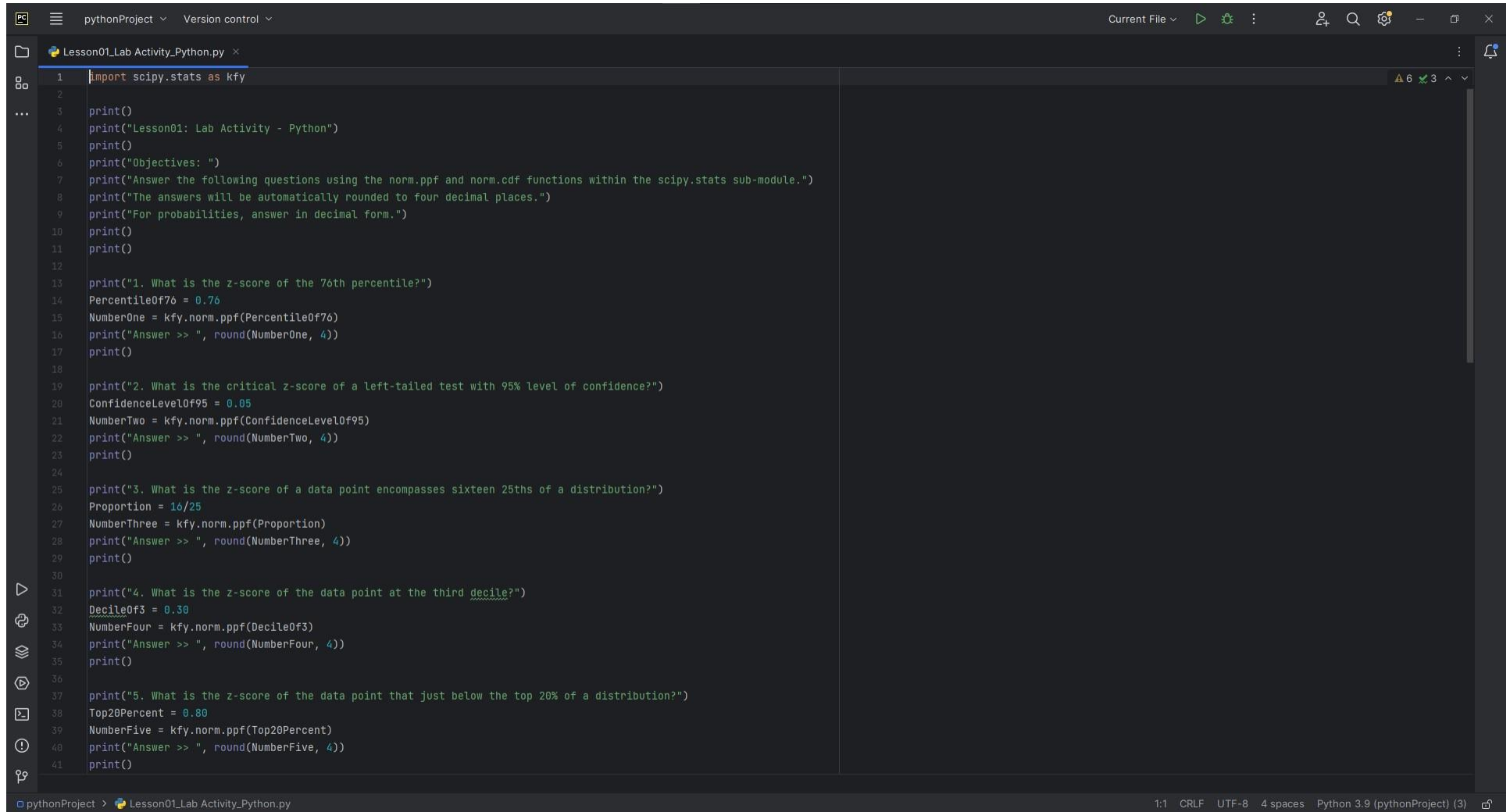


NAME: Abenes, Enrico O.
SUBJECT & SCHEDULE: CC12 - 1H (10:10am - 12:50pm TThS)

