Practical Assignment – 9

Introduction To Excel

(LAB9)

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(STA161-1)

October 16TH 2024

Introduction:

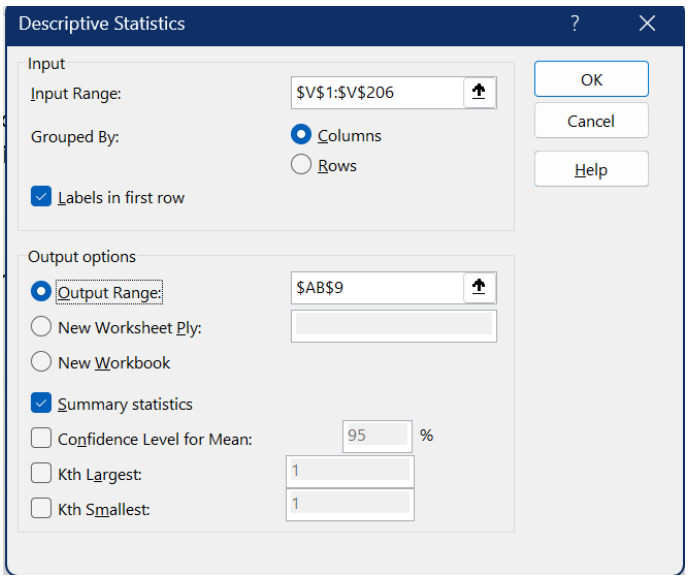
Excel is a software that is used by many for making spreadsheets that contain data. Using excel we can organize and arrange this data into orders that are desired by the user. In this practical assignment we'll be exploring the functionalities of the Microsoft Excel Home tab, showcasing the different options available, and provide practical examples or datasets to demonstrate their usage.

Exercise 1:

Objective: Perform the descriptive analysis for the variable "horsepower". Verify the summary with functions such as "MEAN, MEDIAN, MODE, STANDARD DEVIATION, VARIANCE, MIN, MAX".

Step 1: Select Horsepower and under Data tab click on Data analysis. Click on Descriptive Statistics.

Step 2: Enter input range and output range. Check the Summary Statistics box.



Step 3: Using the functions Mean, Median, Mode, Standard Deviation, Variance, Min, And Max, we can verify the answers.

Average	104.1170732
Median	95
Mode	68
Standard Deviation	39.54416681
Variance	1563.741129
Minimum	48
Maximum	288

Result: The Descriptive Statistics table will be displayed.

horsepower	
Mean	104.1170732
Standard Error	2.761884412
Median	95
Mode	68
Standard Deviation	39.54416681
Sample Variance	1563.741129
Kurtosis	2.68400616
Skewness	1.405310154
Range	240
Minimum	48
Maximum	288
Sum	21344
Count	205

Exercise 2:

Objective: Demonstrate the functions "SUM, PRODUCT, SUBTOTAL, AGGREGATE, COUNT,

COUNTIF & COUNTIFS" using any variable in a dataset.

Step 1: Select the data set and use SUM function.

```
=SUM(S:S)
```

Step 2: Select the data set and use Product function.

```
=PRODUCT(Q2:Q25)
```

Step 3: Select the data set and use Subtotal function.

```
=SUBTOTAL(9, S:S)
```

Step 4: Select the data set and use Aggregate function.

```
=AGGREGATE(4,4,S:S)
```

Step 5: Select the data set and use Count function.

```
=COUNT(S2:S206)
```

Step 6: Select the data set and use CountIF function.

```
=COUNTIF(S:S,">3")
```

Step 6: Select the data set and use CountIFS function.

```
=COUNTIFS(S:S,">3",I:I,"front")
```

Result: The results will be displayed

Variable used=boreratio	
Sum	682.6
Product	3.0283E+50
Aggregate	3.94
Subtotal	682.6
Count	205
CountIF	182
CountsIFS	179

Exercise 3:

Objective: Take 5 variables wheel base, car length, car height, curb weight and horsepower.

(i) Find the highest correlated variable for wheelbase.

(ii) Is the highest correlated variable with respect to wheel base have the highest covariance also. Justify.

