



NITTE
EDUCATION TRUST

N.M.A.M. INSTITUTE OF TECHNOLOGY

(An Autonomous Institution affiliated to Visvesvaraya Technological University, Belagavi)

Nitte – 574 110, Karnataka, India

(ISO 9001:2015 Certified)

Accredited with 'A' Grade by NAAC

Department of Computer Science and Engineering

19CS403: Python Programming Lab Examination

Evaluation

Evaluation Component	Evaluation Criteria	Marks
Program 1	Write up	05
	Execution	10
Program 2	Write up	05
	Execution	20
Viva-Voce		10
Total		50

PART-A																
Q. No	Question Description	CO														
1	Build a program called “ GuessMyNumber ”. The computer will generate a random number between 1 and 10. The user types in a number and the computer replies “lower” if the random number is lower than the guess, “higher” if the random number is higher , and “correct!” if the guess is correct. The player can continue guessing until the guess is right.	1														
2	Write a python program to create two separate lists of integers. List elements of both the list shall be read from keyboard input. Program should display “ Lists are symmetrical ” if both the lists contain equal number of even and odd numbers.	1														
3	Write a Python program to generate first ‘n ’Fibonacci numbers.	1														
4	Given below is the list of marks scored by students. Find top three scorers for the course and also display the average marks scored by all students. Implement the solution using Python Programming. <table><tr><th>Student Name</th><th>Marks</th></tr><tr><td>John</td><td>86.5</td></tr><tr><td>Jack</td><td>91.2</td></tr><tr><td>Jill</td><td>84.5</td></tr><tr><td>Harry</td><td>72.1</td></tr><tr><td>Joe</td><td>80.5</td></tr></table>	Student Name	Marks	John	86.5	Jack	91.2	Jill	84.5	Harry	72.1	Joe	80.5	2		
Student Name	Marks															
John	86.5															
Jack	91.2															
Jill	84.5															
Harry	72.1															
Joe	80.5															



NITTE
EDUCATION TRUST

N.M.A.M. INSTITUTE OF TECHNOLOGY

(An Autonomous Institution affiliated to Visvesvaraya Technological University, Belagavi)

Nitte – 574 110, Karnataka, India

(ISO 9001:2015 Certified)

Accredited with 'A' Grade by NAAC

Department of Computer Science and Engineering

5	Write a program to count the number of capital letters and display the position of each capital letter in a user entered string via keyboard.	2	
6	Write a program to count the number of each vowel in a given string.	2	
7	Write a program to remove all punctuations like “‘!()-[]{};:’”,\,<,>./,?,@,##,\$,%^&*~” from the string provided by the user.	2	
8	Consider two strings, String1 and String2 and display the merged string as output. The merged string should be the capital letters from both the strings in the order they appear. Sample Input: String1:ILikeC String2:MaryLikesPython Merged string should be ILCMLPS	2	
9	Write a binary search function which searches an item in a sorted list. The function should return the index of element to be searched in the list.	2	
10	Write a function that returns the index of the smallest element in a list of integers. If the number of such elements is greater than 1, return the smallest index. Use the following header: def indexOfSmallestElement(lst): Write a program that prompts the user to enter a list of numbers, invokes this function to return the index of the smallest element and displays the index.	2	
11	Write a program that will count the number of characters, words, and lines in a file. Words are separated by a white-space character. Your program should prompt the user to enter a filename.	2	
12	Suppose that a text file contains marks for 6 courses for a student in a line. Each course marks is separated by space as delimiter. File contains marks for ‘n’ number of students in separate lines. Write a program that reads the marks from the file for each student and displays the total and average. Your program should prompt the user to enter a filename.	3	
PART-B			



NITTE
EDUCATION TRUST

N.M.A.M. INSTITUTE OF TECHNOLOGY

(An Autonomous Institution affiliated to Visvesvaraya Technological University, Belagavi)

Nitte – 574 110, Karnataka, India

(ISO 9001:2015 Certified)

