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REPORT

Laboratory Work N5

*Results:*

1. **Results of the 1st regression model analysis**

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| --- | --- |
| *Parameters* | Results |
| The equation of the regression model (*Regression Summary)*: | =-2.3861456+0.0227194\*X1 |
| Correlation coefficient between Y and X (R): | 0.9920267 |
| *Regression model quality parameters* | |
| Coefficient of multiple determination (R2): | 0.9841 |
| Adjusted coefficient of multiple determination (Adjusted R2): | 0.9834 |
| Standard Error of Estimate: | 0.5837 |

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| *Results of analysis of variance (ANOVA)* | | | |
| Regression Sum of Squares: | Degrees of freedom for ESS (df): | Residual Sum of Squares: | Degrees of freedom for RSS (df): |
| *ESS= 485.57* | *df1= 1* | *RSS= 7.84* | *df2= 23* |
| Fisher’s F test value: | 1425.1 | Non-rejection region: | ( 0 ; 4.279344 ) |

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| --- | --- | --- |
| *The Gauss-Markov conditions check* | | |
| *The Gauss-Markov conditions* | *TRUE* | *FALSE* |
| *The means is zero:* |  |  |
| *The variance is constant:* |  |  |

Conclusion:

***Оба параметра достаточно сильно коррелируются. Коэффициенты множественной детерминации и скорректированной множественной корреляции достаточно высокие.***

1. **Results of the 2nd regression model analysis**

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| *Parameters* | Results |
| The equation of the regression model (*Regression Summary)*: | =7.39000+0.61246\*X2 |
| Correlation coefficient between Y and X (R): | 0.9941453 |
| *Regression model quality parameters* | |
| Coefficient of multiple determination (R2): | 0.9883 |
| Adjusted coefficient of multiple determination (Adjusted R2): | 0.9878 |
| Standard Error of Estimate: | 0.5005 |

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| *Results of analysis of variance (ANOVA)* | | | |
| Regression Sum of Squares: | Degrees of freedom for ESS (df): | Residual Sum of Squares: | Degrees of freedom for RSS (df): |
| *ESS= 487.64* | *df1= 1* | *RSS= 5.76* | *df2= 23* |
| Fisher’s F test value: | 1947 | Non-rejection region: | ( 0 ; 4.279344 ) |

|  |  |  |
| --- | --- | --- |
| *The Gauss-Markov conditions check* | | |
| *The Gauss-Markov conditions* | *TRUE* | *FALSE* |
| *The means is zero:* |  |  |
| *The variance is constant:* |  |  |

Conclusion:

***Данная модель оказалась более качественной по сравнению с первой, так как стандартная ошибка регрессии у данной модели меньше чем у первой.***

1. **Make a prediction using the best model:**

*Xn+1=3 Yn+1=**9.227385 Confidence interval: (**8.873383;**9.581387)*

*Xn+2=8 Yn+2=12.289692 Confidence interval: (12.037734;12.541651)*

*Xn+3=17 Yn+3=17.801846 Confidence interval: (17.565070;18.038623)*