**Data Management and Data Analytics Capstone Topic Approval Form**

The purpose of this document is to help you clearly explain your capstone topic, project scope, and timeline. Identify each of the following areas so you will have a complete and realistic overview of your project. Your course instructor cannot approve your project topic without this information*.*

**Student Name:** Hayley Wilkinson

**Student ID:** 010527708

**Capstone Project Name:** Girls in Hockey

**Project Topic**: Analyzing trends in girls/women in hockey registered with USA Hockey over the past 10 seasons to see where targeted recruiting initiatives could be beneficial.

**Research Question:** How does the growth of hockey in the United States overall reflect in the growth of girls hockey in the United States?

**Hypothesis:** As registration numbers grow across players the number of girl players grows at a proportionate rate.

**Context:** Hockey is a rapidly growing sport in the United States and USA Hockey (regulatory body for all US based hockey players) registrations has overtaken Hockey Canada (Canadian equivalent to the former) registrations in recent years. With the inaugural season of the PWHL (Professional Womens Hockey League) beginning in 2024, which is the womens equivenlent to the National Hockey League (NHL) identifying markets with high levels of registration and positive trending allows those market to be targeted for recruiting and markets where the number of girl/women registrants is not trending positively or proportionately we can identify where more girls hockey initivites should be funded.

**Data:** Detailed registration data for the past 12 seasons for USA Hockey.

The data is publicly available at <https://www.usahockey.com/membershipstats>  
The seasons to be used in analysis are all seasons between the 2011-2012 season and the 2022-2023 season.

**Data Gathering:** The data is available in pdf by season, these must be downloaded individually and processed into a usable format (csv) then compiled for analysis.

**Data Analytics Tools and Techniques**: Descriptive Statistics, Time Series Analysis, Regression Analysis, Comparative Analysis and Visualizations.

**Justification of Tools/Techniques:** Descriptive statistics offer a succinct summary of the distribution of USA Hockey registrants, highlighting trends and patterns. Time series analysis allows for the examination of temporal changes in registration numbers, identifying seasonality and long-term trends. Regression analysis enables the quantitative assessment of the relationship between total players and girl players, validating or refuting the hypothesis of proportional growth. Comparative analysis facilitates the exploration of demographic variations, helping pinpoint specific areas or groups where targeted efforts may be necessary. Finally, data visualization ensures that findings are effectively communicated, making the insights accessible to a broader audience. The combination of these techniques ensures a robust and multifaceted analysis of the research question, contributing to a nuanced understanding of the growth dynamics in girls hockey relative to overall hockey participation in the United States.

**Programming/Development Language(s), if applicable:** Python **Operating System(s)/Platform(s), if applicable:** Windows, MacOS & Linux **Database Management System, if applicable:** N/A

**Project Outcomes:** Trend analysis of registrations of girls and women in hockey, identify markets to target for higher level recruiting (higher number of eligible players for college/womens hockey) and identify markets where girls hockey is underperforming in registrations that could benefit from initive funding. This analysis could be updated yearly (at season completion) to reevaluate outcomes and identify key markets for the upcoming season.

**Projected Project End Date:** 2/22/2024

**Sources:** Registration data by season: <https://www.usahockey.com/membershipstats>

**Human Subjects or Proprietary Information**

Does your project involve the potential use of human subjects? (Y/N): N

Does your project involve the potential use of proprietary company information? (Y/N): N

**STUDENT SIGNATURE**

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**By signing and submitting this form, you acknowledge** that any cost associated with the development and execution of your data analytics solution will be your (the student) responsibility.

**TO BE FILLED BY A COURSE INSTRUCTOR**

**The capstone topic is approved by a course instructor.**

**COURSE INSTRUCTOR’S NAME AND SIGNATURE: **

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**COURSE INSTRUCTOR APPROVAL DATE: 2/14/2024**

**Project Compliance with IRB (Y/N): Y**