BAN 602 Case Assignment 4

TourisTopia Travel (Triple T) is an online travel agency that specializes in trips to exotic locations around the world for groups of ten or more travelers. Triple T's marketing manager has been working on a major revision of the homepage of Triple T's website. The content for the homepage has been selected and the only remaining decisions involve the selection of the background color (white, green, or pink) and the type of font (Arial, Calibri, or Tahoma).

Triple T's IT group has designed prototype homepages featuring every combination of these background colors and fonts, and it has implemented computer code that will randomly direct each Triple T website visitor to one of these prototype homepages. For three weeks, the prototype homepage to which each visitor was directed and the amount of time in seconds spent at Triple T's website during each visit were recorded. Ten visitors to each of the prototype homepages were then selected randomly; the complete data set for these visitors is available in the data file BAN_602_Case_4.csv.

Triple T wants to use these data to determine if the time spent by visitors to Triple T's website differs by background color or font. It would also like to know if the time spent by visitors to the Triple T website differs by different combinations of background color and font.

Report

Prepare a case report that addresses the following.

1. Has Triple T used an observational study or a controlled experiment? Explain. (3 points)
2. Use the data from Triple T's study to test the hypothesis that the time spent by visitors to the Triple T website is equal for the three background colors. Include both the factors and their interaction in the ANOVA model, and use a 0.05 level of significance. State the hypotheses both in words and mathematically, compute the test statistic and p-value, explain the rejection rule and state the conclusion. (15 points)
3. Use the data from Triple T's study to test the hypothesis that the time spent by visitors to the Triple T website is equal for the three fonts. Include both the factors and their interaction in the ANOVA model, and use a 0.05 level of significance. State the hypotheses both in words and mathematically, compute the test statistic and p-value, explain the rejection rule and state the conclusion. (15 points)
4. Use the data from Triple T's study to test the hypothesis that time spent by visitors to the Triple T website is equal for the nine combinations of background color and font. Include both factors and their interaction in the ANOVA model, and use a 0.05 level of significance. State the hypotheses both in words and mathematically, compute the test statistic and p-value, explain the rejection rule and state the conclusion. (15 points)
5. What is your overall recommendation? (2 points)

Format of the deliverables:

1. The typed report must be in Microsoft Word or PDF format and uploaded on Canvas by the due date. Each group must upload <u>only one</u> report.
2. The typed case report must **not** contain any R code.
3. Please do not copy the questions from the case to your report. You should just answer the questions without typing the questions in your report. The report must answer all the questions separately and sequentially.
4. <u>You must include graphs and/or tables as asked in the question, followed by a written analysis and interpretation.</u>
5. *All* computations must be done in R and the *executable* R script file must be uploaded on Canvas as well.
6. No part of the associated dataset can be changed manually. Any changes in the dataset, if necessary, must be made using R code and documented in the submitted R script.
7. The report must be in Times New Roman font with font size 12 and single-line space.
8. The number of pages in the report must not exceed five (5) excluding any cover page.
9. The names of all the participating group-members must be on the first page of the report.