Date: May 21, 2024

LESSON01: Lab Activity - Python

The Code:



```
1 import scipy.stats as kfy
2
3 print()
4 print("Lesson01: Lab Activity - Python")
5 print()
6 print("Objectives: ")
7 print("Answer the following questions using the norm.ppf and norm.cdf functions within the scipy.stats sub-module.")
8 print("The answers will be automatically rounded to four decimal places.")
9 print("For probabilities, answer in decimal form.")
10 print()
11 print()
12
13 print("1. What is the z-score of the 76th percentile?")
14 Percentile0f76 = 0.76
15 NumberOne = kfy.norm.ppf(Percentile0f76)
16 print("Answer >> ", round(NumberOne, 4))
17 print()
18
19 print("2. What is the critical z-score of a left-tailed test with 95% level of confidence?")
20 ConfidenceLevel0f95 = 0.05
21 NumberTwo = kfy.norm.ppf(ConfidenceLevel0f95)
22 print("Answer >> ", round(NumberTwo, 4))
23 print()
24
25 print("3. What is the z-score of a data point encompasses sixteen 25ths of a distribution?")
26 Proportion = 16/25
27 NumberThree = kfy.norm.ppf(Proportion)
28 print("Answer >> ", round(NumberThree, 4))
29 print()
30
31 print("4. What is the z-score of the data point at the third decile?")
32 Decile0f3 = 0.30
33 NumberFour = kfy.norm.ppf(Decile0f3)
34 print("Answer >> ", round(NumberFour, 4))
35 print()
36
37 print("5. What is the z-score of the data point that just below the top 20% of a distribution?")
38 Top20Percent = 0.80
39 NumberFive = kfy.norm.ppf(Top20Percent)
40 print("Answer >> ", round(NumberFive, 4))
41 print()
```

```
pythonProject Version control
Current File
Lesson01_Lab Activity_Python.py
37 print("5. What is the z-score of the data point that just below the top 20% of a distribution?")
38 Top20Percent = 0.80
39 NumberFive = kfy.norm.ppf(Top20Percent)
40 print("Answer >> ", round(NumberFive, 4))
41 print()
42
43 print("6. What is the z-score of a test-taker who is at the 92nd percentile?")
44 Percentile0f92 = 0.92
45 NumberSix = kfy.norm.ppf(Percentile0f92)
46 print("Answer >> ", round(NumberSix, 4))
47 print()
48
49 print("7. What is the z-score of the third quartile?")
50 ThirdQuartile = 0.75
51 NumberSeven = kfy.norm.ppf(ThirdQuartile)
52 print("Answer >> ", round(NumberSeven, 4))
53 print()
54
55 print("8. What is the left critical z-score of a two-tailed test with a 1% level of significance?")
56 Alpha = 0.005
57 NumberEight = kfy.norm.ppf(Alpha)
58 print("Answer >> ", round(NumberEight, 4))
59 print()
60
61 print("9. What percent of the distribution is less than a data point that is 2.51 standard deviations less than the mean?")
62 ZscoreLessThan = -2.51
63 NumberNine = kfy.norm.cdf(ZscoreLessThan)
64 print("Answer >> ", round(NumberNine, 4))
65 print()
66
67 print("10. What percent of the distribution is greater than a data point that is 0.37 standard distributions greater than the mean?")
68 ZscoreGreaterThan = 0.37
69 NumberTen = 1 - kfy.norm.cdf(ZscoreGreaterThan)
70 print("Answer >> ", round(NumberTen, 4))
71 print()
72
73 print("11. The average weight of a student in a junior high school is 65kg with a standard deviation of 10kg. What percent of the student population have a weight less than 84.6 kg?")
74 MeanWeight = 65
75 STDevWeight = 10
76 Weight0fStudent = 84.6
77 ZScore1 = (Weight0fStudent - MeanWeight) / STDevWeight
```

pythonProject > Lesson01_Lab Activity_Python.py 37:97 CRLF UTF-8 4 spaces Python 3.9 (pythonProject) (3)

