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Multiple Linear Regression Analysis on Factors Affecting Spending Habits among FSKM UiTM Shah Alam Undergraduate Students

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Abstract: Spending habits are a common habit in everyone's life. Students need to spend wisely to manage their finances well. If not, they may experience financial problems. Therefore, this study focused on identifying the factors that affect spending habits among undergraduate students in the Faculty of Computer and Mathematical Sciences (FSKM), Universiti Teknologi MARA (UiTM) Shah Alam campus. This study involved 351 students as the total observations. The research design used in this study was cross-sectional analysis. This study gathered primary data by using questionnaire methods based on research requirements. The data was collected from the questionnaire to obtain opinions from the students. Additionally, the independent variables involved were financial literacy, people's surroundings, and attitudes, while the dependent variable was spending habits. The objective of this study was to investigate the significant effect between the factors (financial literacy, people's surroundings, and attitude) on spending habits among undergraduate students in the FSKM, UiTM Shah Alam campus. The results of this study indicate that there is a significant effect between the factors (financial literacy and people's surroundings) on spending habits among undergraduate students in the FSKM, UiTM Shah Alam. In conclusion, this study is significant for the FSKM undergraduate students to improve their knowledge, and they can take the step to spend wisely when they know the factors affecting their spending habits. Other than that, students will be more aware and cautious of their spending habits in daily life.

Keywords: Attitudes, Financial literacy, People's surroundings, Spending habits, Students

1 Introduction

Spending is part of student life, with money often going to food, clothes, and school supplies. Some students, especially from rich families, may struggle to manage money in university. It's important for all students to learn how to spend wisely and handle their finances well.

According to Jeevitha and Priya [1], the study found that students spent more compared to savings even though they were aware of the prominence of savings. Students have their own spending patterns even though most of them still depend on their parents in terms of finances. Spreading money management education keeps students from wasting their money on things they should not buy [2]. According to the Department of Statistics Malaysia (DOSM) [3], Malaysia's unemployment rate dropped to 4.6% in 2021, the lowest level since October 2020. Despite this fact, the number of unemployed Malaysians was still higher than before the pandemic era. Thus, students should start saving early to avoid financial issues after graduation.

Unmanageable spending habits has many effects on students. According to González [4], financial stress is a significant issue, particularly for young adult students. The transition to college from high school challenged young people to live independently, manage money, maintain academic standards

and ethics, and adapt to a new social life. Other than that, technological development also affects expenditure [5]. Male students were interested in buying sophisticated gadgets even though it is costly for them, while female students who want to be attractive in class spend their money on clothes, bags, and shoes [6]. These habits could affect university students' spending patterns, which will increase due to unnecessary purchases of goods. According to Zulfaris et al. [7], students who misuse Perbadanan Tabung Pendidikan Tinggi Nasional (PTPTN) or any scholarship may face financial difficulties and debts after graduation. It is important knowledge for students to control their spending habits from now on. Therefore, spending habit is a great concern among university students.

2 Literature Review

Bona [2] stated that spending habit is a learned blueprint of conduct practised regularly. In addition, this study found that having a healthy spending habit is a crucial tool for achieving financial success, such as wisely spending money, which allows you to stretch your money further and achieve your financial goals more easily. Spending habits affect every day of an individual's life [8]. Furthermore, these statements also get support from Ying et al., [9], where spending converts money into goods or services that people want or need. Ying et al., [9] have researched Spending Behavior among University Students: Case of Universiti Tunku Abdul Rahman (UTAR), Kampar. In this study, the researchers wanted to find out whether financial management knowledge, parental income, peer influence, and personality features (openness to experience, extroversion, and agreeableness) influence students' spending habits at the UTAR foundation and undergraduate students in general. In contrast, according to the results of multiple regression analysis, personality traits: agreeableness (PTA) have no significant impact on university students' spending behaviour. Furthermore, according to the research findings, all variables influencing spending behaviour are positively associated.