Accredited with 'A' Grade by NAAC

Department of Computer Science and Engineering

13	<p>Design a class named Account that contains:</p> <p>A private int data field named accountno for the account.</p> <p>A private float data field named balance for the account.</p> <p>A constructor that creates an account with the specified accountno and Initial balance (default 100).</p> <p>A method named withdraws that withdraws a specified amount from the account. A minimum balance of 100 should be maintained for each account.</p> <p>A method named deposit that deposits a specified amount to the specific account.</p> <p>Write a program that maintains ‘n’ number of Account objects with unique accountno and supports following operations.</p> <p>a) New account creation</p> <p>b) deposit operation for a given account no</p> <p>c) withdraw operation for a given account no</p> <p>d) Display account no with highest balance</p>	3																																																																																																																									
14	<p>Develop python program to perform the below mentioned operations.</p> <p>a) display total marks scored by each student</p> <p>b) Display top scorer and the top score</p> <p>c) Show the graph depicting score range versus no: of students. A sample graph is shown below.</p> <p>Scenario: There are 10 students and answers to 10 multiple choice questions of each student is stored in a file called marks.txt. Each answer is delimited by space. Each line provides a student’s answers to the questions, as shown below. The answer key is stored in a file named keys.txt. The format of answer keys as shown below.</p> <table><tr><td>Key</td><td>D</td><td>B</td><td>D</td><td>C</td><td>C</td><td>D</td><td>A</td><td>E</td><td>A</td><td>D</td></tr></table> <p>Marks.txt</p> <table><tr><td>Student0</td><td>A</td><td>B</td><td>A</td><td>C</td><td>C</td><td>D</td><td>E</td><td>E</td><td>A</td><td>D</td></tr><tr><td>Student1</td><td>D</td><td>B</td><td>A</td><td>B</td><td>C</td><td>A</td><td>E</td><td>E</td><td>A</td><td>D</td></tr><tr><td>Student2</td><td>E</td><td>D</td><td>D</td><td>A</td><td>C</td><td>B</td><td>E</td><td>E</td><td>A</td><td>D</td></tr><tr><td>Student3</td><td>C</td><td>B</td><td>A</td><td>E</td><td>D</td><td>C</td><td>E</td><td>E</td><td>A</td><td>D</td></tr><tr><td>Student4</td><td>A</td><td>B</td><td>D</td><td>C</td><td>C</td><td>D</td><td>E</td><td>E</td><td>A</td><td>D</td></tr><tr><td>Student5</td><td>B</td><td>B</td><td>E</td><td>C</td><td>C</td><td>D</td><td>E</td><td>E</td><td>A</td><td>D</td></tr><tr><td>Student6</td><td>B</td><td>B</td><td>A</td><td>C</td><td>C</td><td>D</td><td>E</td><td>E</td><td>A</td><td>D</td></tr><tr><td>Student7</td><td>E</td><td>B</td><td>E</td><td>C</td><td>C</td><td>D</td><td>E</td><td>E</td><td>A</td><td>D</td></tr><tr><td>Student8</td><td>C</td><td>B</td><td>A</td><td>E</td><td>D</td><td>C</td><td>E</td><td>E</td><td>A</td><td>D</td></tr><tr><td>Student9</td><td>A</td><td>B</td><td>D</td><td>C</td><td>C</td><td>D</td><td>E</td><td>E</td><td>A</td><td>D</td></tr></table>	Key	D	B	D	C	C	D	A	E	A	D	Student0	A	B	A	C	C	D	E	E	A	D	Student1	D	B	A	B	C	A	E	E	A	D	Student2	E	D	D	A	C	B	E	E	A	D	Student3	C	B	A	E	D	C	E	E	A	D	Student4	A	B	D	C	C	D	E	E	A	D	Student5	B	B	E	C	C	D	E	E	A	D	Student6	B	B	A	C	C	D	E	E	A	D	Student7	E	B	E	C	C	D	E	E	A	D	Student8	C	B	A	E	D	C	E	E	A	D	Student9	A	B	D	C	C	D	E	E	A	D	3
Key	D	B	D	C	C	D	A	E	A	D																																																																																																																	
Student0	A	B	A	C	C	D	E	E	A	D																																																																																																																	
Student1	D	B	A	B	C	A	E	E	A	D																																																																																																																	
Student2	E	D	D	A	C	B	E	E	A	D																																																																																																																	
Student3	C	B	A	E	D	C	E	E	A	D																																																																																																																	
Student4	A	B	D	C	C	D	E	E	A	D																																																																																																																	
Student5	B	B	E	C	C	D	E	E	A	D																																																																																																																	
Student6	B	B	A	C	C	D	E	E	A	D																																																																																																																	
Student7	E	B	E	C	C	D	E	E	A	D																																																																																																																	
Student8	C	B	A	E	D	C	E	E	A	D																																																																																																																	
Student9	A	B	D	C	C	D	E	E	A	D																																																																																																																	



