EXPERIMENT No.: 6

NAME OF EXPERIMENT: Perform the Logistic Regression and given dataset and Interpret the regression table

Date of Performance: _____ Sign of Teacher:

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Roll no: A72

AIM: Perform the Logistic Regression and given dataset and Interpret the regression table

Theory:

RUNNING XLSTAT THE FIRST TIME (EXCEL 2007, 2010, 2013, 2016)

Making sure Microsoft Excel macros are enabled

Whatever your Excel or XLSTAT version, it is necessary that the Macros security level is set to Medium so that XLSTAT can run.

Here is how to verify that Macros are properly enabled:

1. Click the **Office** button on the upper left corner of the Excel window to open the **Office Menu** (Excel 2007) or click the **File** tab (Excel 2010, 2013, 2016).
2. Click on the **Excel Options** button on the bottom of the Office menu window (Excel 2007) or choose **Excel Options** in the **File** menu (Excel 2010, 2013, 2016).
3. The **Excel Options** window will appear.
4. Select **Trust Center** in the middle of the menu bar on the left.
5. Click on the **Trust Center Settings...** button on the right of the window.
6. The **Trust Center** window will appear.
7. Select **Macro Settings** in the middle of the menu bar on the left
8. Select the 2nd option for the **Macro Settings**
9. Activate the option **Trust access to the VBA project object model**
10. Click **OK** to close the **Trust center** window
11. Click **OK** to close the **Excel options** window

Ensuring your OS and Excel version are supported by XLSTAT

It is also recommended that you make sure your Operating system and your Microsoft Office version are compatible with your XLSTAT version. To check the list of supported systems for XLSTAT, follow this tutorial.

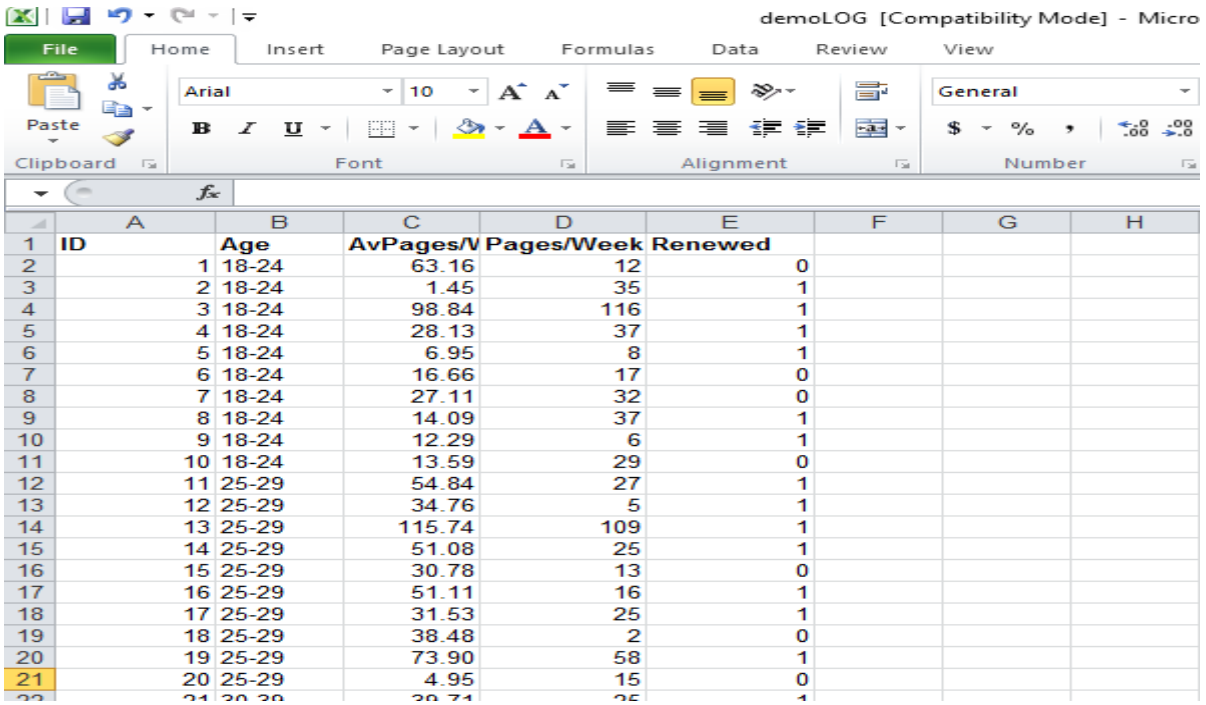
Running XLSTAT

To run XLSTAT for the first time, you can choose one of these options:

- choose the option 'launch XLSTAT' at the end of the installation procedure,
- use the Windows Start / Programs / Addinsoft / XLSTAT command,
- use the XLSTAT shortcut on your desktop

The XLSTAT tab is also added (see image below). Both XLSTAT toolbar and the XLSTAT tab can be used to access the XLSTAT functions. By clicking on an item of the menu, you activate the dialog box corresponding to the selected function.