Financial Literacy is how an individual understands, manages, and plan their finances. The major point of financial literacy is life well-being, which is a stable economy that can increase and improve living standards [10]. Financial literacy, according to Garg and Singh [11], is the ability to evaluate new and advanced financial instruments and make judgments on both instrument choices, and it can be a long-term interest for them. Research conducted by Lusardi [12] revealed that an individual should be responsible for their private finances to continuously improve their financial and economic well-being for the rest of their lives. People should understand the effectiveness of financial decision-making. In general, financial literacy affects all long-term financial decisions and has an impact on both the community and the individual. Low awareness of financial literacy can be related to increased spending, bad financial management, and expensive debt. An urgent effort is needed when the level of financial literacy in the world is decreasing. As a result, the research proves that financial literacy is important for an individual's decision-making. People should prioritise financial literacy knowledge because good financial management can lead to a number of benefits.

Alekam et al. [13] reported that parents may have an impact on their children's financial literacy by teaching them and setting a positive example for them from an early age. This would increase the influence of the influencer beyond that of a peer on knowledge of financial concerns. Gulati [14] defined peer pressure as the direct or indirect influence a peer group, observers, or an individual exerts on others to persuade them to change their attitudes, values, or actions in order to adhere to a group's socially acceptable behaviour. Besides, Mcmillan et al. [15] stated that people's social bonds, whether they are young or old, bind them together in a web of powerful connections that have an impact on the way they behave, how they are perceived by others, and other markers of their overall wellbeing. While Ni [16] stated that the family is the first and has the biggest impact on consumption patterns and consumption behaviour, because the individual belongs to the family, they have the most frequent of contact and maximum interaction. Hence, they are the most influential group to alter a person's beliefs, lifestyle, attitudes, and viewpoints. Furthermore, these statements also get support from Bona [2], which reported that parents shape their children's ideas towards money and life in general.

A person's attitude towards money is formed as a result of the socialization process that begins early in childhood and continues throughout adulthood [9]. Meanwhile, Oei [17] defined attitude as the term "money attitude" which refers to a person's perspective on how and why they spend their money. How a person reacts to an object, a person, or his or her financial condition is called attitude [18]. Besides, Alekam et al. [13] stated individuals who save more frequently, as opposed to those who do not save, demonstrate a more favorable attitude towards their saving behavior. The likelihood of having a favorable saving attitude is highly correlated with the frequency with which one saves. As an illustration, the act of putting aside a portion of one's income for savings would most likely result in a greater likelihood of having a good attitude towards saving in the future. Kamis et al. [19] reported that money could shape how people see themselves and influence how they behave. This research used quantitative methods, and the population was comprised of UNISEL students from Shah Alam and Bestari Jaya campuses. The result of the study is that there is a positive correlation between money attitude factors, which are power, distrust, and anxiety, and UNISEL students' spending behaviour.

3 Methodology

This research study was conducted to investigate the significant effect between the factors (financial literacy, people's surroundings, and attitude) on spending habits among undergraduate students in FSKM, UiTM Shah Alam campus. The research design used in this study is cross-sectional analysis. This study gathered primary data by using questionnaire method based on research requirements. The data were collected from the questionnaire to obtain opinions from FSKM students in UiTM Shah Alam. This study has one dependent variable: spending habits and three independent variables: financial literacy, people's surrounding, and attitude. According to the list from Student's Division Affair UiTM Shah Alam, FSKM offers 17 courses for bachelor students. The population of undergraduate students in FSKM is 3884 and can be estimated as the sample size using Raosoft Software. Based on that, 351 samples from 3884 undergraduate students in FSKM have been selected randomly for each programme in UiTM Shah Alam. It is critical to determine the number of people who will need to be surveyed in order to obtain a more accurate outcome. The questionnaire provides a list of questions to collect information from respondents. The questionnaire was divided into five sections: Section A, Section B, Section C, Section D, and Section E. Section A includes some questions about the demographic profile. Section B consists of questions about spending habits. Section C, Section D, and Section E contain inquiries related to financial literacy, people's surroundings, and attitudes. This questionnaire uses a Likert scale question. The Likert scale ranges from 1 to 5, which stands for strongly disagree, disagree, neutral, agree, and strongly agree.

A pilot study was conducted on the research instruments used in this study to test the consistency of the research instruments. The acceptable value of Cronbach's Alpha in the reliability analysis is 0.5 and above [20]. The descriptive analysis was conducted to assess the information on the demographic profiles of the respondents. It was analysed graphically by using the frequency table.