pythonProject Version control

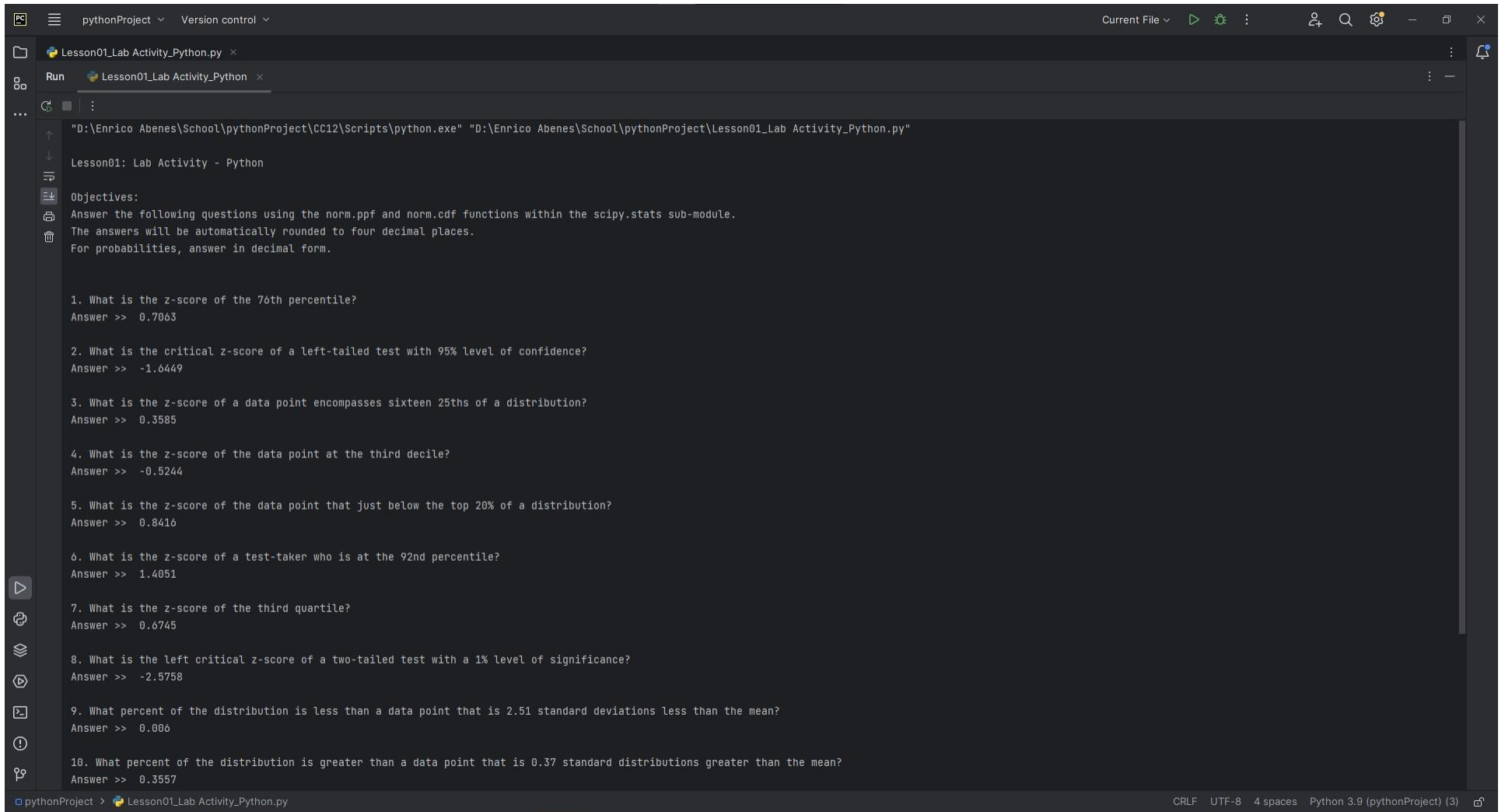
Lesson01_Lab Activity_Python.py

6 3

```
57 NumberEight = kfy.norm.ppf(Alpha)
58 print("Answer >> ", round(NumberEight, 4))
59 print()
60
61 print("9. What percent of the distribution is less than a data point that is 2.51 standard deviations less than the mean?")
62 ZscoreLessThan = -2.51
63 NumberNine = kfy.norm.cdf(ZscoreLessThan)
64 print("Answer >> ", round(NumberNine, 4))
65 print()
66
67 print("10. What percent of the distribution is greater than a data point that is 0.37 standard distributions greater than the mean?")
68 ZscoreGreaterThan = 0.37
69 NumberTen = 1 - kfy.norm.cdf(ZscoreGreaterThan)
70 print("Answer >> ", round(NumberTen, 4))
71 print()
72
73 print("11. The average weight of a student in a junior high school is 65kg with a standard deviation of 10kg. What percent of the student population have a weight less than 84.6 kg?")
74 MeanWeight = 65
75 STDevWeight = 10
76 WeightOfStudent = 84.6
77 ZScore1 = (WeightOfStudent - MeanWeight) / STDevWeight
78 NumberEleven = kfy.norm.cdf(ZScore1)
79 print("Answer >> ", round(NumberEleven, 4))
80 print()
81
82 print("12. The average height in a certain company is 166cm with a standard deviation of 5cm. What percent of the company employees is taller than Bae who is 170.65cm tall?")
83 MeanHeight = 166
84 STDevHeight = 5
85 HeightOfBae = 170.65
86 ZScore2 = (HeightOfBae - MeanHeight) / STDevHeight
87 NumberTwelve = 1 - kfy.norm.cdf(ZScore2)
88 print("Answer >> ", round(NumberTwelve, 4))
89 print()
90
91 print("13. The average salary of a resident in a certain Philippine Province is 45,000 PHP with a standard deviation of 10,000 PHP. What percent of the province's population earns less than 75,000 PHP?")
92 MeanSalary = 45000
93 STDevSalary = 10000
94 Salary = 75000
95 ZScore3 = (Salary - MeanSalary) / STDevSalary
96 NumberThirteen = kfy.norm.cdf(ZScore3)
97 print("Answer >> ", round(NumberThirteen, 4))
```

