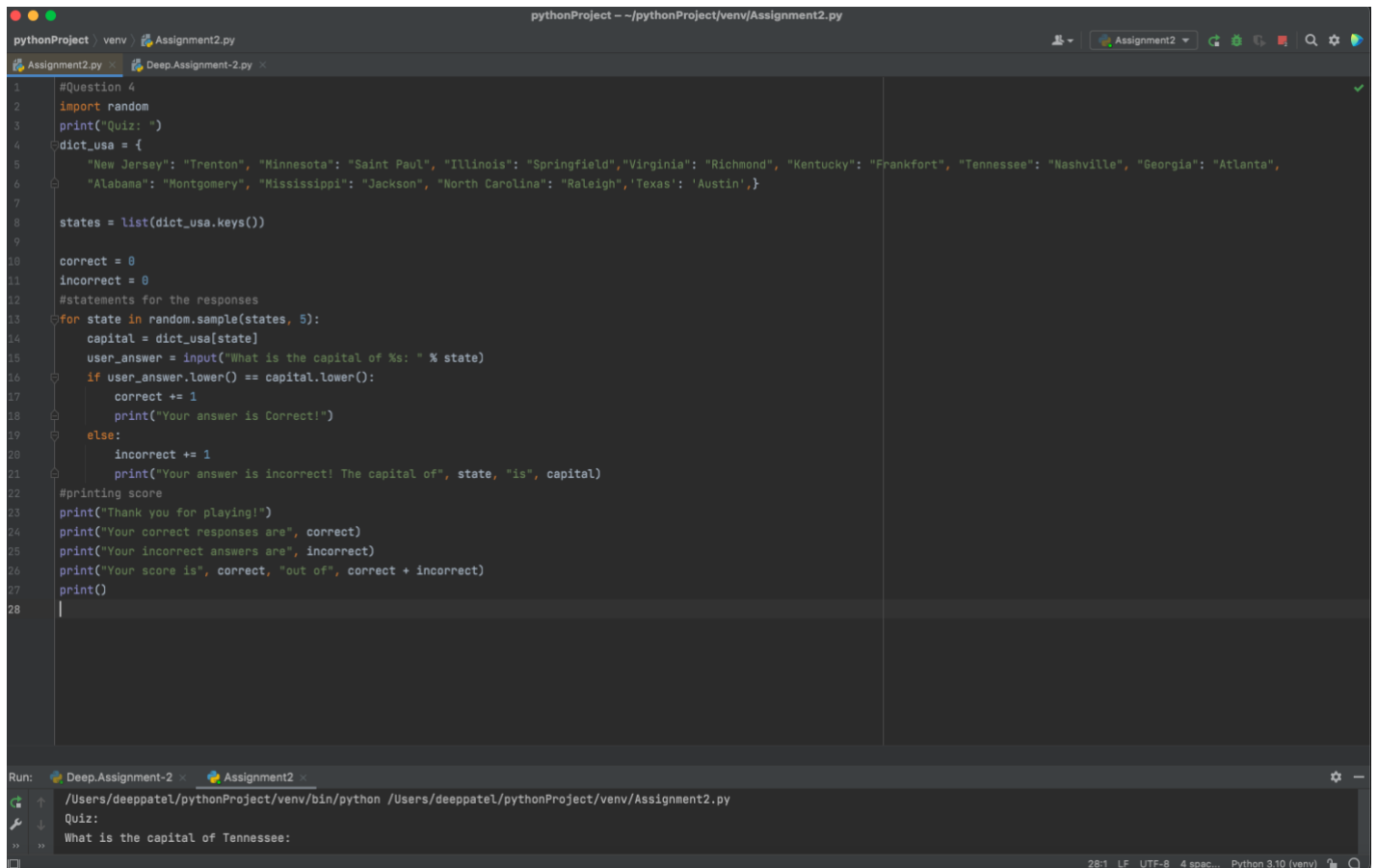


The screenshot shows the output of a Python program, displaying a list of numbers from 54 to 100.

```
Run: Deep.Assignment-2 x Assignment2 x
54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100]
```

19:1 LF UTF-8 4 spac... Python 3.10 (venv)

Question 4 – CODE (Output is on the picture underneath it)