Table 1: Division of Questionnaires

Section	**Construct**	**Number of questions**	**Sources**
A	Demographic Profile	6 questions	Ying et al., (2019)
B	Spending Habits	9 questions	Chavali (2020) and Ying et al. (2019)
C	Financial Literacy	8 questions	Chavali (2020) and Ying et al. (2019)
D	People's Surrounding	8 questions	Ying et al. (2019)
E	Attitude	8 questions	Bona (2018)

Table 1 shows the division of questionnaires that have been provided to the respondents. Based on recent studies, there are three factors associated with students' spending habits. Figure 1 clearly depicts the direct relationship between the three factors and spending habits among students.

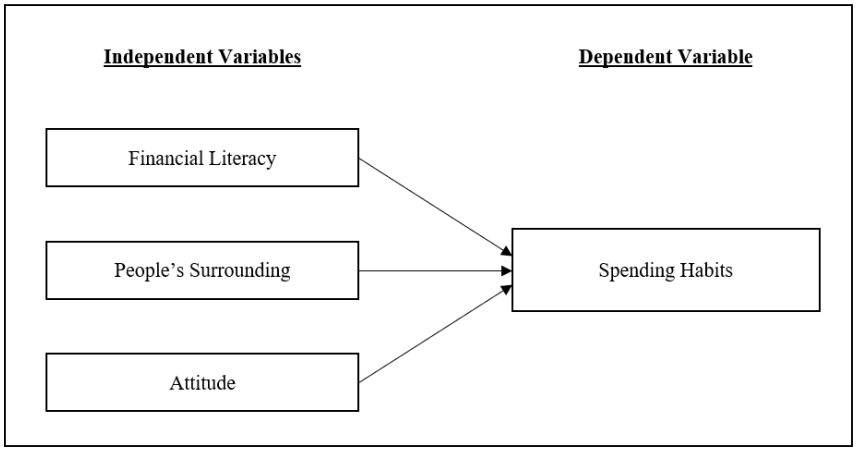

Figure 1: Theoretical Framework

To analyse the factors that significantly contribute to students' spending habits, multiple linear regression model was conducted. The general model of the multiple linear regression model was presented in Eq. (1).

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \mathcal{E} \quad (1)$$

where:
β_0 is the constant value while β_1, β_2, β_3, β_4, β_5 and β_6 are the coefficient of six independent variables.
Y = students' spending habits
X_1 = financial literacy
X_2 = people's surroundings
X_3 = attitude
$\mathcal{E}$ = error of the model

The model adequacy checking involved in this analysis includes the normality distribution of the residuals, homoscedasticity of error variance and independence of the error terms. As the researcher used Backward Elimination to obtain the most suitable model for the study, specifically to remove the multicollinearity problem from the model.

4 Results and Discussion

Table 2 below shows the reliability test of the pilot study. Reliability was tested on four variables, which are financial literacy, people's surrounding, and attitude towards spending habits. The Cronbach's Alpha, α_c is summarized in Table 2. The value of α for spending habits is 0.509, financial literacy is 0.681, people's surrounding is 0.752, and attitude is 0.786. Since all the values were greater than 0.5, therefore, it is acceptable [21].

Table 2: Reliability test of Pilot Study

Variables	**Removed variable**	**Cronbach's Alpha, α**	**Items**
Section B (Spending Habits)	Item 3 and 4	0.509	7
Section C (Financial Literacy)	-	0.681	8
Section D (People's Surroundings)	-	0.752	8
Section E (Attitude)	-	0.786	8

The descriptive analysis for the demographic profile of respondents was analysed by using frequency distribution. This research found that the number of female respondents were higher with 60.1% (211 respondents) than the males with 39.9% (140 respondents). The results also show the highest number of respondents in this study were aged 20 to 22 years old, with 75.2% (264 respondents). Respondents below 20 years old are 0.9% (3 respondents) and those above 22 years old are 23.9% (84 respondents). This research consists of students from semester 1 to semester 8. The highest percentage of respondents were semester 4 students, which was 22.2% (78 respondents), and the lowest percentage of respondents were semester 1 students, which were 0.6% (2 respondents). Besides, the highest number of students was from CS242, which had 57 students (16%), while the lowest number of students participating in this research was from CS247, which had 2 students (0.6%).