pythonProject > Lesson01_Lab Activity_Python.py 37:97 CRLF UTF-8 4 spaces Python 3.9 (pythonProject) (3)

The Output:



```
"D:\Enrico Abenes\School\pythonProject\CC12\Scripts\python.exe" "D:\Enrico Abenes\School\pythonProject\Lesson01_Lab Activity_Python.py"

Lesson01: Lab Activity - Python

Objectives:
Answer the following questions using the norm.ppf and norm.cdf functions within the scipy.stats sub-module.
The answers will be automatically rounded to four decimal places.
For probabilities, answer in decimal form.

1. What is the z-score of the 76th percentile?
Answer >> 0.7063

2. What is the critical z-score of a left-tailed test with 95% level of confidence?
Answer >> -1.6449

3. What is the z-score of a data point encompasses sixteen 25ths of a distribution?
Answer >> 0.3585

4. What is the z-score of the data point at the third decile?
Answer >> -0.5244

5. What is the z-score of the data point that just below the top 20% of a distribution?
Answer >> 0.8416

6. What is the z-score of a test-taker who is at the 92nd percentile?
Answer >> 1.4051

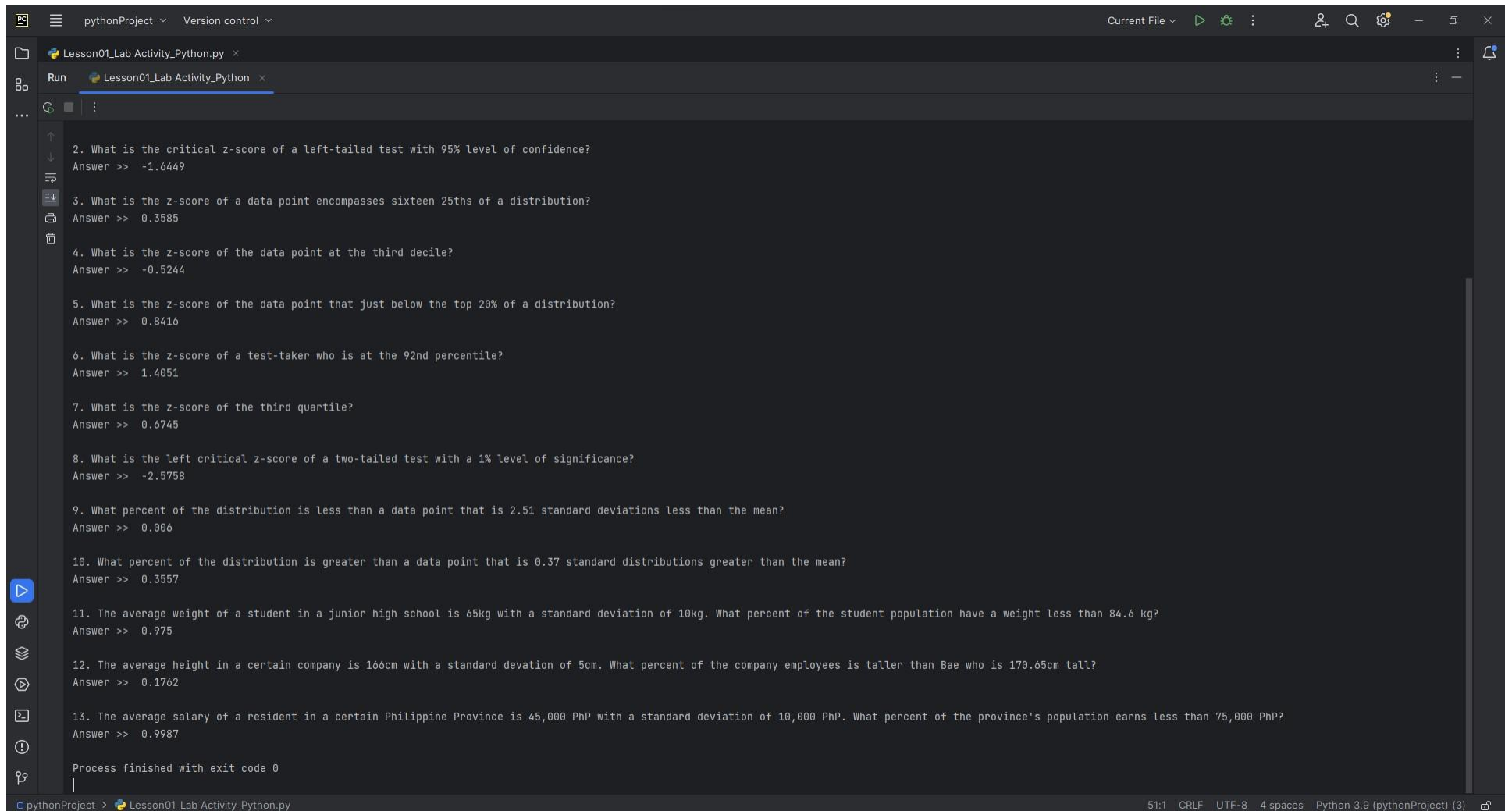
7. What is the z-score of the third quartile?
Answer >> 0.6745

8. What is the left critical z-score of a two-tailed test with a 1% level of significance?
Answer >> -2.5758

9. What percent of the distribution is less than a data point that is 2.51 standard deviations less than the mean?
Answer >> 0.006

10. What percent of the distribution is greater than a data point that is 0.37 standard distributions greater than the mean?
Answer >> 0.3557
```

