

Probability and Statistics (IT302) Lab Program-6

Reg. No 181067181IT102 - 181762181IT141

From a sack of fruit containing 'm' number of oranges, 'n' number of apples, and 'o' number of bananas, a random sample of 'a' pieces of fruit is selected. If X is the number of oranges and Y is the number of apples in the sample, find/compute the covariance of the random variables X and Y by using any one of the programming languages C/Python/Java/C++. Program should consider only valid runtime 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 cases 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. For each test case save the screenshot with appropriate filename.

Sample Test Cases

1. $m=5$, $n=5$, $o=3$, $a=4$
2. $m=6$, $n=5$, $o=4$, $a=4$

Reg. No 181481181IT143 - 181034181IT232

Let X denote the number of times a certain numerical control machine will malfunction: 1, 2, or 3 times on any given day. Let Y denote the number of times a technician is called on an emergency call. Their joint probability distribution is given as

$f(x,y)$		x		
		1	2	3
y	1	0.05	0.05	0.10
	3	0.5	0.6	0.20
	5	0.4	0.3	0.30

Find the covariance of the random variables X and Y by using any one of the programming languages C/Python/Java/C++. Program should consider only valid runtime 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 cases 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. For each test case save the screenshot with appropriate filename.

Sample Test Cases

$f(x,y)$		x		
		1	5	7
y	3	0.5	0.4	0.1
	5	0.4	0.4	0.2
	7	0.4	0.3	0.3

$f(x,y)$		x		
		1	4	6
y	5	0.4	0.4	0.2
	3	0.2	0.6	0.2
	7	0.3	0.4	0.3

Suppose that X and Y have the following joint probability distribution:

$f(x,y)$		x	
		1	4
y	5	0.4	0.4
	3	0.2	0.6
	7	0.3	0.4

Find the covariance of the random variables X and Y by using any one of the programming languages C/Python/Java/C++. Program should consider only valid runtime 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 cases 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. For each test case save the screenshot with appropriate filename.

Sample Test Cases

$f(x,y)$		x	
		1	5
y	5	0.4	0.4
	4	0.2	0.6
	3	0.3	0.4

Email subject should be PAS(IT302)-Lab-Program-6-Related-Files

File name of the program : RegisterNo_IT302_P6 (P6 indicates Lab Program Number-6)

File name of the Output File : RegisterNo_IT302_P6_Output_TC1.txt

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

File name of the screenshot : RegisterNo_IT302_P6_TCS1

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

Date of Online Laboratory : 14 September 2020, Monday

Deadline of Submission : 14th September 2020, Monday (on or before 6:00PM)

Submit program file, all output files (output.txt) and all screenshots to the Email ID mentioned in fourth column of the below Table.

Note:

- Clarify doubt(s) (if any) only on 14th September 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.
- Appropriate marks will be deducted either intermediate results are not stored onto a separate output file or not displayed on the terminal.
- Appropriate marks will be deducted if all outputs written into a single output file.
- 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

Sl. No.	Register No.	Name of the Student	Email ID
1	181067181IT102	Adarsh Naidu	<p>Email to swathinitkit@gmail.com</p> <p>Corban Copy (CC) to probabilitystati@gmail.com</p>
2	181722181IT103	Ajay R Bharadwaj	
3	181010181IT104	Akshith Nettare Mahalinga	
4	181260181IT105	Amith Bhat Nekkare	
5	181271181IT106	ANIRUDDH RAVICHANDAN PATIL	
6	181523181IT107	Ankit gupta	
7	181110181IT108	ASIS KUMAR ROUT	
8	181049181IT109	Ayush Ashok Rahangdale	
9	181427181IT110	Badavath Sagar Babu	
10	181220181IT111	Bhagyashri Nilesh Bhamare	
11	181066181IT112	C SNEHA	
12	181274181IT113	Chinmayi Chikkaagrahara Ramakrishna	
13	181341181IT114	DEBABRAT PARIDA	
14	181099181IT115	Dolly Gupta	
15	181292181IT116	Girish Jeswani	
16	181635181IT117	Harsh Agarwal	
17	181681181IT118	Hp srushti	
18	181608181IT119	Jaidev Chittoria	
19	181849181IT120	JAYAKRISHNAN B	
20	181163181IT121	josson joe thoppil	
21	181475181IT122	KAVALAKUNTALA VARA PRASAD	<p>Email to madhusmitadas.nitk@gmail.com</p> <p>Corban Copy (CC) to probabilitystati@gmail.com</p>
22	181272181IT123	Kotla Karthik Reddy	
23	181492181IT124	Krithik Muralidhar Vaidya	
24	181017181IT125	Laharish S	
25	181299181IT126	Mansi saxena	
26	181352181IT127	Meghna Suraj Kashyap	
27	181052181IT128	Mohith R	
28	181876181IT129	Naman Vijayvargiya	
29	181570181IT130	Neil Paresch Poonatar	
30	181324181IT131	Nithya Manoj	
31	181516181IT132	P AKSHARA	
32	181198181IT133	Prajna N Hebbar	
33	181189181IT134	Prasad Bapu Jagtap	
34	181082181IT135	Priyanka B G	
35	181074181IT136	Raj Kishore Sethi	
36	181431181IT137	RAVI PRAKASH	
37	181439181IT138	ROHIT KUMAR SAHU	
38	181375181IT139	Rushikesh Kailas Pawar	
39	181436181IT140	Sagar Choudhury	
40	181762181IT141	Sarthak Laghate	

