A.S.A Lab Assignment 9

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Q . ***To visualize the relationship between two scale variables creating scatter plots and to quantify this relationship with the correlation coefficientTo run the Independent-Samples T Test, to interpret the output and visualize the results with an error bar chart.Using the preexisting Census.csv data file***

CODE:

```
# Load the required library for data visualization
install.packages("ggplot2") # Install the ggplot2 package if not already
installed
library(ggplot2)


# Load the dataset
data <- read.csv(file.choose()) View(data)

# Perform Independent-Samples T-Test
t_test_result <- t.test(age ~ income, data = data)

# Print the T-Test results
cat("Independent-Samples T-Test Results:\n") print(t_test_result)

# Create an error bar chart
ggplot(data, aes(x = income, y = age)) +
```

```
  geom_bar(stat = "identity", position = position_dodge(width = 0.8)) +
geom_errorbar(aes(ymin = age - t_test_result$conf.int[1], ymax = age +
t_test_result$conf.int[2]),

        width = 0.2, position = position_dodge(width = 0.8)) + labs(x =
"income", y = "age") +
  ggtitle("Error Bar Chart of age by income")
```

output:

```
        Welch Two Sample t-test

data:  age by income
t = -50.264, df = 17411, p-value < 2.2e-16
alternative hypothesis: true difference in means between group  <=50K and group  >50K is not eq
ual to 0
95 percent confidence interval:
 -7.757250 -7.174955
sample estimates:
mean in group  <=50K  mean in group  >50K
            36.78374              44.24984
```