LAB eBantu logic for SMU hackathon

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Logic for Ebantu

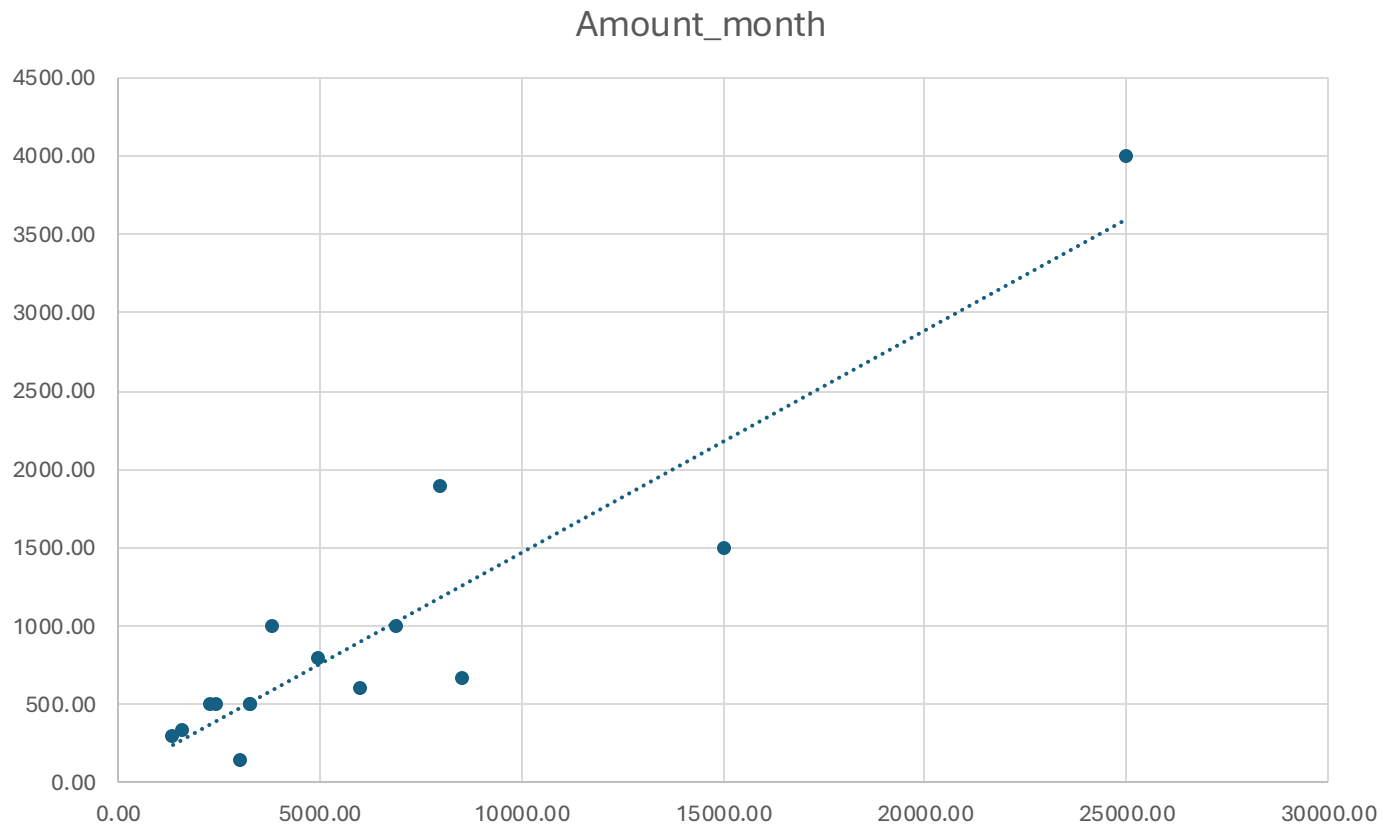
Background Legal Knowledge:

We know Iddah per month may depend on length of marriage and husband's salary. If length of marriage increase and husband's salary increase, the amount of Iddah per month will increase.

We want to find out if the above is true.
To do that, we plot graphs, to find out the relationship between 1) Iddah and length of marriage and 2) Iddah and husband's salary. From the charts, we note that length of marriage is not a significant factor. The only significant factor is husband's salary.
The second question is: To what extend is the amount of Iddah dependent on husband's salary. If husband's salary increase by $100, how much would the amount of Iddah increase by? To do that, we make use of regression analysis.

Steps for creating charts for Iddah using Excel

Select the two columns that you need, click insert, recommended charts, all charts, X Y (Scatter), click ok -> click + -> add trendline



Carrying out regression in Excel

- Estimate the relationship between income and amount of iddah

- File -> Options -> Add-ins -> Excel Add ins -> Click Go -> select analysis toolpak and analysis toolpak – vba -> click ok
- Data menu -> select data analysis at top right corner

- Click on Data Analysis -> Regression -> Input Y range -> select column (amount_month) -> Input X range -> select column (monthly_income) -> labels -> ok

Regression Results for Iddah

Multiple R	0.924575322							
R Square	0.854839526							
Adjusted R Square	0.843673336							
Standard Error	380.8609194							
Observations	15							
ANOVA								
	df	*SS*	*MS*	*F*	*ignificance F*			
Regression	1	11104842	11104842	76.55606	8.28E-07			
Residual	13	1885716	145055					
Total	14	12990558						
	Coefficients	*andard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	46.99160749	142.5541	0.329641	0.746923	-260.978	354.961	-260.978	354.961
Monthly_income	0.142197089	0.016252	8.749632	8.28E-07	0.107087	0.177307	0.107087	0.177307

Formula for Iddah per month:

= 0.14*salary + 47 (rounded to nearest hundred)
Lower range = 0.14*salary – 3^ (rounded to nearest hundred)[47-50 = -3]
Upper range = 0.14*salary + 197^^ (rounded to nearest hundred) [47+ 150 = 197]

^Instead of giving a $100 variation from actual range, we will only give $50
^^Instead of giving a $100 variation from actual range, we will give $150

The variation of $50-$150 is decided by SCPG. We want to provide a range to decrease the liability on LAB.

