# Lab 6 Report

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**Section 1: Hypothesis**

The goal of this research paper is to determine whether the average income of people who pray regularly in the US is similar to that if the rest of the world. To that end, the null and research hypothesis are as follows:

> Null: There is no significant difference in income between regular prayers in the US and other countries.
> Research: Those who are praying regularly in the US will have a higher average income than individuals in other countries.

> $H_0$: $USA_{Income} = World_{Income}$
> $H_1$: $USA_{Income} > World_{Income}$

**Section 2: Data**

The data used for this report is regarding the USA is from the 2017 *Baylor Survey of Religious Life*. Participants selected an ordinal range describing their yearly income, with midpoints of each category compiled for research purposes. Data for other nations was ascertained from the internet.

**Section 3: Method**

Using RStudio, the data set was packaged into a variable, *incomeData*. From there, the following code was ran:

```
test01 <- ZTest(incomeData, mu = c(11230), sd_pop = c(679),
                alternative = c("greater"), paired = FALSE)
```

A right-handed test was performed to determine if the US has a higher average income, and, if so, whether it was statistically significant.

```
format_ztest <- function(test) {
  sprintf("z = %.2f, StDev Pop = %.2f, p-value = %.4f*, 95%% CI = (%.2f, %.2f)",
          test$statistic, test$parameter, test$p.value,
          test$conf.int[1], test$conf.int[2])
}
```

**Section 4: Results**

The results of the test is as follows:

```
## z = 2120.63, StDev Pop = 679.00, p-value = 0.0000*, 95% CI = (69247.65, Inf)
```

**Section 5: Discussion and Conclusion**

From these results, the idea that those who are praying regularly in 2017 are older than those in 2007 is statistically significant. Because this, we can reject the null hypothesis and accept the research hypothesis.

What didn't fair so well was my previous analyses of the prayer habits of ages 21 and 69. According to the results, there was no significant difference in observed ages between samples in each age group. Accordingly, in relation to this group, we can accept the null, even if the research hypothesis isn't quite applicable, as there is no significant changes within the average age in each group. This means that any increase or decrease in chance may be caused by sampling error or chance.