

MIDTERM EXAM EVEN SEMESTER ACADEMIC YEAR 2021/2022
STUDY PROGRAM OF INFORMATION SYSTEMS
FACULTY OF ENGINEERING AND INFORMATICS
UNIVERSITAS MULTIMEDIA NUSANTARA

Subject	: IS 240 Probability and Statistics Lab	Date	:
Lecturer(s)	: Ir Raymond S Oetama, MCIS Fransiscus Ati Halim , Skom,MM Ahmad Faza, S.Kom., M.T.I.	Time	: 120 minutes
Form	: Essay	Type	: Onsite 2A

EXAM CONDITIONS / INSTRUCTIONS:

1. Read the questions carefully
2. Your answer must be saved to a R Markdown document named MidlS240ProbStatLab_Name_NIM.rmd
3. Your answer file must be submitted through eLearning before the time is due.

COURSE SUB LEARNING OUTCOMES (SUB-CLO):

SUB LEARNING OUTCOMES (SUB-CLO)		ELO
Code	Description	
SUB-CLO-1	Students are able to practice basic R programming (P3).	3
SUB-CLO-2	Students are able to practice R programming for descriptive statistics (P3).	3
SUB-CLO 5	Students are able to combine several R programs to analyze data (P4).	3

PROBLEM/QUESTIONS:

1. **SUB-CLO-1 Students are able to practice basic R programming (P3) and SUB-CLO-2 Students are able to practice R programming for descriptive statistics (P3) (Weight 30%).**

- You get StudentsIPS.xlsx
 - NIM is sequence numbers
 - Years is the year the students come to the university
 - ipsms1 is IP Semester 1
 - ipsms2 is IP Semester 2
 - ipsms3 is IP Semester 3
 - Books is the number of books a student reads per week
- Read the data into R
- Change Years into a factor
- Change Books into a factor

Question 1:

- a. Make an analysis about students' IPS and their Years as well as the books they read using boxplot. Make all six diagrams into one big picture (2x3) all together
- b. Find the best boxplot for each diagram and change it to green color.

ASSESSMENT RUBRIC (per question):

Rated aspect	Assessment criteria				
	Very Poor	Poor	Satisfactory	Good	Excellent
	0-10	11-15	16-20	21-25	26-30
accuracy	Students cannot answer the question or program errors	Data is successfully read, any of Years and Books have not been	Data is successfully read, both Years and Books have been changed	Data is successfully read, both Years and Books have been changed	Data is successfully read, both Years and Books have been changed

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Rated aspect	Assessment criteria				
	Very Poor	Poor	Satisfactory	Good	Excellent
	0-10	11-15	16-20	21-25	26-30
		changed to factors.	to factors, and structure is shown, any of 6 boxplots drawn incorrectly	to factors, and structure is shown, 6 boxplots drawn correctly, but not colored accordingly	to factors, and structure is shown, 6 boxplots drawn correctly, and colored accordingly

2. **Sub-CLO-2** Students are able to practice R programming for descriptive statistics (P3) and **SUB-CLO-5** Students are able to combine several R programs to analyze data (P4). **(Weight 30%)**

Question 2:

- Find correlation amongst all IPS,
- Analysis them using scatter plots, make them into one big picture (1x3) all together.
- Give green color to the strong correlation

ASSESSMENT RUBRIC (per question):

Rated aspect	Assessment criteria				
	Very Poor	Poor	Satisfactory	Good	Excellent
	0-8	9-14	15-20	21-26	27-30
accuracy	Students cannot answer the question or program errors	Some correlations are computed incorrectly	All Correlations are computed correctly, some scatterplots are drawn incorrectly	All Correlations are computed correctly, all scatterplots are drawn correctly but not colored accordingly.	All Correlations are computed correctly, all scatterplots are drawn correctly and colored accordingly.

3. **Sub-CLO-2** Students are able to practice R programming for descriptive statistics (P3) and **SUB-CLO-5** Students are able to combine several R programs to analyze data (P4). **(Weight 40%)**



Question 3:

- Analysis for each IPS whether it is normal distribution or not, by using Shapiro-Wilk.
- Draw a histogram for each IPS,
- Change the histogram color to green if it is normally distributed.

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ASSESSMENT RUBRIC (per question):

Rated aspect	Assessment criteria				
	Very Poor	Poor	Satisfactory	Good	Excellent
	0-11	12-19	20-27	28-35	36-40
accuracy	Students cannot answer the question or program errors	Some normality tests are incorrect.	All normality tests are correct, some histogram are drawn incorrectly.	All normality tests are correct, all histogram are drawn correctly, but not colored accordingly.	All normality tests are correct, all histogram are drawn correctly, and colored accordingly.

References:	Created by:	Approved by:
Week 1 to week 7	on behalf of the Lecturer Team 22.02.2022  (Ir. Raymond S. Oetama, MCIS) Course Coordinator	 (Ririn Ikana Desanti, S.Kom, M.Kom) Head of Study Program