M2-PROJECT2 Spec (DUE End of Week 3, Saturday October 3, 2020) You have 2 weeks to complete PROJECT 2 (15% of the final grade)

**Rev Fall2020**

**Executive Report**

*Research into fish species found in BullTroutRML2 dataset:*

1.Submit your Executive Summary with file name LastName-M2-Project2.

2. Your report is based ***primarily*** on analyzing the Harrison Lake Subset of the BulltroutRML2 dataset. You will create and execute an R script in order to gather the information required to complete your report. An R- script template of comments will be provided to guide you in your development of the R-code you will need to create in order to write the Executive Summary specified below.

Information on the BulltroutRML2 dataset can be found here: https://www.rdocumentation.org/packages/FSAdata/versions/0.3.8/topics/BullTroutRML2

Also, by using the code: ? BulltroutRML2 on R console

3. Your **Executive Summary** should consist of maximum 5 pages:

**Page 1**: **Title Page**: name, date, project title, class ID, professor’s name.

**Pages 2-5**. Use pages 2 to 5 to communicate your key Findings about the fish species data analysis. Indicate your results, provide any table or graph you consider essential (it’s your job to decide what to present and what not to present).

Pages 2 to 5 include all these sections:

Introduction: Mention all relevant topics

**Bibliography**. Include: youtube videos, instruction materials, google search results, texts that informed your study of statistics and R. Adhere to APA standards.

It is your job to find the best way to fit and organize your data results, observations and critical thinking application in pages 2 to 5 only.

You can use less pages, but no more than 5 in total.

**Page 6.** **Appendix:** Although pages 1 to 5 are the main body of your report, you can use an additional page to present the R Script you wrote and executed. Make sure these codes are well organized.

4. **GUIDANCE** for the EXECUTIVE SUMMARY:

**INTRODUCTION**

Develop clear ideas and concepts. Start by making a list for your self (in a piece of paper for example) of all the topics that will be cover in the report.

Remember my recommendation, you need to know your data, in this case, talk about the nature of the data: fisheries, why fish age is important, etc. In order to make the best observations and conclusion of your data, you must know very well the nature of that data, practice. Also include a short definition of basic descriptive statistics and why it is important. R programing and its benefits.

Support each topic with the corresponding academic reference you used.

Remember, DO NOT copy and paste any text from any of your source, use your own words to create your reports.

**Descriptive Statistics**

Provide an analysis of descriptive characteristics of the Harrison Lake fish (e,g., mean, median, quartiles, variance, standard deviation, skew, kurtosis, outliers, etc.). Include R console screen shots to support your observations and conclusions. Below is a sample excerpt:

**Example:** *A structural analysis of the BullTroutRML2 data set revealed that two lakes and two time periods must be factored into our study. We will initially focus our research on understanding the descriptive statistical differences in age and length between the Harrison Lake and Osprey BullTrout.*

A screenshot of a cell phone screen with text

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**PART B: VISUALIZATION**

**PLOT ANALYSIS**

You need to provide the executive with at least a half dozen visualization plots. They can be boxplots, histograms, frequency and probability distributions, barplots or pareto. Your goal is to not only present your visual results, but also to explain the significance of what is being seen. In this sense, explain the meaning of the data presented in each figure, apply deep critical thinking.

**Example**: *Each of these is plots will provide you the crucial information to make both strategic and operational decisions about how to best cultivate and harvest BullTrout from your various fish hatcheries as well as stock and harvest mature specimens from your lake farms. The plots we discuss in this report are:*

A screenshot of a cell phone

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Description automatically generatedA screenshot of a cell phone

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A close up of a map

Description automatically generatedA close up of a map

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**Additional resources.**

*Creating interactive tables in R*

Analyze and learn the following codes on how to create interactive tables. You can also use to present the tables in your report. This is an option; you can explore other resources.

library(DT)

library(rio)

#dataset wine

head(wine)

?datatable

datatable(wine)

#Click on the "Show in new window" under Viewer, it will open it in a web browser

datatable(wine, filter = 'top')

# It adds search boxes to each column, check the sliding bar you obtain.

datatable(wine, filter = 'top', rownames = F)

# It removes the numbers for each row

datatable(wine, filter = 'top', options = list(paging = F))

# It shows all entries in the data set. The option "show # entries" disappears.

#name the table

Table1 = datatable(wine, filter = 'top', options = list(paging = F))

Table1

saveWidget(Table1, "TableFinal.html")

# Check the files section (inside R Studio), new file should be there. Now you can open the table in a browser and explore it outside R