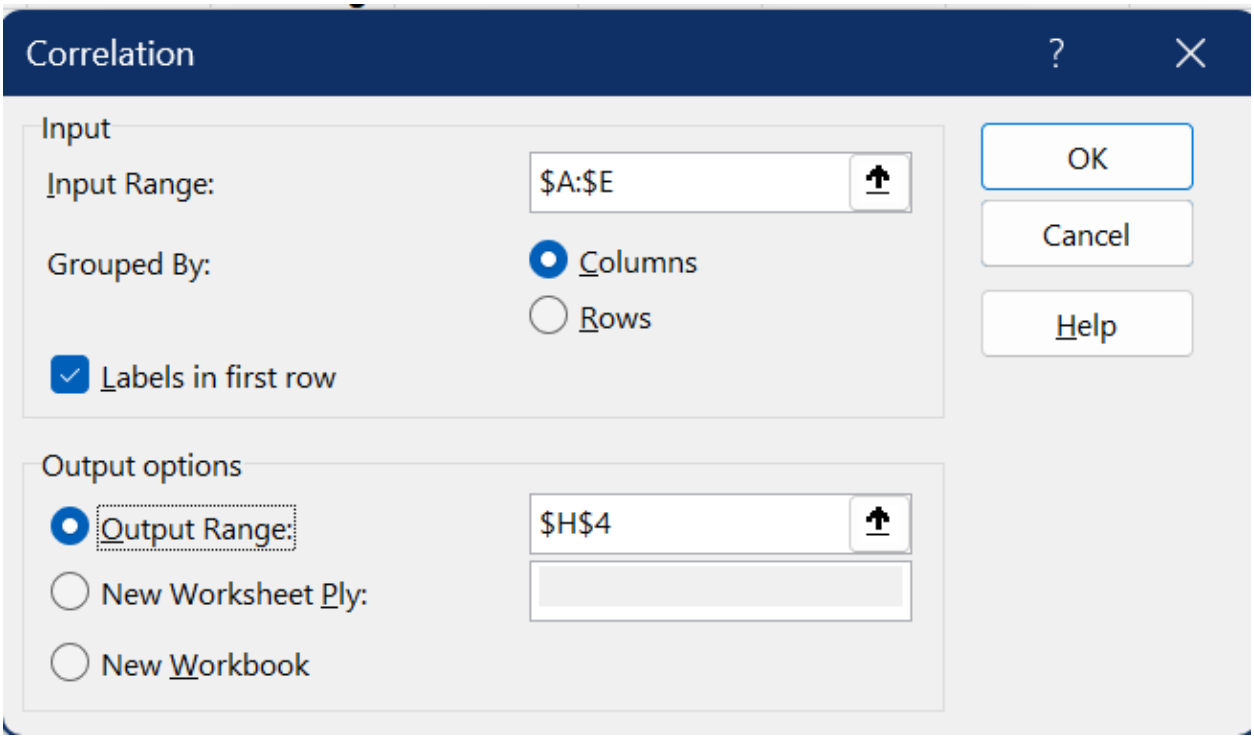
(iii) Fit a simple linear regression model using wheel base as dependent variable and

highest correlated variable as independent variable.

(iv) Draw the scatter diagram along with the regression line for these two.

(v) Interpret the intercept and regression coefficient and give your conclusions.

Step 1: Under data click on data analysis. Click on coorelation. In the new tab select the whole data range and select an output cell.