Table 3: Summary of Descriptive Analysis

Variable	**Group**	**Frequency (n)**	**Percentage (%)**
Gender	Male	140	40
	Female	211	60
Age	Below 20 years old	3	1
	20 -22 years old	264	75
	Above 22 years old	84	24
Current Semester	Semester 1	2	0.6
	Semester 2	17	5
	Semester 3	49	14
	Semester 4	77	22
	Semester 5	67	19
	Semester 6	59	17
	Semester 7	73	21
	Semester 8	7	2
Courses	CS230	39	11.1
	CS240	47	13.4
	CS241	25	7.1
	CS242	57	16.2
	CS243	6	1.7
	CS245	15	4.3
	CS246	5	1.4
	CS247	2	0.6
	CS249	32	9.1
	CS251	14	4
	CS253	26	7.4
	CS255	17	4.8
	CS259	48	13.7
	CS264	11	3.1

	CS266	4	1.1
	CS267	3	0.9

Prior to proceeding with Multiple Linear Regression, the researcher needs to perform the normal adequacy check.

a) Assumption of Normality

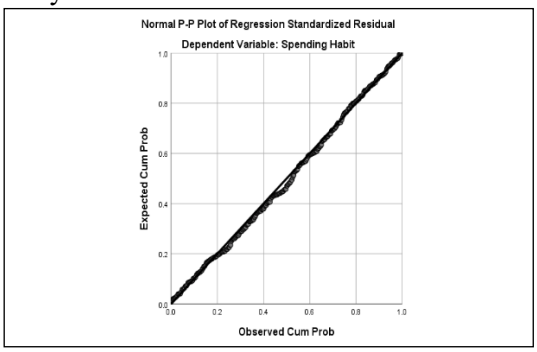

Figure 2: Normal P-Plot

Figure 2 shows the normal P-P plot for normality of errors. Based on the P-P plot above, the spending habits are assumed to be normally distributed because the point lies approximately along the straight line. Hence, the assumption of the normality of errors was satisfied.

b) Assumption of Homoscedasticity

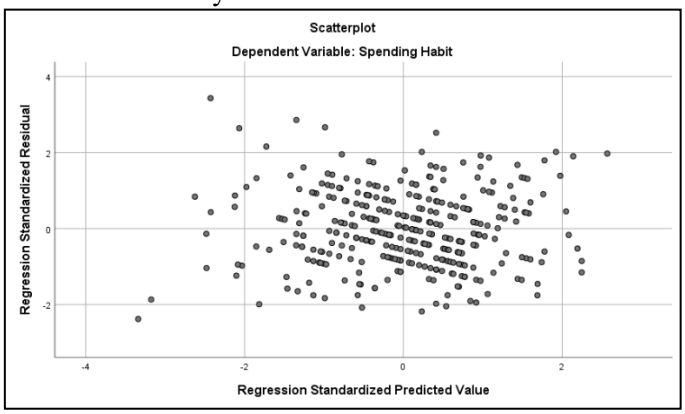

Figure 3: Scatterplot Residual against Predicted Value

Figure 3 shows a scatter plot between residual and predicted values. The scatter plot of residuals versus predicted value shows that all the points were randomly scattered. Therefore, the residuals had a constant variance. Thus, the homogeneity of the error variance assumption is satisfied.

c) Assumption of Independence

Table 4: Durbin Watson value

Model	**Durbin-Watson**
2	2.043

Table 4 shows the value of Durbin-Watson. The null hypothesis of Durbin-Watson tests is that the residuals are not linearly auto-correlated. If the values are close to 2, it indicates no autocorrelation.

Since the Durbin-Watson value is 2.043, which means the value approaches 2, there is no correlation among the residuals and the model is independent.

d) Linearity

Based on Figure 4, there was a linear relationship between financial literacy and spending habits. This shows that there has been no violation of the assumption of linearity.