pythonProject > Lesson01_Lab Activity_Python.py CRLF UTF-8 4 spaces Python 3.9 (pythonProject) (3)



The screenshot shows a code editor window with a dark theme. The top bar includes a menu icon, the text 'pythonProject', a 'Version control' dropdown, and a 'Current File' dropdown. The editor has a sidebar on the left with icons for Explorer, Run and Debug, and Source Control. The main area displays a Python script with 13 problems and their solutions. The script uses the `statsmodels` library for z-score and percentile calculations. The status bar at the bottom shows the file path, line number (51:1), encoding (CRLF), character set (UTF-8), indentation (4 spaces), and interpreter (Python 3.9).

```
pythonProject  Version control  Current File  Run  Lesson01_Lab Activity_Python.py  Lesson01_Lab Activity_Python.py  ...  
2. What is the critical z-score of a left-tailed test with 95% level of confidence?  
Answer >> -1.6449  
3. What is the z-score of a data point encompasses sixteen 25ths of a distribution?  
Answer >> 0.3585  
4. What is the z-score of the data point at the third decile?  
Answer >> -0.5244  
5. What is the z-score of the data point that just below the top 20% of a distribution?  
Answer >> 0.8416  
6. What is the z-score of a test-taker who is at the 92nd percentile?  
Answer >> 1.4051  
7. What is the z-score of the third quartile?  
Answer >> 0.6745  
8. What is the left critical z-score of a two-tailed test with a 1% level of significance?  
Answer >> -2.5758  
9. What percent of the distribution is less than a data point that is 2.51 standard deviations less than the mean?  
Answer >> 0.006  
10. What percent of the distribution is greater than a data point that is 0.37 standard distributions greater than the mean?  
Answer >> 0.3557  
11. The average weight of a student in a junior high school is 65kg with a standard deviation of 10kg. What percent of the student population have a weight less than 84.6 kg?  
Answer >> 0.975  
12. The average height in a certain company is 166cm with a standard deviation of 5cm. What percent of the company employees is taller than Bae who is 170.65cm tall?  
Answer >> 0.1762  
13. The average salary of a resident in a certain Philippine Province is 45,000 PhP with a standard deviation of 10,000 PhP. What percent of the province's population earns less than 75,000 PhP?  
Answer >> 0.9987  
Process finished with exit code 0  
pythonProject > Lesson01_Lab Activity_Python.py  51:1  CRLF  UTF-8  4 spaces  Python 3.9 (pythonProject) (3)
```