# MSU MS Business Analytics Project

# FALL 2019

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## **Project Contacts**

Kate Gantzer-Hayes: Manager of Development & Membership

Chris Umphlett: Volunteer Consultant & Member of I5

## **Project Focus & overview**

The project will have two objectives. The first objective is to create a tool that will allow I5 to refresh a monthly membership renewal report that Chris has created with RStudio and RMarkdown. The second objective is to provide further insight for I5 on its membership data.

There are several potential paths for the second objective. I5 has data on some attributes of members that have not yet been explored, e.g. number and ages of kids, geographic proximity to the museum, attendance of events, gift shop purchases and purchase of additional services like classes and parties. These can be explored for the effect not only on membership, but as outcomes themselves (using summer camp attendance as a response variable for instance). This analysis can be leveraged in 2020 when I5 gets an upgraded and integrated system that will bring together its membership and sales and attendance data all in one place. Additionally, I5 has tried out various promotions and the impact of promotions on renewal rate has not yet been estimated.

## **Research Questions**

1. What kind of tool or service can provide I5 control over its report renewal without the need to learn how to use a statistical software and without relying on another person to refresh it for them?
2. What other data is currently available that can be joined to the membership data, and what insights do you find?
3. What analyses may be available in 2020 with the new system?
4. Have I5’s promotions been effective to increase renewal rate and timing of renewals? If so, which are most effective?

## **Project Approach and Data Description**

Any tool and technique may be used, but long-term sustainability must be kept in mind. Costly software, or software that is not available to Chris Umphlett or future volunteers that would support I5, may be used but need to have a plan to transition anything on-going to something more sustainable.

RStudio/R/RMarkdown is currently being used to clean the renewal data and produce a report on renewal rate.

Data is obtained by I5 staff by running queries on its membership or POS systems. As described in the project overview we know that other data elements are available but I5 has not yet queried this data so a description is not available. The renewal data was in a tabular format but needed moderate manipulation in order to do the renewal calculations.

A github repository already exists and will serve as the hub for sharing data, code, results, etc.