Class Assignment 5.2

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Part 1: The data found HERE is a data from all of BYU-I students. We will explore the data in this activity. Open the data file and load it into Tableau.

Part 2: Use the file to create one or two charts to see if there is a Matthew effect in the data. Do you notice anything?

Part 3: Use Tableau to fill the summary table below. Note that the third column comes from the data you will use for the case study which contains the number of births in each month based on 85,712,738 people. (counts_us)

Month	Number of Students	Percent of students	Number of people in USA (Data)	Percent of USA population
January	5,515	7.73%	6,979,322	4.07%
February	5,369	7.53%	6,511,697	3.80%
March	6,128	8.59%	7,147,368	4.17%
April	5,928	8.31%	6,850,733	4%
May	6,477	9.08%	7,175,367	4.19%
June	6,360	8.92%	7,122,586	4.15%
July	6,278	8.80%	7,527,284	4.39%
August	6,186	8.67%	7,624,626	4.45%

September	5,781	8.11%	7,440,659	4.34%
October	5,884	8.25%	7,293,822	4.25%
November	5,516	7.73%	6,884,173	4.02%
December	5,903	8.28%	7,155,101	4.17%
Total	71,325	100%	85,712,738	50%

Part 4: Test the hypothesis that there is a Matthew effect in May (use the default 1/12). Use a significance level of 0.05.

(a) List the null and alternative hypotheses:
Null: P = .083
Alternative:P != .083

(b) Calculate the test statistic: 7.560

(c) What is the p-value of your test? 4.34%

(d) Do you reject the null or not? failed to reject the null hypothesis

(e) State your conclusion relating to the question. are ultimate. We conclude that there is an even spread of birthdays over the months.

(f) What do you think your conclusion means? What could it be resulting from? I think the conclusion means that the Matthew Effect is FALSE. However, we do not have sports here that we could analyze with a date of birth cut-off point.

Part 5: Calculate a 95% confidence interval for the proportion of students born in May.
Interpret your confidence interval.

.089-.093 We are 95% confident that the true population of May students in correlation with all BYUI students ranges from 8.9% to 9.3%.