Probability and Statistics (IT302) Lab Program-10

Reg. No 181067181IT102 - 181163181IT121

Use any one of the programming languages C/C++/Python/Java/R to **compute inflection points on Normal Distribution Curve** by considering only the valid runtime input of series of positive integer numbers. For invalid test case, it should display an error message on the terminal and the same should be stored on a separate output file with appropriate file name. For each valid test case it should display intermediate results as well as final output on terminal and also should store onto a separate output file with appropriate file name. Furthermore, it should plot Normal Distribution Curve (graph) by labeling **inflection points** on it and the generated graph should be saved with appropriate file name. For each test case save the screenshot of the output with appropriate filename.

Intermediate Results	:	Mean, Standard Deviation
Sample Test Cases	;	10, 20, 30, 35, 40, 45, 50, 55, 60, 70, 80, 90, 95
		10, -20, 30, 35, 40, 45, 50, &55, 60, 70, 80, 90, 0095

Reg. No 181163181IT122 – 181762181IT141

Use any one of the programming languages C/C++/Python/Java/R to compute and **verify the properties of Standard Normal Distribution** by considering only the valid runtime input of series of positive integer numbers. For invalid test case, it should display an error message on the terminal and the same should be stored on a separate output file with appropriate file name. For each valid test case it should display intermediate results as well as final output on terminal and also should store onto a separate output file with appropriate file name. Further, program should plot Standard Normal Distribution curve (graph) by labeling appropriate values on it and the generated graph should be saved with appropriate file name. For each test case save the screenshot of the output with appropriate filename.

Intermediate Results	:	Mean, Standard Deviation, Z-Score
Sample Test Cases	;	100, 120, 130, 135, 145, 155, 160, 270, 280, 290, 295
		220, -300, 305, 400, 450, 500, &55&, 460, 570, 680, 790

Reg. No 181481181IT143 – 181625181IT209

Use any one of the programming languages C/C++/Python/Java/R to find the probability that a student receives a test score less than “C’/ greater than “D”/ between “E” and “F” by assuming that the average on a statistics test score was “A” with a standard deviation of “B” and the test scores are normally distributed, Program should consider only the runtime positive integer numbers as inputs. For invalid test case, it should display an error message on the terminal and the same should be stored on a separate output file with appropriate file name. For each valid test case it should display intermediate result as well as final output on terminal and also should store onto a separate output file with appropriate file name. Furthermore, it should plot Normal Distribution Curve with labeling by shading the appropriate area on the curve and the graph should be saved with appropriate file name. For each test case save the screenshot of the output with appropriate filename.

Intermediate Result	:	Z-Score			
Sample Test Cases	:	1)	C=25, A=75, B=7	2)	E=40 and F=50, A=60, B=6
		3)	D= 30, A=76, B=6	4)	C=30, A=0, B=0

Reg. No. 181625181IT211 - 181034181IT232

Assume that the weights of bags of chips for a vending machine are normally distributed with a mean of "A" ounces and a standard deviation of "B" ounce. Bags that have weights in the lower C% are too light and will not work in the machine. Use any one of the programming languages C/C++/Python/Java/R to compute what is the least a bag of chips can weigh and still work in the machine? Program should consider only the valid runtime positive integer/real numbers as inputs. For invalid test case, it should display an error message on the terminal and the same should be stored on a separate output file with appropriate file name. For each valid test case it should display intermediate result as well as final output on terminal and also should store onto a separate output file with appropriate file name. Furthermore, it should plot Normal Distribution Curve with label by shading the appropriate area on the curve and the graph should be saved with appropriate file name. For each test case save the screenshot of the output with appropriate filename.

Intermediate Result : Z-Score
Sample Test Cases : 1) A = 10, B = 2, C=8% 2) A=10.20, B=0.2, C=6%

Reg. No 1181579181IT233 - 181047181IT254, 15645415IT206

Use any one of the programming languages C/C++/Python/Java/R to compute **68-95-99.7 Rule of** Normal Distribution Curve by considering only the valid runtime input of series of positive integer numbers. For invalid test case, it should display an error message on the terminal and the same should be stored on a separate output file with appropriate file name. For each valid test case it should display intermediate results as well as final output on terminal and also should store onto a separate output file with appropriate file name. Furthermore, it should plot Normal Distribution Curve (graph) by labeling appropriate points on it and the graph should be shaded as per **68-95-99.7 Rule** and save the same with appropriate file name. For each test case save the screenshot of the output with appropriate filename.

Intermediate Results : Mean, Standard Deviation
Sample Test Cases ; 101, 120, 130, 135, 140, 145, 150
10, 20, 30, 40, 50, 55, -60, -70, 80, 90

Email subject should be PAS(IT302)-Lab-Program-10-Related-Files

File name of the program : RegisterNo_IT302_P10 (P10 indicates Lab Program Number-10)

File name of the screenshot : RegisterNo_IT302_P10_TCS1

(TCS1 indicates screenshot for the first test case, similarly, for other test cases TCS2, TCS3, TCS4, TCS5, TCS6).

File name of the Graph : RegisterNo_IT302_P10_TCG1

(TCG1 indicates graph for the first test case, similarly, for other test cases TCG2, TCG3, TCG4, TCG5, TCG6).

File name of the Output File : RegisterNo_IT302_P10_Output_TC1.txt

(TC1 indicates output for the first test case, similarly, for other test cases TC2, TC3, TC4, TC5, TC6)

Date of Online Laboratory : 2nd November 2020, Monday

Deadline of Submission : 2nd November 2020, Monday (on or before 6:00PM)

Submit program file, all files to the Email ID mentioned in fourth column of the below Table.

Note:

- Clarify doubt(s) (if any) only on 2nd October 2020 Monday at 2:00PM.
- No/Zero marks for incomplete submission/incomplete program.
- Appropriate marks will be deducted for any of the submission instructions violated.
- No/Zero Marks for submission to inappropriate evaluator.
- Only first submission will be considered for evaluation.
- Program should check all types of input conditions and not only restricted to given test case inputs. Otherwise appropriate marks will be deducted.
- Discuss with evaluator only on said date and time if any doubt(s) related to lab evaluation marks. No communication will be entertained on any mode (email/SMS/phone call etc.) on any day/time except give clarification schedule by the evaluator.
- Deduction of marks for late submission (after submission deadline)

6:01PM - 6:30 PM	0.5M
6:31PM - 7:00 PM	1M
7:01PM - 8:00 PM	2M
8:01PM - 9:00 PM	4M

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35	181074181IT136	Raj Kishore Sethi	
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67	181190181IT218	HRITWIK ARYA	
68	181418181IT219	Jay Rajesh Agrawal	
69	181221181IT220	Jeeukrishnan Kayshyap	
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75	181119181IT227	Mithas Kumar	
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