

# A.S.A Lab Assignment 9

Name: Swanand Garge

Div : D(D2)

Roll no :42

SRN: 202201589

**Q .** *To use One-Way ANOVA with post hoc tests to explore the relationship between several variables Using the preexisting data file Census.csv.*

## 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:

```
Post-Hoc (Tukey) Test Results:
> print(summary(posthoc_result))

      Simultaneous Tests for General Linear Hypotheses

Multiple Comparisons of Means: Tukey Contrasts

Fit: aov(formula = age ~ income, data = data)

Linear Hypotheses:

              Estimate Std. Error t value Pr(>|t|)
>50K - <=50K == 0    7.4661     0.1719   43.44  <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
(Adjusted p values reported -- single-step method)
```

Box Plot of age by income