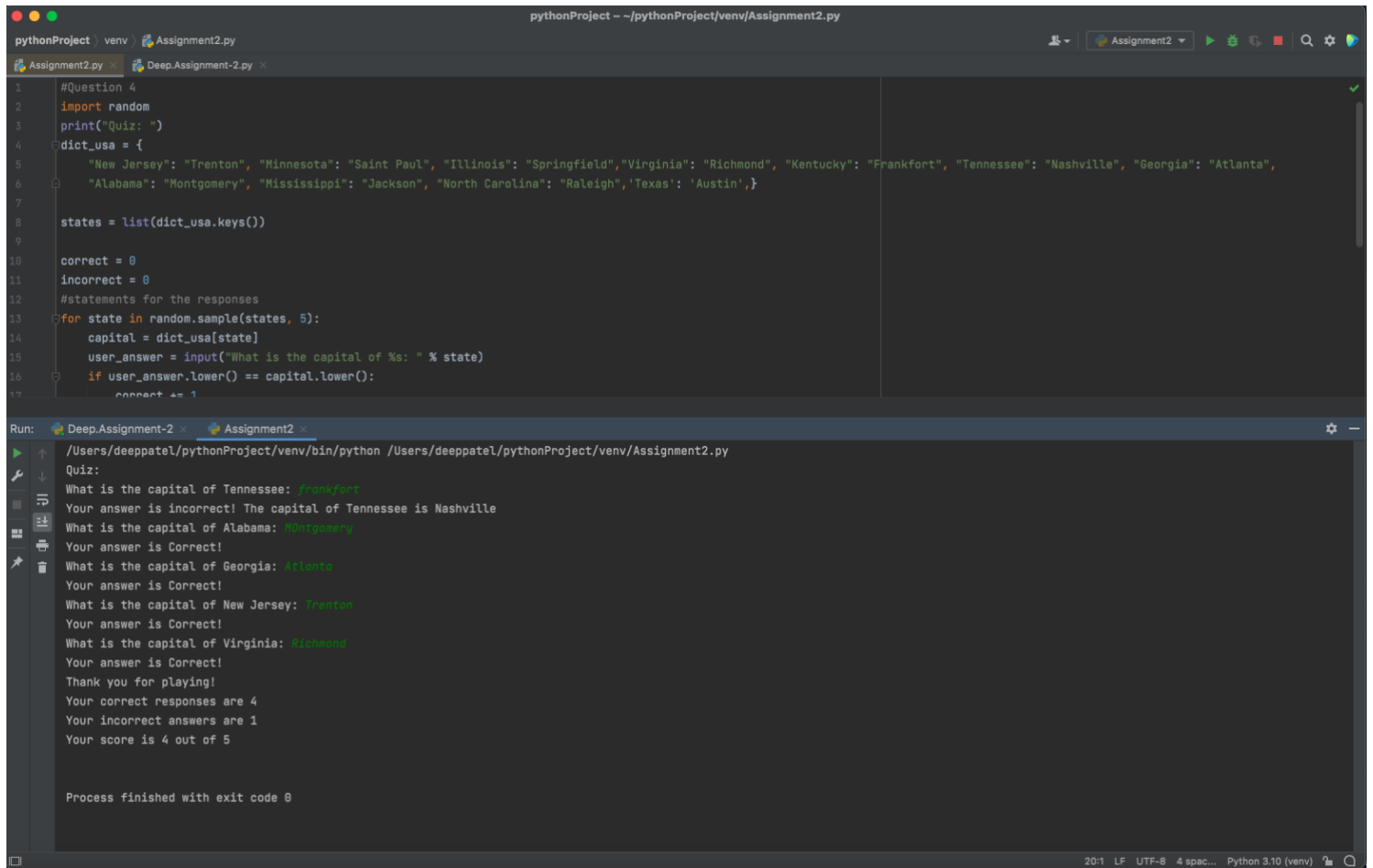


The image shows a Python IDE window titled "pythonProject - ~/pythonProject/venv/Assignment2.py". The editor displays a Python script for a quiz. The script imports the random module, prints a quiz title, and defines a dictionary of US states and their capitals. It then randomly selects 5 states and asks the user for their capital. The program tracks correct and incorrect answers and prints the final score.

```
1 #Question 4
2 import random
3 print("Quiz: ")
4 dict_usa = {
5     "New Jersey": "Trenton", "Minnesota": "Saint Paul", "Illinois": "Springfield", "Virginia": "Richmond", "Kentucky": "Frankfort", "Tennessee": "Nashville", "Georgia": "Atlanta",
6     "Alabama": "Montgomery", "Mississippi": "Jackson", "North Carolina": "Raleigh", "Texas": "Austin",
7 }
8
9 states = list(dict_usa.keys())
10
11 correct = 0
12 incorrect = 0
13 #statements for the responses
14 for state in random.sample(states, 5):
15     capital = dict_usa[state]
16     user_answer = input("What is the capital of %s: " % state)
17     if user_answer.lower() == capital.lower():
18         correct += 1
19         print("Your answer is Correct!")
20     else:
21         incorrect += 1
22         print("Your answer is incorrect! The capital of", state, "is", capital)
23
24 #printing score
25 print("Thank you for playing!")
26 print("Your correct responses are", correct)
27 print("Your incorrect answers are", incorrect)
28 print("Your score is", correct, "out of", correct + incorrect)
29 print()
```

The Run console at the bottom shows the execution of the script. It displays the prompt "Quiz:" and the first question: "What is the capital of Tennessee:". The status bar at the bottom indicates the file is at line 28, column 1, using UTF-8 encoding with 4 spaces per tab, running on Python 3.10 (venv).

