**OLAWOYIN-YUSSUF YEWANDE A.**

> data("USArrests")

> attach(USArrests)

> head(USArrests)

Murder Assault UrbanPop Rape

Alabama 13.2 236 58 21.2

Alaska 10.0 263 48 44.5

Arizona 8.1 294 80 31.0

Arkansas 8.8 190 50 19.5

California 9.0 276 91 40.6

Colorado 7.9 204 78 38.7

> data = subset(USArrests,select=c(Murder,Assault))

> data

Murder Assault

Alabama 13.2 236

Alaska 10.0 263

Arizona 8.1 294

Arkansas 8.8 190

California 9.0 276

Colorado 7.9 204

Connecticut 3.3 110

Delaware 5.9 238

Florida 15.4 335

Georgia 17.4 211

Hawaii 5.3 46

Idaho 2.6 120

Illinois 10.4 249

Indiana 7.2 113

Iowa 2.2 56

Kansas 6.0 115

Kentucky 9.7 109

Louisiana 15.4 249

Maine 2.1 83

Maryland 11.3 300

Massachusetts 4.4 149

Michigan 12.1 255

Minnesota 2.7 72

Mississippi 16.1 259

Missouri 9.0 178

Montana 6.0 109

Nebraska 4.3 102

Nevada 12.2 252

New Hampshire 2.1 57

New Jersey 7.4 159

New Mexico 11.4 285

New York 11.1 254

North Carolina 13.0 337

North Dakota 0.8 45

Ohio 7.3 120

Oklahoma 6.6 151

Oregon 4.9 159

Pennsylvania 6.3 106

Rhode Island 3.4 174

South Carolina 14.4 279

South Dakota 3.8 86

Tennessee 13.2 188

Texas 12.7 201

Utah 3.2 120

Vermont 2.2 48

Virginia 8.5 156

Washington 4.0 145

West Virginia 5.7 81

Wisconsin 2.6 53

Wyoming 6.8 161

> dataurban = subset(USArrests,select=c(Murder,UrbanPop))

> dataurban

Murder UrbanPop

Alabama 13.2 58

Alaska 10.0 48

Arizona 8.1 80

Arkansas 8.8 50

California 9.0 91

Colorado 7.9 78

Connecticut 3.3 77

Delaware 5.9 72

Florida 15.4 80

Georgia 17.4 60

Hawaii 5.3 83

Idaho 2.6 54

Illinois 10.4 83

Indiana 7.2 65

Iowa 2.2 57

Kansas 6.0 66

Kentucky 9.7 52

Louisiana 15.4 66

Maine 2.1 51

Maryland 11.3 67

Massachusetts 4.4 85

Michigan 12.1 74

Minnesota 2.7 66

Mississippi 16.1 44

Missouri 9.0 70

Montana 6.0 53

Nebraska 4.3 62

Nevada 12.2 81

New Hampshire 2.1 56

New Jersey 7.4 89

New Mexico 11.4 70

New York 11.1 86

North Carolina 13.0 45

North Dakota 0.8 44

Ohio 7.3 75

Oklahoma 6.6 68

Oregon 4.9 67

Pennsylvania 6.3 72

Rhode Island 3.4 87

South Carolina 14.4 48

South Dakota 3.8 45

Tennessee 13.2 59

Texas 12.7 80

Utah 3.2 80

Vermont 2.2 32

Virginia 8.5 63

Washington 4.0 73

West Virginia 5.7 39

Wisconsin 2.6 66

Wyoming 6.8 60

> summary(USArrests)

Murder Assault UrbanPop Rape

Min. : 0.800 Min. : 45.0 Min. :32.00 Min. : 7.30

1st Qu.: 4.075 1st Qu.:109.0 1st Qu.:54.50 1st Qu.:15.07

Median : 7.250 Median :159.0 Median :66.00 Median :20.10

Mean : 7.788 Mean :170.8 Mean :65.54 Mean :21.23

3rd Qu.:11.250 3rd Qu.:249.0 3rd Qu.:77.75 3rd Qu.:26.18

Max. :17.400 Max. :337.0 Max. :91.00 Max. :46.00

> HLtb = lm(Murder~Assault)

> summary(HLtb)

Call:

lm(formula = Murder ~ Assault)

Residuals:

Min 1Q Median 3Q Max

-4.8528 -1.7456 -0.3979 1.3044 7.9256

Coefficients:

Estimate Std. Error t value Pr(>|t|)

(Intercept) 0.631683 0.854776 0.739 0.464

Assault 0.041909 0.004507 9.298 2.6e-12 \*\*\*

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 2.629 on 48 degrees of freedom

Multiple R-squared: 0.643, Adjusted R-squared: 0.6356

F-statistic: 86.45 on 1 and 48 DF, p-value: 2.596e-12

**Interpretation:** We reject Ho because the p-value is less than 0.05. So, there is significant relationship between Murder and Assault and there’s also significant relationship between Murder and UrbanPop