**Midterm project**

**Introduction to Business Decision process DCSI 5180**

An annual return is the amount of money gained or lost by a corporate entity from its initial investment at the beginning of the year at the end of the year. This is useful for any business to assess when they want to understand how their investment has done over time or compare two investments. The higher the risk associated with an investment, the higher the expected return for a company's investor. As a result, analyzing a company's annual rate of return is critical, as it is dependent on a variety of factors that drive sales.

I chose a data set from Hawkes Learning that compared the performance of 30 different types of business units with their annual returns to the number of households in that particular place. Using the parameters taught in modules 1,2, and 3, may determine how the number of households in a given place affects its annual returns.

**Data Source:**

| **Shop** | **Location** | **Annual Return (Thousands of Dollars)** | **Number of Households (Thousands)** |  |
| --- | --- | --- | --- | --- |
| **1** | **Mall** | **185.69** | **163** |  |
| **2** | **Suburban** | **203.00** | **215** |  |
| **3** | **Mall** | **245.81** | **232** |  |
| **4** | **Mall** | **137.07** | **108** |  |
| **5** | **Suburban** | **207.36** | **220** |  |
| **6** | **Suburban** | **146.12** | **150** |  |
| **7** | **Downtown** | **111.21** | **102** |  |
| **8** | **Suburban** | **188.19** | **198** |  |
| **9** | **Downtown** | **152.23** | **149** |  |
| **10** | **Suburban** | **182.23** | **192** |  |
| **11** | **Mall** | **198.88** | **179** |  |
| **12** | **Mall** | **139.65** | **111** |  |
| **13** | **Mall** | **156.22** | **130** |  |
| **14** | **Downtown** | **224.17** | **232** |  |
| **15** | **Downtown** | **195.62** | **199** |  |
| **16** | **Suburban** | **210.38** | **224** |  |
| **17** | **Downtown** | **209.16** | **215** |  |
| **18** | **Mall** | **260.82** | **250** |  |
| **19** | **Mall** | **200.16** | **180** |  |
| **20** | **Suburban** | **127.66** | **129** |  |
| **21** | **Downtown** | **170.59** | **170** |  |
| **22** | **Mall** | **219.93** | **203** |  |
| **23** | **Downtown** | **166.61** | **166** |  |
| **24** | **Downtown** | **225.71** | **234** |  |
| **25** | **Downtown** | **143.25** | **139** |  |
| **26** | **Downtown** | **239.55** | **250** |  |
| **27** | **Downtown** | **219.67** | **227** |  |
| **28** | **Suburban** | **224.84** | **241** |  |
| **29** | **Mall** | **232.32** | **217** |  |
| **30** | **Downtown** | **163.95** | **163** |  |
|  |  | **189.60** |  |  |

**Applying lessons learned from Module 1:**

What is the probability of that a randomly selected shop/entity has a total annual return of above 180?

**Applying lessons learned from Module 2:**

Determine the 95% confidence interval for the annual returns of each shop/entity.

**Applying lessons learned from Module 3:**

Using the hypothesis test to determine the claim that the average range of total shops is more than 180?