Question 4 – OUTPUT



The screenshot displays a Python IDE with a dark theme. The top pane shows the source code for a quiz program. The bottom pane shows the output of the program, which includes a list of states and their capitals, a series of questions and answers, and a final score.

```
pythonProject - ~/pythonProject/venv/Assignment2.py
pythonProject venv Assignment2.py
Assignment2.py Deep.Assignment-2.py
1 #Question 4
2 import random
3 print("Quiz: ")
4 dict_usa = {
5     "New Jersey": "Trenton", "Minnesota": "Saint Paul", "Illinois": "Springfield", "Virginia": "Richmond", "Kentucky": "Frankfort", "Tennessee": "Nashville", "Georgia": "Atlanta",
6     "Alabama": "Montgomery", "Mississippi": "Jackson", "North Carolina": "Raleigh", "Texas": "Austin",
7 }
8
9 states = list(dict_usa.keys())
10
11 correct = 0
12 incorrect = 0
13 #statements for the responses
14 for state in random.sample(states, 5):
15     capital = dict_usa[state]
16     user_answer = input("What is the capital of %s: " % state)
17     if user_answer.lower() == capital.lower():
18         correct += 1
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
```

Run: Deep.Assignment-2 x Assignment2 x

```
/Users/deeppatel/pythonProject/venv/bin/python /Users/deeppatel/pythonProject/venv/Assignment2.py
Quiz:
What is the capital of Tennessee: Frankfort
Your answer is incorrect! The capital of Tennessee is Nashville
What is the capital of Alabama: Montgomery
Your answer is Correct!
What is the capital of Georgia: Atlanta
Your answer is Correct!
What is the capital of New Jersey: Trenton
Your answer is Correct!
What is the capital of Virginia: Richmond
Your answer is Correct!
Thank you for playing!
Your correct responses are 4
Your incorrect answers are 1
Your score is 4 out of 5

Process finished with exit code 0
```

20:11 LF UTF-8 4 spac... Python 3.10 (venv)

Question 5 – CODE (Output is on the picture underneath it)