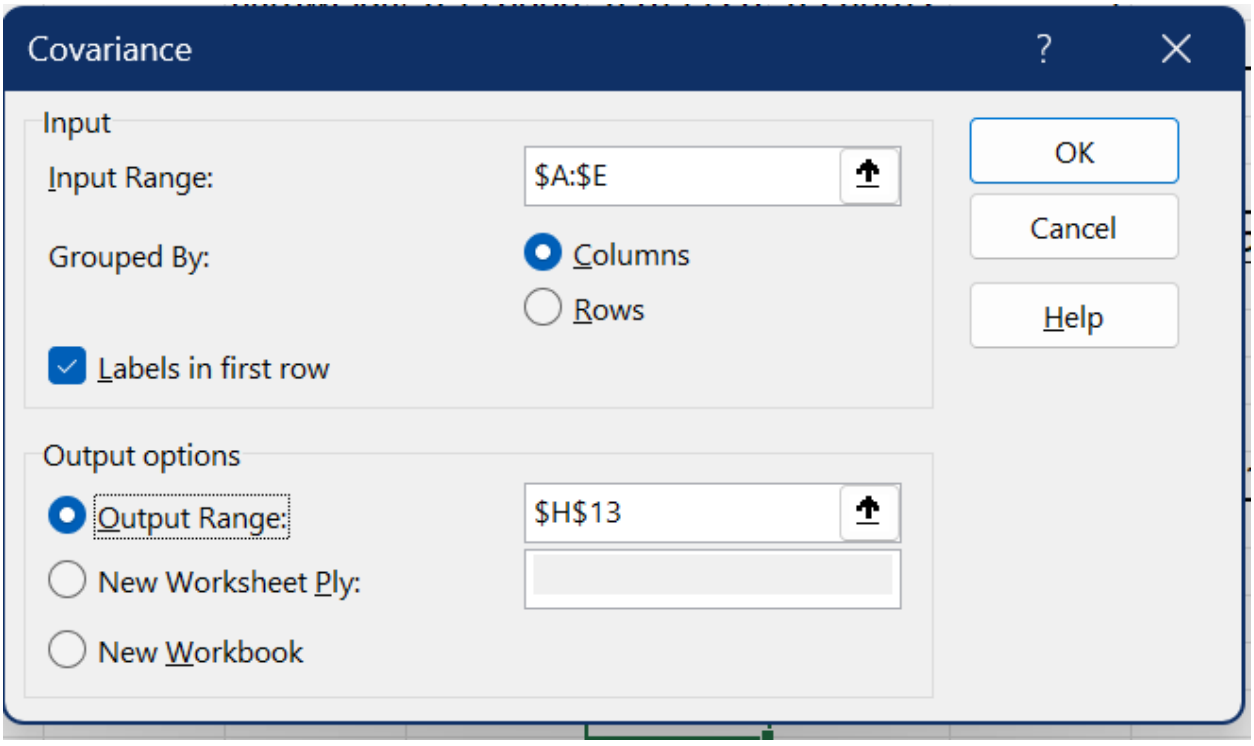
Step 2: Identify from the table the highest relation.

Result: After completing the steps mentioned above, the result will be displayed.

	wheelbase	*carlength*	*carheight*	*curbweight*	*horsepower*
wheelbase	1				
carlength	0.874587	1			
carheight	0.589435	0.491029	1		
curbweight	0.776386	0.877728	0.295572	1	
horsepowe	0.353294	0.552623	-0.1088	0.750739	1

Carlength has the highest with 0.874587

Step 1: Under data click on data analysis. Click on covariance. In the new tab select the whole data range and select an output cell.



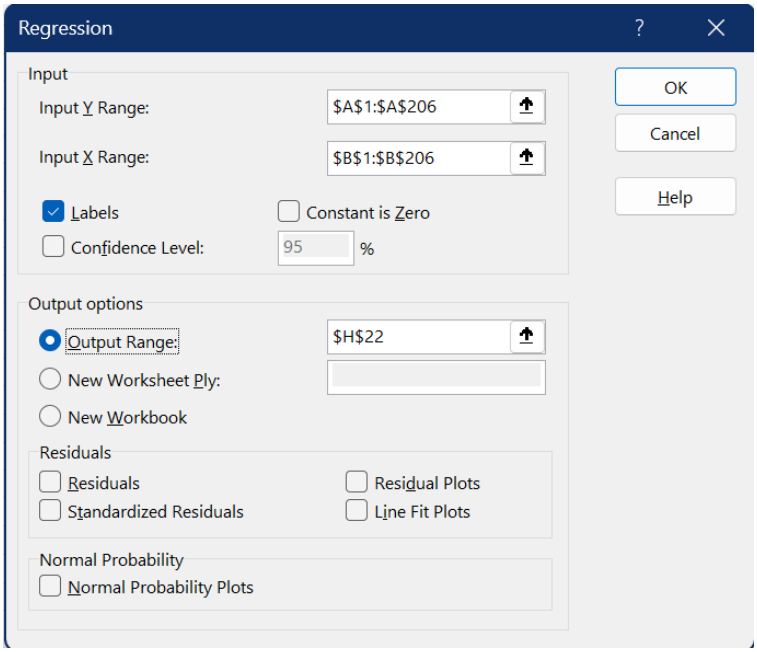
Step 2: Identify from the table the highest variance.