Input:



	A	B	C	D	E	F	G	H
1	ID	Age	AvPages/V	Pages/Week	Renewed			
2	1	18-24	63.16	12	0			
3	2	18-24	1.45	35	1			
4	3	18-24	98.84	116	1			
5	4	18-24	28.13	37	1			
6	5	18-24	6.95	8	1			
7	6	18-24	16.66	17	0			
8	7	18-24	27.11	32	0			
9	8	18-24	14.09	37	1			
10	9	18-24	12.29	6	1			
11	10	18-24	13.59	29	0			
12	11	25-29	54.84	27	1			
13	12	25-29	34.76	5	1			
14	13	25-29	115.74	109	1			
15	14	25-29	51.08	25	1			
16	15	25-29	30.78	13	0			
17	16	25-29	51.11	16	1			
18	17	25-29	31.53	25	1			
19	18	25-29	38.48	2	0			
20	19	25-29	73.90	58	1			
21	20	25-29	4.95	15	0			

OUTPUT:

XLSTAT 2021.5.12345 - Logistic regression - Start time: 15/05/2021at 17:14:25 / End time: 15/05/2021 at 17:14:26
Response variable(s): Workbook = demoLOG.xls / Sheet = Sheet1 / Range = Sheet1!$E:$E / 60 rows and 1 column
Quantitative: Workbook = demoLOG.xls / Sheet = Sheet1 / Range = Sheet1!$C:$D / 60 rows and 2 columns
Qualitative: Workbook = demoLOG.xls / Sheet = Sheet1 / Range = Sheet1!$B:$B / 60 rows and 1 column
Model: Logit
Response type: Binary
Constraints: a1=0
Confidence interval (%): 95
Stop conditions: Iterations = 100 / Convergence = 0,000001
Maximization of the likelihood function using the Newton-Raphson algorithm

Summary statistics

Summary statistics:

Variable	Categories	Frequencies	%
Renewed	0	24	40.000
	1	36	60.000

Variable	Observations	with missing	without missi	Minimum	Maximum	Mean	Std. deviation
AvPages/V	60	0	60	1.450	115.740	37.124	30.074
Pages/We	60	0	60	1.000	123.000	33.700	30.620

Variable	Categories	Frequencies	%
Age	18-24	10	16.667
	25-29	10	16.667
	30-39	10	16.667

Correlation matrix:

Variables	Pages/We	ages/Week
AvPages/V	**1.000**	0.798
Pages/We	0.798	**1.000**

Regression of variable Renewed:

Correspondence between the categories of the response variable and the probabilities (Variable Renewed):

Categories	robabilities
0	0
1	1

Goodness of fit statistics (Variable Renewed):

Statistic	ndependen	Full
Observatio	60	60
Sum of we	60.000	60.000
DF	59	52
-2 Log(Like	80.761	46.943
R²(McFadc	0.000	0.419
R²(Cox and	0.000	0.431
R²(Nagelke	0.000	0.582
AIC	82.761	62.943
SBC	84.856	79.698
Iterations	0	7

Test of the null hypothesis H0: Y=0,600 (Variable Renewed):

Statistic	DF	Chi-square	Pr > Chi²
-2 Log(Like	7	33.819	< 0,0001
Score	7	23.816	0.001
Wald	7	12.623	0.082

Sheet1 Log

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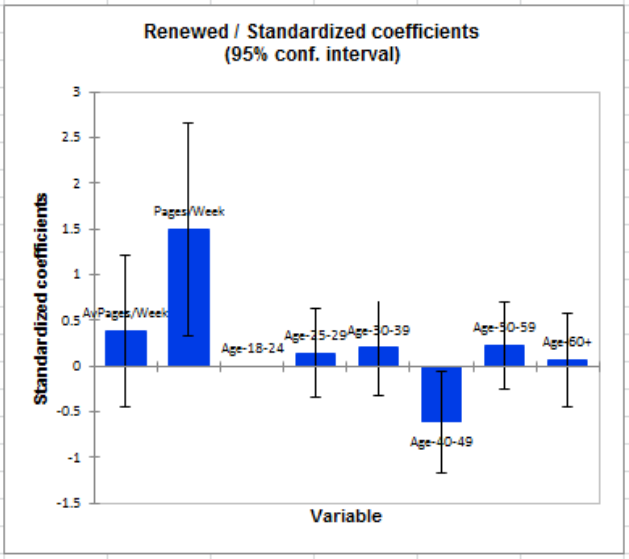
Age-50-59	0.223	0.240	0.864	0.352	-0.247	0.693
Age-60+	0.063	0.260	0.060	0.807	-0.446	0.573



Predictions and residuals (Variable Renewed):

Observation	Weight	Renewed	ed(Renew	endenden	newed/Wei	Renewed)	Std. residu	idual (Inde	ver bound 9	ber bound 95%
Obs1	1	0	0.550	0.600	0.000	0.550	-1.105	-1.225	0.073	0.950
Obs2	1	1	0.690	0.600	1.000	0.690	0.670	0.816	0.232	0.943
Obs3	1	1	1.000	0.600	1.000	1.000	0.006	0.816	0.943	1.000

Sheet1 Log

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