NITTE
EDUCATION TRUST

N.M.A.M. INSTITUTE OF TECHNOLOGY

(An Autonomous Institution affiliated to Visvesvaraya Technological University, Belagavi)

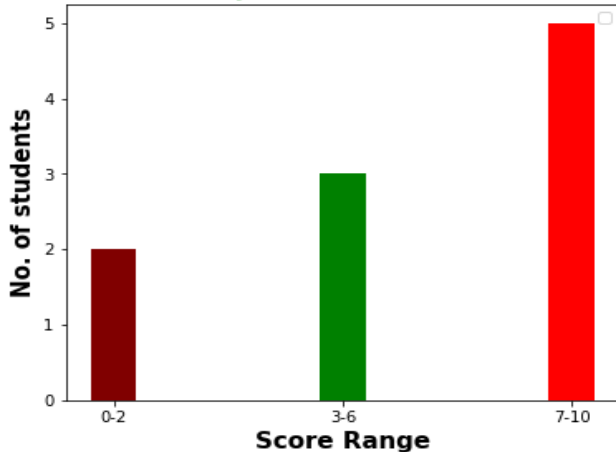
Nitte – 574 110, Karnataka, India

(ISO 9001:2015 Certified)

Accredited with 'A' Grade by NAAC

Department of Computer Science and Engineering

Students performance on MCQ Test



15 Write a program to create a list to maintain country names, respective capital and its population. The program should support following operations

- To enter country name, capital and its population.
- To accept the name of a country as an input and print the corresponding capital name and population as output. Otherwise, the program should print an appropriate message if the country is not found in the list.
- To display the country name with highest population.

16 CIE and SEE marks of Ten students for 3rd semester is stored in a CSV file. Marks details are stored in a worksheet and the format of marks details is shown below. The worksheet provides CIE and SEE marks for the courses CS301 TO CS306. Perform data analysis using numpy, pandas, matplotlib python libraries for the following scenarios.

- Display the subject code with highest avg score in the semester
- Visualize each student's avg CIE and avg SEE for 3rd sem using a bar chart graph. Sample chart is shown below.

USN	CS301_CIE	CS301_SEE	CS302_CIE	CS302_SEE	CS303_CIE	CS303_SEE	CS304_CIE	CS304_SEE	CS305_CIE	CS305_SEE	CS306_CIE	CS306_SEE
19CS001	40	43	39	35	46	40	34	36	25	30	34	36
19CS002	43	40	35	32	45	42	40	40	30	34	36	37
19CS003	38	42	39	38	38	40	37	45	34	36	45	40
19CS004	42	43	41	43	44	43	38	40	26	34	36	40
19CS005	26	34	39	35	42	40	47	46	40	35	35	36
19CS006	45	41	43	43	39	41	38	39	34	37	26	34
19CS007	32	33	45	46	45	43	45	46	27	40	29	36
19CS008	37	40	46	45	43	40	43	45	40	36	37	36
19CS009	43	37	32	35	36	40	37	38	35	34	41	40
19CS010	40	35	39	35	46	45	26	30	25	31	42	39



