MATH325 Lab 5

Using Microsoft Excel to conduct ANOVA procedures

The steps required for completing the deliverables for this assignment, including screen shots that correspond to these instructions, are outlined below. Complete the questions below and paste the answers from Excel below each question (type your answers to the questions ***where noted***). Therefore, your response to the lab will be this ONE submitted document.

Context: *Remember that statistics are far more than numbers or values – you need to know the context to perform a good analysis!*

Study: A nurse practitioner is studying the effect of blood sugar (glucose) control, which involves collecting the average daily AC and QHS (fasting) blood sugar levels of the patients to determine if there is relationship between these and the patients' Hemoglobin A1C level. She hypothesizes that good blood sugar control will result in ideal Hemoglobin A1C levels and inadequate control of the patients' blood sugar will result in high Hemoglobin A1C levels.

She also tracks other factors that may contribute to the patients' control of their blood sugar such as carbohydrate intake, age, frequency of glucose checks, and insurance coverage of diabetic supplies.

Hemoglobin: Ideal Hemoglobin A1C levels for patients are 6 or 7, a value of 8 or 9 merits concern, values 10 and up are considered severely uncontrolled, while values less than 6 are rare in diabetic patients. 4 and 5 can be found normally in patients that are not diabetic.

Blood Sugar: Glucose levels under 70 are considered low, between 70 and 110 is considered normal, 111 to 170 is considered moderately high, and values above 170 are considered high. There is some debate on the cut points, however, these are the values used to categorize glucose levels in this study.

Glucose _Range: This is a categorical variable describing the group into which the patient's glucose level places them: low, normal, moderately high, and high.

Glucose_Group: This is a numeric variable containing the same information as the Glucose_Range, however, the numeric value assigned to each group can be used in analysis that requires a ratio or interval level of measurement. Low is assigned a 1, Normal is assigned a 2, Moderately High is assigned a 3, and High is assigned a 4.

Carbohydrates: Diabetic patients try to consume 14 servings of carbohydrates daily where each serving is approximately 15 grams. This study tracks the average grams of carbohydrates consumed on a daily basis by these patients.

Age_Range: This is a Categorical Variable where each patient is classified by age: under 10, 11 – 16, 17 – 25, 26 – 40, 41 – 60, and over 60.

Age_Group: This is a numeric variable that contains the same information as the Age_Range, however, the numeric value assigned to each group can be used in analysis that requires a ratio or interval level of measurement. Each patient is classified by age: under 10 is assigned a 0, 11 – 16 is assigned a 1, 17 – 25
is assigned a 2, 26 – 40 is assigned a 3, 41 – 60 is assigned a 4, and over 60 is assigned a 5.

Insurance: This is a categorical variable that describes if the patient's insurance covers diabetic supplies. Yes/No.

Insurance_Group: This is a numeric variable that describes the same information as the Insurance variable; however, the numeric value assigned to each group can be used in analysis that requires a ratio or interval level of measurement. Yes is assigned a 1 and No is assigned a 0.

Frequency: This numeric variable describes how many daily checks of their glucose level are typically performed on a given day for each diabetic patient.