Biometry,
Student project

1. Bird data (first capture only)
   - Select three species of birds represented in the banding data files. Make sure the species you selected have at least 5 representatives for both sexes in the data. Also make sure that your selection differs from the selections of each of your classmates by at least one species.
   - In a separate Excel file label three sheets with names of the species you selected
   - For the three species transfer the data for band number, year, sex, bird weight and wing chord on the appropriate sheet.
   - Draw three histograms of the of the number of birds captured from each species per year.
   - Compute 95% confidence intervals for the weights and the wing chords of the three species in both sexes.
   - For the three species, use a f-tests to test the hypothesis that the males and the females have equal variance of weight and wing chord length.
   - For the three species use an appropriate t-test to test the hypothesis that the males and the females have equal mean weight and wing chord length
   - For the three species attempt to build a regression model for the wing cord length based on the bird's weight
   - Organize the data for the three species in a contingency table with columns representing the species and the rows representing the years. Implement a chi^2 test for independence between the rows and the columns. Based on the results answer the question: Does the distribution of captures in the three species depend on the year?

2. New banding location.
   - In 2023 new mist nets were installed in a location several kilometers away from the Vanier Field station. Select three species which were captured most frequently at the new location. Extract data for the same three species in 2023 captured at the field station. Run a chi^2 test for independence between frequency of capture per species and location. Draw a conclusion.

3. Recapture.
    - For the three species you selected in (1.) extract recapture data. Construct a 95% confidence interval for the probability of 1 recapture within the same year.
    - For the three species investigate if recaptures happen not in the same year as the first capture. Organize the data in a contingency table with columns representing the species and rows representing how many years have passed from capture to recapture. If the table has significant counts in each cell, >3) run a test for independence and draw a conclusion.

4. Organize your findings into a well-presented report. Make sure that for the species you include a picture (or pictures of a male and a female). Compare the confidence intervals you found with information that is available on Internet databases about these three species. Submit the report in pdf format. The formatting could be either article style or slides. Also submit a separate Excel file with all the data you used and the calculations.

    Bonus: Come up with an interesting new question to ask of the data. If the answer to your question requires statistical techniques which are then implemented, bonus marks will be assigned for your project.