NITTE
EDUCATION TRUST

N.M.A.M. INSTITUTE OF TECHNOLOGY

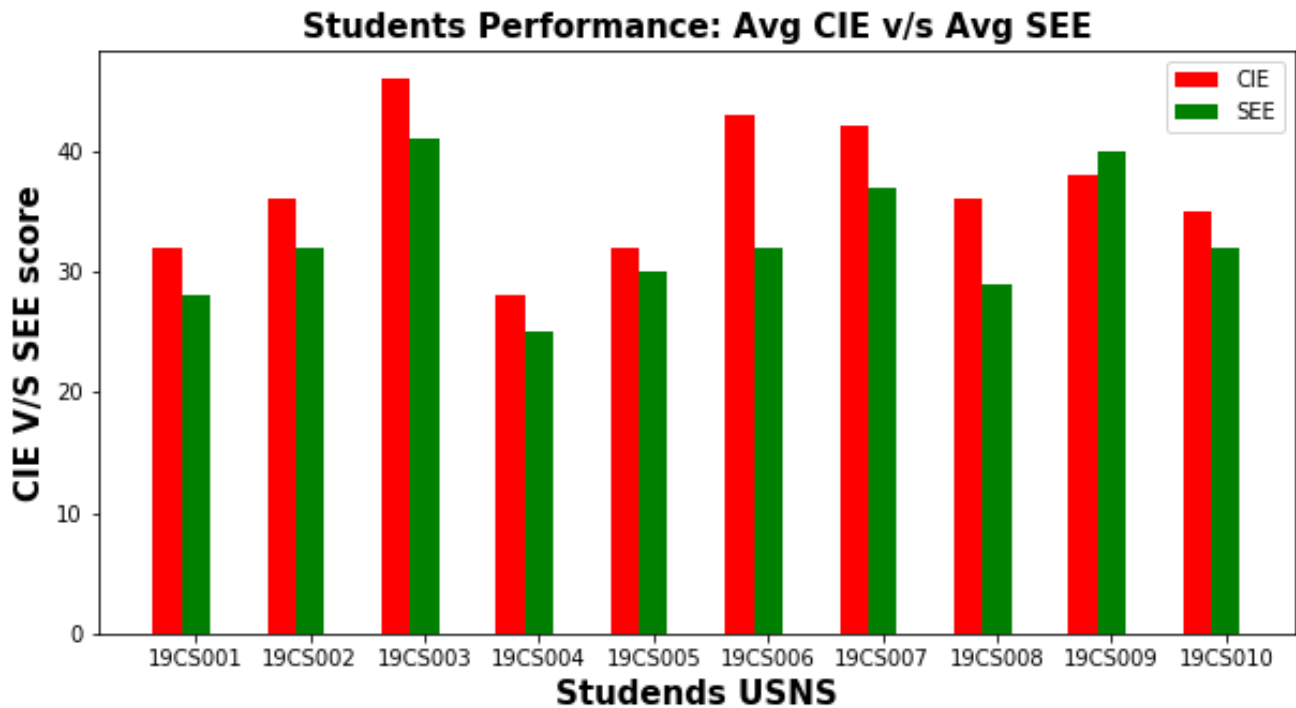
(An Autonomous Institution affiliated to Visvesvaraya Technological University, Belagavi)

Nitte – 574 110, Karnataka, India

(ISO 9001:2015 Certified)

Accredited with 'A' Grade by NAAC

Department of Computer Science and Engineering



17 CIE and SEE marks of Ten students for 3rd semester are stored in a CSV file. Marks details are stored in a worksheet and the format of marks details is shown below. The worksheet provides CIE and SEE marks for the courses CS301 TO CS306. Perform data analysis using numpy, pandas, matplotlib python libraries for the following scenarios.

- Display the usn with highest total score.
- Visualize grade analysis (No of students with **S,A,F grades**) for each subjects using a bar chart graph. Sample chart is shown below.

Grade calculation: **S : CIE + SEE >=90**

A: (CIE + SEE >= 80) AND (CIE + SEE < 90)

F: (CIE + SEE < 40)

5



NITTE
EDUCATION TRUST

N.M.A.M. INSTITUTE OF TECHNOLOGY

(An Autonomous Institution affiliated to Visvesvaraya Technological University, Belagavi)

