Statistics Culminating Project

You have the distinct pleasure and opportunity to complete a statistical project on a topic that you will choose! The project will include your research on the Internet, the use of **Google Sheets** or **Excel** for analyzing statistics and **presentation** tools like PowerPoint, Google Slides or Prezi. You will use your vast knowledge of statistics, which we will continue to add to as we work on this project. We will spend some time learning about **StatsCan** and **Sheets/Excel** and researching your topic. We will have several more days in class to work on this project.

B. The Thesis Statement Or Question

Your project should seek to **ask a question or prove a statement**, such as:

- Texting is a bigger factor than alcohol or drug use in driving fatalities
- Car prices and costs have been rising more than inflation. Out of all the costs related to cars, the one most/least closely related to inflation is…
- Juvenile arrests for violent crimes are directly linked to the number of juvenile homicides involving the use of firearms
- Corporate environmental spending is linked to quality of the environment
- Canada has a whole has more overweight/obese people than any other country in the world because of…
- The Rate of Suicide in Canada has rapidly changed from 1990- because…
- Youth employment rates are seeing a steady decline because of the increased enrolment in school, and the demand for a higher education in order to be considered qualified for most jobs
- The workplace is safer now than it has been in the past because…
- As time goes on, the number of people vaping has increased because…
- The amount of alcohol related driving fatalities have decreased dramatically over time because…
- The internet is an improvement for Canadian life, which is used across Canada despite users having similar security and privacy concerns, it still continues to attract people of all ages
- Home runs in baseball have increased recently due to many factors, the strongest is…
- As the population of Canada and Ontario increases/decreases, the crime rate is affected

You may find that your initial statement or question asked is incorrect, and **you may prove the opposite**. That is fine - **no marks are deducted** for making a statement that is later **proved incorrect**.

C. Some Potential Topics

Tourism in Canada	NFL team comparisons	Sexual Assault
Modes and Destinations of Travel by Canadians	NHL scoring statistics	Causes Of Death
Employment of men/women in Canada	NBA draft analysis	Smoking factors
Movie/Box office popularity	World Cup/EPL Statistics	Crime Rates
Health Behaviour of school aged children	Unionization in Canada	Murder Rates
University and School board funding	Life Expectancy factors	EQAO/OSSLT scores
Sources of Pollution and Waste in Canada	Teen Pregnancy factors	Scientific Innovation

D. Statistics Addresses – feel free to find and use other reputable sites

Canadian Statistics: http://www.statcan.gc.ca/
International statistics: http://www.nationmaster.com/ or http://data.worldbank.org/
Sports Statistics: http://nhl.com/ http://nfl.com http://nba.com http://www.fifa.com/ etc.

E. Class Presentation

You will be responsible for a 5 to 10 minute presentation showing your 5 graphs and what you discovered. It should highlight your thesis and what you found, especially anything surprising. Hand in a copy
before presenting so I can follow along/analyze afterwards.

Marking scheme: see attached page. Please clearly label the 3 sections outlined below.
Academic fraud is a serious offense. Copying **anything** from an old report will result in a mark of 0.

There will be examples on the course website.

Section 1:   Introduction, Research locations and Internet sites

- **Clearly state your thesis – something that can be proved.** Not "There are many factors…" rather "Among the factors, the strongest is…". See section "C" for more examples
   Highest marks for a thesis that draws in an audience, for example something surprising or controversial
- **Problem and Plan**. Describe the topic you are examining and what you will be doing to prove/disprove your thesis.
- **Describe the data you are about to use.** This area will be like a **descriptive bibliography**. It will list internet links, StatsCan table numbers (ex. 35-10-0003-01, **not URLs** which change), plus sites you visited in your computer research but may not have used much or at all. You should discuss data you wish you had but that was not available to you. You don't need a mind map, although that might help you develop a thesis.

Highest marks go to reports with data and analysis from a **wide variety of sources**.

Section 2:   Analyzing Data Involving Two Variables

Use **Google Sheets** or **Excel** to find the **Line of Best Fit** and the **r value (Correlation Coefficient)**. Note that you may have r^2, and you must yourself find the value of **r** (hint: it's negative if it slopes down.) Include tables right before or on the same slide.

Section 3:   Project Conclusion

This is an important section, and its purpose is to show the key points of what you found out in your research, to link data together. Give relevant and supportable opinions based on the data, and also discuss what you were unable to find out due to certain data being unavailable.

MDM4U1   *Culminating Project Marking Scheme 2022*

Mark Code Levels

0-	0%	1-	52%	2-	62%	3-	72%	4-	82%	5-	92%
0	20%	1	55%	2	65%	3	75%	4	85%	5	95%
0+	40%	1+	58%	2+	68%	3+	78%	4+	88%	5+	98%
Material is missing, or the section is missing key parts.		Material has incorrect content, often incomplete, major errors or omissions.		Material has generally correct, pretty complete, some errors or omissions.		Material is mostly correct, quite complete, few errors or omissions.		Material is completely correct, totally complete, virtually no errors or omissions.		Not only completely correct and free of error, but footnoted with style, depth and fine insight.	

The Written Report   *Level*

Culminating Project Thesis Proposal   _____
       - handed in on time, with a clear, provable thesis and two relevant graphs

---

Section 1:   Introduction, Research locations and Internet sites
Problem, Plan and Thesis   _____
       State a clear thesis in one sentence you can prove or disprove. How will you do that?
Introduction, Research locations and Internet sites   _____
       *Did you use a **variety** of sources for data and/or analysis? Why did you use these?*

Section 2:   Analyzing Data Involving Two Variables
Tables and Scatter Plot Graphs, Labelled and Footnoted for source   _____
       Are you clearly explaining what the data means? Footnote where the data is from?
Line Of Best Fit and r-value Correlation Coefficient   _____
       *Did you show, describe and **use** these important statistics?*
Effectiveness of Graphs Relating to Thesis   _____
       Did the graphs contribute to your thesis or did they feel like random statistics?
Plan and Analysis of Graphs and Stats   _____   x 3
       What does this graph show and why is it meaningful? Analysis is worth more marks!

Section 3:   Project Conclusion
       Did you prove your thesis? Which graphs best supported it? Any surprises?   _____   x 3
       What in your report is unique or insightful? What next steps would you recommend?

Overall Level _____   *Overall Mark* _____

Comments: