

QMM 1002 Module 9 Assignment

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Create and submit an R script which, when run, will print the answers to the following questions. Your R script must include a title with your **name** and **student number** and comments for each question number.

1. **(30 marks)** A college admissions officer wanted to investigate whether males and females were being accepted at different rates into four college programs. These programs were Business, Performing Arts, Computer Technology, and Health Science. The following acceptance data was obtained:

<i>Number of Acceptances</i>		Program			
		Business	Performing Arts	Computer Technology	Health Sciences
Gender	Male	315	225	300	360
	Female	190	160	210	240

- a) State the null and alternative hypothesis. (2 marks)
- b) Give the expected value for each cell. (6 marks)
- c) Compute and state the χ^2 test statistic. (2 marks)
- d) At the 0.05 significance level, what is the critical chi-square value? (2 marks)
- e) Make a decision to reject or fail to reject the null hypothesis and interpret your decision in the context of the problem. (3 marks)
- f) Compute the standardized residuals for each cell. What do you notice about them in relation to your decision regarding the null hypothesis? (3 marks)
- g) Create association plot for the data. What are the most unusual positive and negative residuals? (4 marks)
- h) Create an interpret a mosaic plot for the data. (3 marks)
- i) Create a grouped stacked bar plot for the data. Interpret the plot in relation to your decision regarding the null hypothesis. (5 marks)

Save your R Script as: **Last Name, First Name Module 9 Assignment**

Upload your R Script to the **"Module 9 Assignment"** drop box on Moodle before **March 29th at 11:59 PM.**