Result: Car length has the highest correlation, making it the better predictor of wheelbase. Curb weight's higher covariance is due to its larger scale.

	wheelbase	*carlength*	*carheight*	*curbweight*	*horsepower*
wheelbase	36.0849				
carlength	64.65824	151.4662			
carheight	8.630836	14.73058	5.941674		
curbweight	2422.422	5610.832	374.2196	269785.4	
horsepowe	83.71825	268.2918	-10.4619	15382.22	1556.113

Curbweight has the highest with 64.65824

Step 1: Under data click on data analysis. Click on Regression. In the new tab select wheelbase and wheellength as X range and Y range respectively select an output cell.



Result: After completing the steps mentioned above, the result will be displayed.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.776386328
R Square	0.60277573
Adjusted R	0.60081896
Standard E	3.804604579
Observatic	205

ANOVA

	df	*SS*	*MS*	*F*	*gnificance F*
Regressio	1	4458.975361	4458.975	308.0463	1.44E-42
Residual	203	2938.428249	14.47502		
Total	204	7397.40361			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	75.80997913	1.334136471	56.82326	1.3E-126	73.17944	78.44052	73.17944	78.44052
curbweight	0.008979071	0.000511592	17.55125	1.44E-42	0.00797	0.009988	0.00797	0.009988

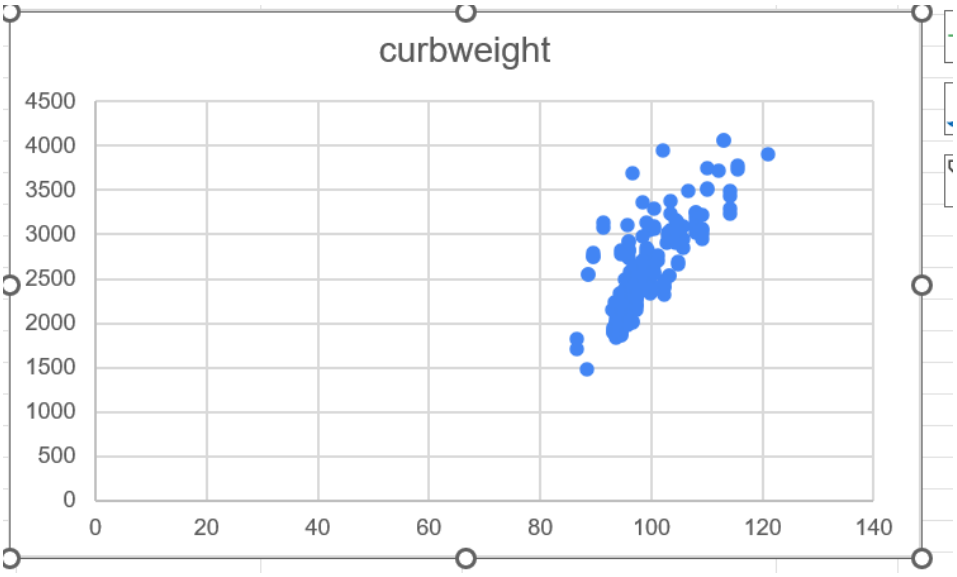
Step 1: Observe the outputs.

Result: From the outputs we can understand that:

Regression Statistics	
Multiple R	0.776386328
R Square	0.60277573
Adjusted R Square	0.60081896
Standard Error	3.804604579
Observations	205

Step 1: Click on Independent Variable and Dependent Variable. Under insert, click on scatter chart.

Result: The chart will be displayed.



Result: The regression model shows a significant positive relationship between curb weight and wheelbase, with an intercept of 75.81 indicating the baseline wheelbase when curb weight is zero. This suggests that heavier vehicles tend to have larger wheelbases.

Conclusion:

Through this assignment, we learned about the various facets and features of Excel. We put features like Functions into practical use. Excel will be a significant part of our future work, and this assignment helped us establish a solid foundation in its basics.