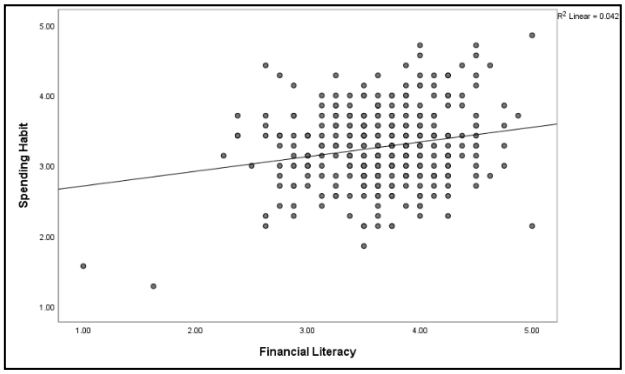

Figure 4: Scatterplot between Financial Literacy and Spending Habits

Figure 5 shows that there was a linear relationship between people's surrounding and their spending habits. This shows that there has been no violation of the assumption of linearity.

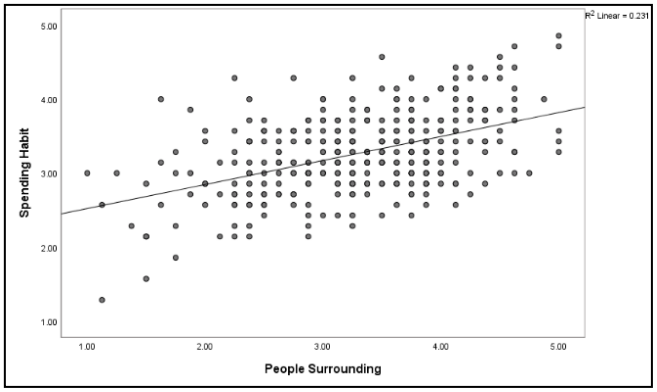

Figure 5: Scatterplot between People's Surrounding and Spending Habits

Figure 6 shows that there was a linear relationship between attitude and spending habits. This shows that there has been no violation of the assumption of linearity.

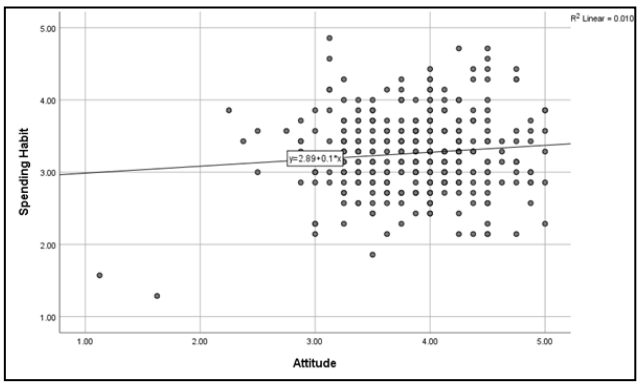

Figure 6: Scatterplot between Attitude and Spending Habits

In conclusion, since all of the assumptions are satisfied, the correlation coefficient can be computed.

Correlation Coefficient

Table 5: Pearson's Correlation

		Spending Habits	Financial Literacy	People's Surroundings	Attitude
Spending Habits	Pearson's Correlation	1.000	0.206	0.459	0.102
	Sig. (1-tailed)		0.000	0.000	0.028
	N	351	351	351	351

As shown in Table 5, people's surrounding have the highest correlation value with spending habits (r=0.459). Meanwhile, financial literacy has a positive relationship with spending habits (r=0.206) The other variable, which is attitude, has very weak positive relationship with spending habits. (r=0.102).

Test of Model Significance by using ANOVA (F-statistic)

In order to test for the significance of the model, the F-statistic was used to determine whether the model was fitted. When the model is fitted, the multiple linear regression can be performed. Table 3 shows the ANOVA table for the F-statistic. This shows that the data was used to fit the model.

Table 6: ANOVA Table

Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Regression	22.478	2	11.239	49.538	0.000
Residual	78.953	348	0.227		
Total	101.432	350			

Table 6 shows that the *p-value* is 0.000. Since the *p-value* = 0.000 is less than $\alpha = 0.05$, the null hypothesis is rejected. Hence, we can conclude that there was enough evidence that the regression model was fit, or the regression model is significant.