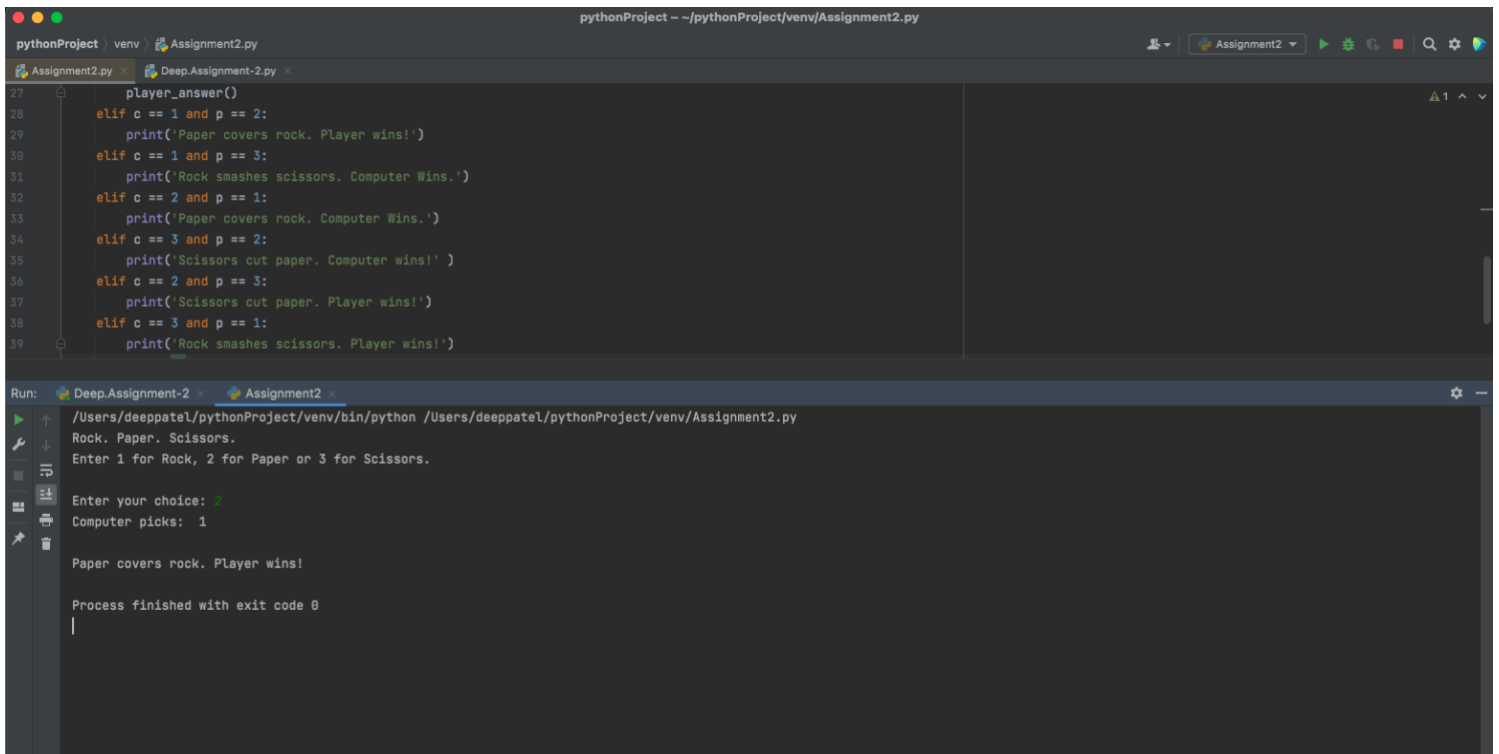
```
pythonProject - venv - Assignment2.py
Assignment2.py x Deep.Assignment-2.py x

1 #Question 5
2 import random
3 # Introduction
4 def introduce_game():
5     print('Rock. Paper. Scissors.' '\n' 'Enter 1 for Rock, 2 for Paper or 3 for Scissors.', '\n')
6     player_answer()
7     # Random integers
8 def generate_random_int():
9     return random.randrange(1,3)
10 def player_answer():
11     player = int(input('Enter your choice: '))
12     # Input validation loop.
13     while player != 1 and player != 2 and player != 3:
14         print('Invalid entry. Please try again.')
15         player = int(input('Enter 1, 2, or 3.: '))
16     computer_answer(player)
17     # Function to show computer answer.
18 def computer_answer(player):
19     computer_answer = generate_random_int()
20     print('Computer picks: ', computer_answer, '\n')
21     select_winner(computer_answer, player)
22
23 #Function to show the winner
24 def select_winner(c, p):
25     if c == p:
26         print('Try again.')
27         player_answer()
28     elif c == 1 and p == 2:
29         print('Paper covers rock. Player wins!')
30     elif c == 1 and p == 3:
31         print('Rock smashes scissors. Computer Wins!')
32     elif c == 2 and p == 1:
33         print('Paper covers rock. Computer Wins.')
34     elif c == 3 and p == 2:
35         print('Scissors cut paper. Computer wins!')
36     elif c == 2 and p == 3:
37         print('Scissors cut paper. Player wins!')
38     elif c == 3 and p == 1:
39         print('Rock smashes scissors. Player wins!')
40 introduce_game()
```

Run: Deep.Assignment-2 x Assignment2 x

40:17 LF UTF-8 4 spac... Python 3.10 (venv)

Question 5 - OUTPUT



The screenshot displays a Python IDE with a dark theme. The top toolbar shows the file explorer, a search icon, and a run button. The editor window contains the following Python code:

```
27     player_answer()  
28     elif c == 1 and p == 2:  
29         print('Paper covers rock. Player wins!')  
30     elif c == 1 and p == 3:  
31         print('Rock smashes scissors. Computer Wins!')  
32     elif c == 2 and p == 1:  
33         print('Paper covers rock. Computer Wins!')  
34     elif c == 3 and p == 2:  
35         print('Scissors cut paper. Computer wins!')  
36     elif c == 2 and p == 3:  
37         print('Scissors cut paper. Player wins!')  
38     elif c == 3 and p == 1:  
39         print('Rock smashes scissors. Player wins!')
```

Below the editor is a 'Run' console window. It shows the command executed and the resulting output:

```
Run: /Users/deeppatel/pythonProject/venv/bin/python /Users/deeppatel/pythonProject/venv/Assignment2.py  
Rock. Paper. Scissors.  
Enter 1 for Rock, 2 for Paper or 3 for Scissors.  
  
Enter your choice: 1  
Computer picks: 1  
  
Paper covers rock. Player wins!  
  
Process finished with exit code 0
```