Nitte – 574 110, Karnataka, India

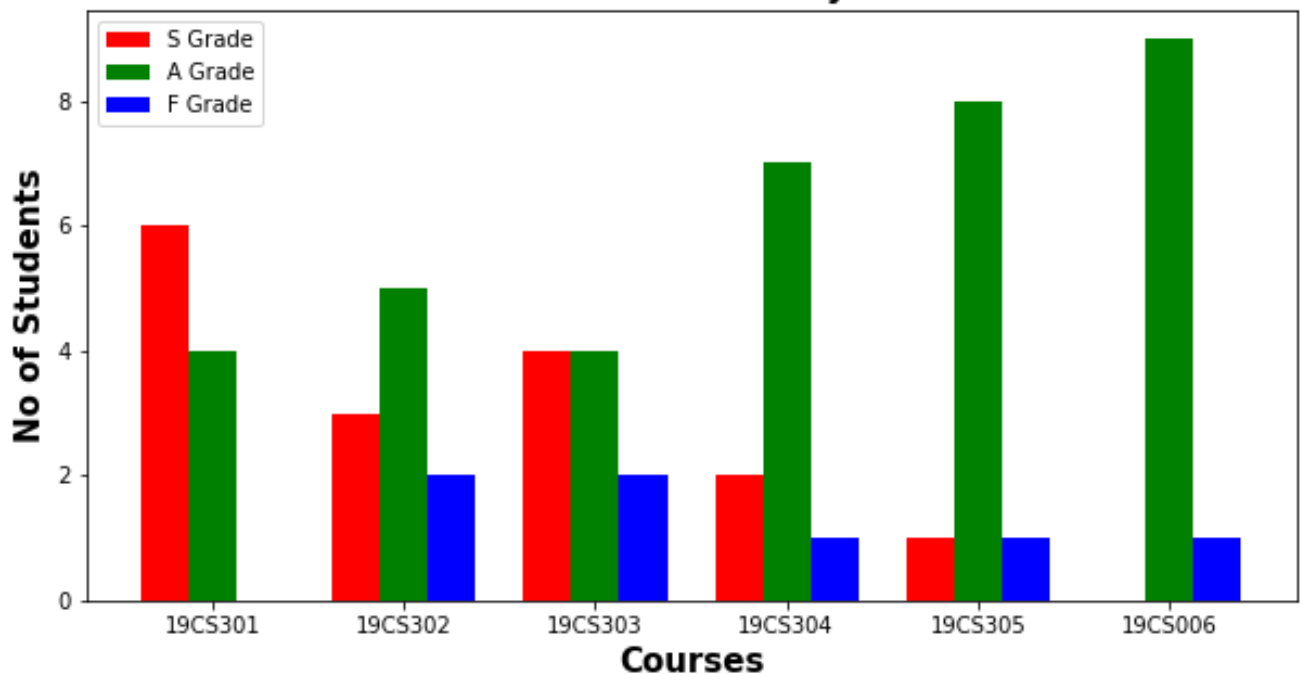
(ISO 9001:2015 Certified)

Accredited with 'A' Grade by NAAC

Department of Computer Science and Engineering

USN	CS301_CIE	CS301_SEE	CS302_CIE	CS302_SEE	CS303_CIE	CS303_SEE	CS304_CIE	CS304_SEE	CS305_CIE	CS305_SEE	CS306_CIE	CS306_SEE
19CS001	40	43	39	35	46	40	34	36	25	30	34	36
19CS002	43	40	35	32	45	42	40	40	30	34	36	37
19CS003	38	42	39	38	38	40	37	45	34	36	45	40
19CS004	42	43	41	43	44	43	38	40	26	34	36	40
19CS005	26	34	39	35	42	40	47	46	40	35	35	36
19CS006	45	41	43	43	39	41	38	39	34	37	26	34
19CS007	32	33	45	46	45	43	45	46	27	40	29	36
19CS008	37	40	46	45	43	40	43	45	40	36	37	36
19CS009	43	37	32	35	36	40	37	38	35	34	41	40
19CS010	40	35	39	35	46	45	26	30	25	31	42	39

Course Grade Analysis





18

Placement data distribution across various branches and companies is shown in the table below for the academic year 2020. Perform data analysis using numpy, pandas, matplotlib python libraries for the following scenarios.

- Display the branch name with highest no of total placements across all the companies.
- Display the company name with highest no of total placements across all the branches.
- Display branch name and company name having highest no of placements.(e.g, 'CSE'-'DXC')
- Draw a pie chart showing distribution of total placements across all the branches.
- Draw a pie chart showing distribution of total placements across all the companies.

Branch	DXC	Mind-Tree	Cap-gemini	Acce-nture	Hexa-ware	TCS Code-vita	TCS Ninja	Cogni-zant	Hack-with Infy	Infosys (CRP)
Civil	2			1			1	1		1
Mech.	15			1		1	7	2		6
E&E	9	4	6	4		1	3	4		5
E&C	34	18	39	22	3	2	15	10		23
CSE	76	66	34	44	4	5	10	13	6	21
ISE	39	28	16	20			4	9		9
BT	2									
MCA			9	5	1		3	1		2