Multicollinearity Checking

Table 7: Multicollinearity

Variable		**Pearson's Correlation**	**B**	**Std. Error**	**t**	**Sig.**
1	(Constant)		1.921	0.210	9.130	0.000
	Financial Literacy	0.206	0.111	0.062	1.780	0.076
	People's surroundings	0.459	0.292	0.033	8.916	0.000
	Attitude	0.102	-0.004	0.058	-0.066	0.948

Table 7 shows multicollinearity's existence since there is a change in the sign of effect in attitude variable. The results of the attitude variable show the change in a sign where the sign for the correlation coefficient value ($r = 0.102$) has a positive sign but the regression coefficient value ($\beta_3 = -0.004$) has a negative sign. Therefore, it shows that multicollinearity exists in the model.

Final Multiple Regression Model

The multiple regression model shown in the table below is carried out using a backward elimination method aimed at finding the best model. It can be concluded that attitude variables have been removed from the model by looking at a significant value because they would affect the analysis or predictions of the results if they remained in the model.

Table 8: Backward Elimination

Method	**Backward**
Final Model	$\hat{y} = \beta_0 + \beta_1 X_1 + \beta_2 X_2$
	$\hat{y} = 1.915 + 0.109 X_1 + 0.292\ X_2$
	Spending Habits = 1.915 + 0.109 (Financial literacy) + 0.292 (People's surrounding)
Significant Variable	Financial literacy and People's surrounding
R-Square	0.222
Multicollinearity	No multicollinearity

Table 8 shows the final model and significant independent variables in the model. The result shows that only two variables (financial literacy and people's surrounding) remained in the model. The factors account for 22.2% of the total variation in spending habits. Another 77.8% is explained by other factors. The R-squared value is lower than 50% because it is fairly hard to predict spending habits. Despite the low value of R-squared, the significant coefficients still represent the mean change in the response for one unit of change in the predictor, while other predictors remain constant in the model. The data contains inherently higher amounts of unexplainable variability. It is recommended that more independent variables be added to the model to increase the R-squared value.

According to Moksony [22], in this case, a low value only indicates that various other factors influence the dependent variable. However, it is not important since our goal is to establish a specific causal relationship rather than compile a comprehensive list of the various causes of the phenomenon. This statement is supported by Itaoka [23], who stated that to determine the efficiency of a factor in social science, the size of the R-squared does not matter when examining its effects.

The best model for this study is shown as below:

$$\hat{y} = 1.915 + 0.109\ (Financial\ literacy) + 0.292\ (People's\ surroundings) \qquad (2)$$

The following was the interpretation of all the coefficients based on the equation above:

$\beta_0 = 1.915$, if the values of independent variables (financial literacy and people's surroundings) are equal to 0, then the coefficient of spending habits is 1.915.
$\beta_1 = 0.109$, a one-unit increase in the mean of financial literacy increases the mean of Spending Habits by 0.109 units, when people's surroundings remain constant.
$\beta_2 = 0.292$, a one-unit increase in the mean of people's surroundings increases the mean of spending habits by 0.292 units, when financial literacy remains constant.

5 Conclusion

This study is conducted with the goal of developing the factor affecting spending habits among undergraduate students in FSKM, UiTM Shah Alam. Based on the descriptive statistic, the female respondents were higher with 60.1% (211 respondents) than the males with 39.9% (140 respondents). The results also show the highest number of respondents in this study were aged 20 to 22 years old, with 75.2% (264 respondents). Respondents below 20 years old are 0.9% (3 respondents) and those above 22 years old are 23.9% (84 respondents). This research consists of students from semester 1 to semester 8. The highest percentage of respondents were semester 4 students, which was 22.2% (78 respondents), and the lowest percentage of respondents were semester 1 students, which were 0.6% (2 respondents). Besides, the highest number of students was from CS242, which had 57 students (16%), while the lowest number of students participating in this research was from CS247, which had 2 students (0.6%).

Multiple regression analysis was used to achieve the objective. The researcher applied the Backward Elimination method to remove insignificant variables. Attitude was found to be not significant and was excluded from the final model. The final model, with no multicollinearity issues, showed that financial literacy and people's surroundings influence spending habits among FSKM undergraduate students at UiTM Shah Alam.

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Conflict of Interest Statement

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests with the funders.

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