1. The cars owned by all people living in a city are, on average, 7.3 years old with a standard deviation of 2.2 years.
   1. Using Chebyshev’s theorem, find at least what percentage of cars in this city is

(i.) 1.8 to 12.8 years old (ii). .7 to 13.9 years old

See my beginning work on (i) on attached sheet. Need help with the rest and with (ii)

* 1. Using Chebyshev’s theorem, find the interval that contains the ages of at least 75% of the cars owned by all people in this city. Need help with all

1. Use the given information to answer the following questions: see attached work and verify

|  |  |  |
| --- | --- | --- |
| X | 0 | 1 |
| f | 10 | 1 |

|  |  |
| --- | --- |
| *Range* | Variance |
| *Standard Deviation* | |

1. Please fill in the blank and answer the following questions: see attached notes and pages from book.

|  |  |  |  |
| --- | --- | --- | --- |
| SUMMARY OUTPUT | | | |
| *Regression Statistics* | | | |
| Multiple R | | \_\_\_\_\_\_ | |
| R Square | | \_\_\_\_\_\_ | |
| Adjusted R Square | | 0.125 | |
| Standard Error | | \_\_\_\_\_\_ | |
| Observations | | \_\_\_\_\_\_ | |
| ANOVA |  | |  | |  |  |  |
|  | *df* | | *SS* | | *MS* | *F* | Significance F |
| Regression | 1 | | 0.828 | | \_\_\_\_\_\_ | \_\_\_\_\_\_ | \_\_\_\_\_\_ |
| Residual | \_\_\_\_\_\_ | | 2.227 | | \_\_\_\_\_\_ |  |  |
| Total | 6 | | \_\_\_\_\_\_ | |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | *Coefficients* | *Standard Error* | *t Stat* | *P-Value* | | *Lower 95%* | *Upper 95%* | *Lower 95.0%* | *Upper 95.0%* | |
| Intercept | | 112.413 | 9.484 | 11.853 | 7.52722E-05 | | 88.033 | 136.793 | \_\_\_\_\_\_ | \_\_\_\_\_\_ | |
| X | | -19.137 | -------- | -1.364 | 0.231 | | -55.211 | 16.937 | \_\_\_\_\_\_ | \_\_\_\_\_\_ | |
| 1. What is the coefficient of determination? | | | | | 1. What is the coefficient of correlation? | | | | |
| 1. Interpret the coefficient of determination. | | | | | 1. Interpret the coefficient of correlation. | | | | |
| 1. Interpret the meaning of the Y intercept b0. | | | | | | | | | |

1. Below is the printout for a simple linear regression. (Must show **step by step** to get full credits) need help with all

Graphical user interface, application, table, Excel

Description automatically generated

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Observation** | **Y** | **X** | **XY** | **Y^2** | **X^2** | **Y Hat** | **e** | **e^2** |
| **1** | 3 | 1 | 3 | 9 | 1 | 2.4 | 0.6 | 0.36 |
| **2** | 1 | 2 | 2 | 1 | 4 | 1.7 | -0.7 | 0.49 |
| **3** | 1 | 3 | 3 | 1 | 9 | 1 | 0 | 0 |
| **4** | 0 | 4 | 0 | 0 | 16 | 0.3 | -0.3 | 0.09 |
| **5** | 0 | 5 | 0 | 0 | 25 | -0.4 | 0.4 | 0.16 |
| **Total** | 5 | 15 | 8 | 11 | 55 | 5 | -6.7E-16 | 1.1 |

* 1. Calculate the values in the coefficients column ()
  2. Calculate the degrees of freedom (df) column.
  3. Calculate the values in the SS column (SSR, SSE, SST).
  4. Calculate the values in the MS column (MSR, MSE).
  5. Calculate the F value and t Statistics for the independent variable.
  6. Calculate the adjusted R square and standard error of the Regression model.

1. A firm has 231 employees classified by age and job category as follows. Need help with all. Check my answer on (a)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Age Category | | | | | | |
| *Job Category* |  | 21-25 | 26-30 | 31-35 | > 35 | Total |
| Clerical | 20 | 20 | 15 | 10 | 5 | 70 |
| Custodial | 3 | 6 | 3 | 2 | 1 | 15 |
| Craftsmen | 15 | 30 | 35 | 20 | 10 | 110 |
| Salesmen | 1 | 5 | 10 | 5 | 2 | 23 |
| Junior Executives | 0 | 1 | 5 | 2 | 0 | 8 |
| Executives | 0 | 0 | 2 | 2 | 1 | 5 |
| Total | 39 | 62 | 70 | 41 | 19 | 231 |

Based on this table explain in words the following sets and give number of employees in each: (a) = the intersect of B1 and A5 is 5. There are 5 employees in B1 Clerical that have ages greater than 35.

(b) =

(c) =

(d) =

(e) =

(f) =

(g) =

(h) =

(i) =

Work the questions below using data from the above table. Are they true?

(j)

(k) Is A1 independent of B1?

How many employees satisfy each of the following conditions?

(l). The person is neither an executive nor a junior executive.

(m). The person is both an executive and a junior executive.

(n). The person is more than 30 years old, and is clerical or custodial.

(o). The person is a salesperson and/or between 21 and 25 years old, inclusive

(p). The person is a craftsman 35 years old or younger.

(q). The person is a craftsman or a salesperson and is between 21 and 30 years old, inclusive.

(r). The person is a clerical or custodial, and is more than 30 years old.

1. Calculate from the information provided below

|  |  |
| --- | --- |
| X | Y |
| -2 | 9 |
| 0 | 5 |
| -0.5 | 7 |
| 1 | 100 |

1. Compute the sample regression coefficients b0 and b1. See my calculations on the attached worksheet. My answers are wrong. I know what the correct answers are but don’t know what I calculated wrong.
2. Compute the estimated variance of the regression.
3. Compute the standard error of the regression.
4. Compute the estimated variance of b1.
5. Compute the standard error of b1.
6. Test the slope coefficient using the alternative hypothesis of greater than zero and alpha=0.05
7. What is the F value?