Other conditions for NOVA to include:

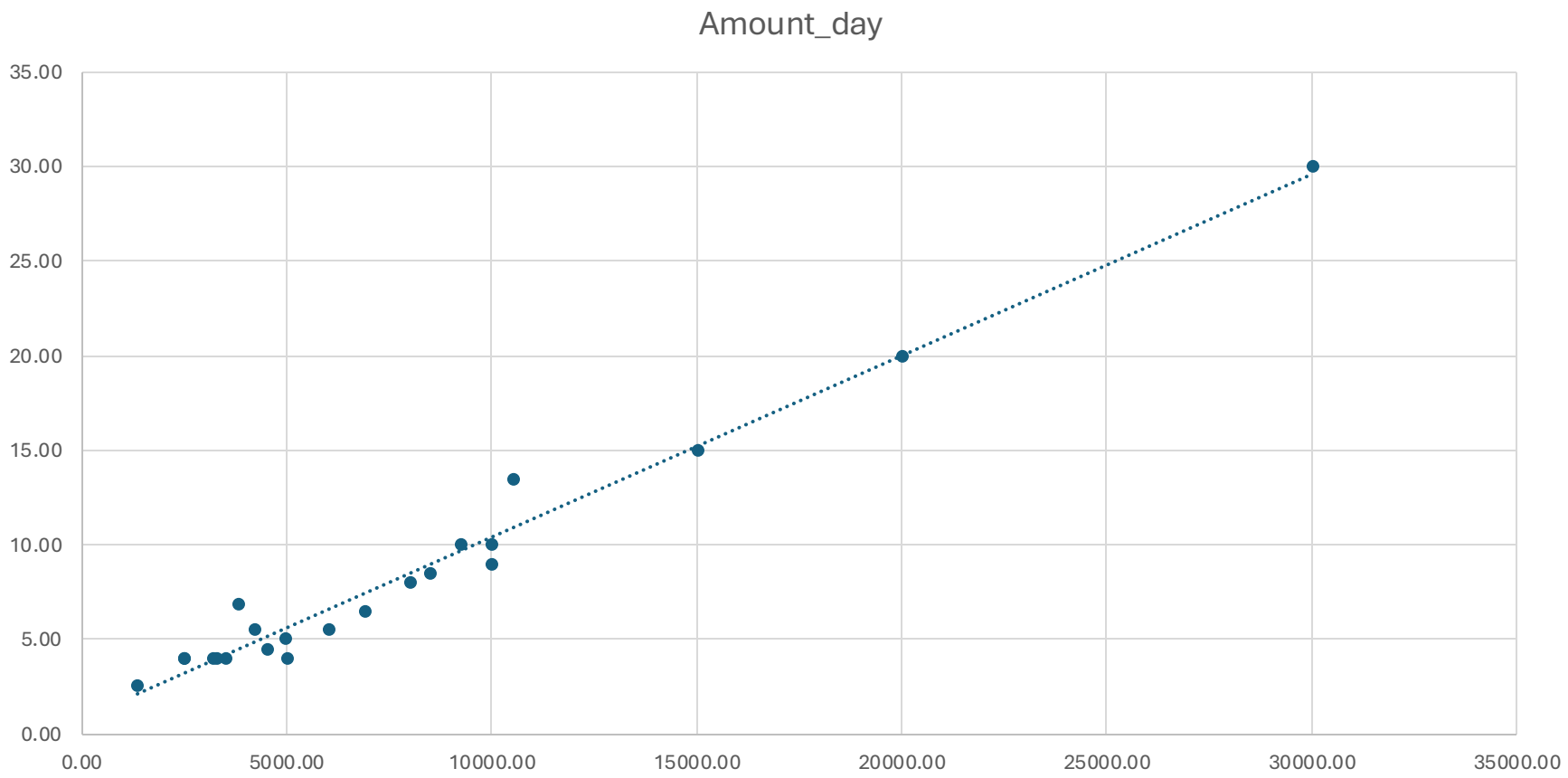
- If salary = 0, Iddah amount should be 0.
- **If Iddah amount after using formula is < 0, the Iddah amount should be 0. (I added this new point)**
- If lower range is <0, lower range = 0.

If husband's salary is > $4,000, we direct them to seek legal advice as it highly likely falls outside LAB applicants.

Steps for creating charts for Mutaah using Excel

Select the two columns that you need, click insert, recommended charts, all charts, X Y (Scatter), click ok -> click + -> add the trendline

Monthly Income v Amount of Mutaah



Regression Results for Mutaah

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.987013429
R Square	0.97419551
Adjusted R	0.972905285
Standard E	1.063522244
Observatic	22

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regressior	1	854.0317	854.0317	755.0589	2.33E-17
Residual	20	22.62159	1.13108		
Total	21	876.6533			

	Coefficients	*andard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	0.852510742	0.355621	2.397245	0.026402	0.110698	1.594323	0.110698	1.594323
Monthly_i	0.000957806	3.49E-05	27.47834	2.33E-17	0.000885	0.001031	0.000885	0.001031

Formula for Mutaah per day:

= 0.00096*salary + 0.85 (rounded off to nearest integer)

Lower range = 0.00096*salary - 0.15 (rounded off to nearest integer)
Upper range = 0.00096*salary + 1.85 (rounded off to nearest integer)