Sl. No.	Register No.	Name of the Student	Email ID
41	181481181IT143	Sheel Lohia	Email to al.jrshruti1205@nitk.edu.in Corban Copy (CC) to probabilitystati@gmail.com
42	181101181IT144	Shivamani Santosh Patil	
43	181161181IT145	Shraddha Gole	
44	181874181IT146	Siddharth Pokharna	
45	181168181IT147	Sujan Reddy A	
46	181632181IT148	Sunil kumar	
47	181128181IT149	T SHIVAPRASAD NAYAK	
48	181276181IT150	Udbhav Bisarya	
49	181438181IT151	V R SANDEEP	
50	181357181IT152	vishwajit kumar singh	
51	181270181IT153	YASH Kumar Gupta	
52	181403181IT154	Ashok Bhobhiya	
53	181875181IT201	Abhishek Kaswan	
54	181402181IT202	Adharsh Kamath	
55	181181181IT203	Akashdeep S	
56	181407181IT205	Animesh Anand	
57	181124181IT206	Aniruddh Sujish	
58	181265181IT207	ARYA SHARMA	
59	181568181IT208	Atharv Rajesh Belagali	
60	181625181IT209	AYUSH BHANDARI	
61	181620181IT211	BHAJAN KUMAR BARMAN	Email to ramanahallishruthi.192it016@nitk.edu.in Corban Copy (CC) to probabilitystati@gmail.com
62	181238181IT212	Channamallikarjuna	
63	181803181IT214	Dhanuka Deep Manoj	
64	181091181IT215	Gagandeep K N	
65	181487181IT216	Gutla Gayathri	
66	181058181IT217	Harshvardhan R	
67	181190181IT218	HRITWIK ARYA	
68	181418181IT219	Jay Rajesh Agrawal	
69	181221181IT220	Jeeukrishnan Kayshyap	
70	181697181IT221	K Keerthana	
71	181280181IT223	krishna poojitha vantakula	
72	181061181IT224	KUMSETTY NIKHIL VENKAT	
73	181406181IT225	M SHIVA KRISHNA	
74	181414181IT226	MD ALTAF HUSSAIN	
75	181119181IT227	Mithas Kumar	
76	181211181IT228	MUKESH KUMAR	
77	181726181IT229	Narendra	
78	181784181IT230	Nirmal Harshal Khedkar	
79	181302181IT231	Olan Shawn Pinto	
80	181034181IT232	Piyush Dilip Ingale	

Sl. No.	Register No.	Name of the Student	Email ID
81	181579181IT233	Prakriti Goyal	<p>Email toanjaliagrawal.192it001@nitk.edu.in</p> <p>Corban Copy (CC) to probabilitystati@gmail.com</p>
82	181512181IT234	prithvi raj patil	
83	181471181IT235	R Karthik	
84	181369181IT236	Raju Kumar	
85	181383181IT237	Ritik Shaileshbhai Pansuriya	
86	181326181IT238	Royce George Philip	
87	181413181IT239	S SHUSHAL	
88	181459181IT240	Samarth S Hadimani	
89	181474181IT241	Seema G	
90	181096181IT242	Shashikantha	
91	181535181IT243	Shidharth S	
92	181207181IT244	Shonali K S	
93	181424181IT246	Sriram Rao Udupi	
94	181451181IT247	Sumit Gupta	
95	181343181IT248	SURAJ SUTHAR	
96	181038181IT249	tentu venkat tanmaiyyh	
97	181575181IT250	Utkarsh Sudhir Meshram	
98	181009181IT251	Vaibhav Puri	
99	181311181IT252	Vishwas Dipen Parekh	
100	181672181IT253	Yash Parakh	
101	181047181IT254	Hima Sajeew	
102	15645415IT206	Anupam RAJ	