

The background is a dark blue gradient with a subtle pattern of white dots. Overlaid on the left side are several concentric circles and arcs, some with tick marks and numbers, resembling a circular scale or a stylized clock face. The numbers range from 140 to 260. There are also some curved arrows and dashed lines, giving it a technical or scientific feel.

LINEAR REGRESSION MODEL FOR AN AUTO-INSURANCE

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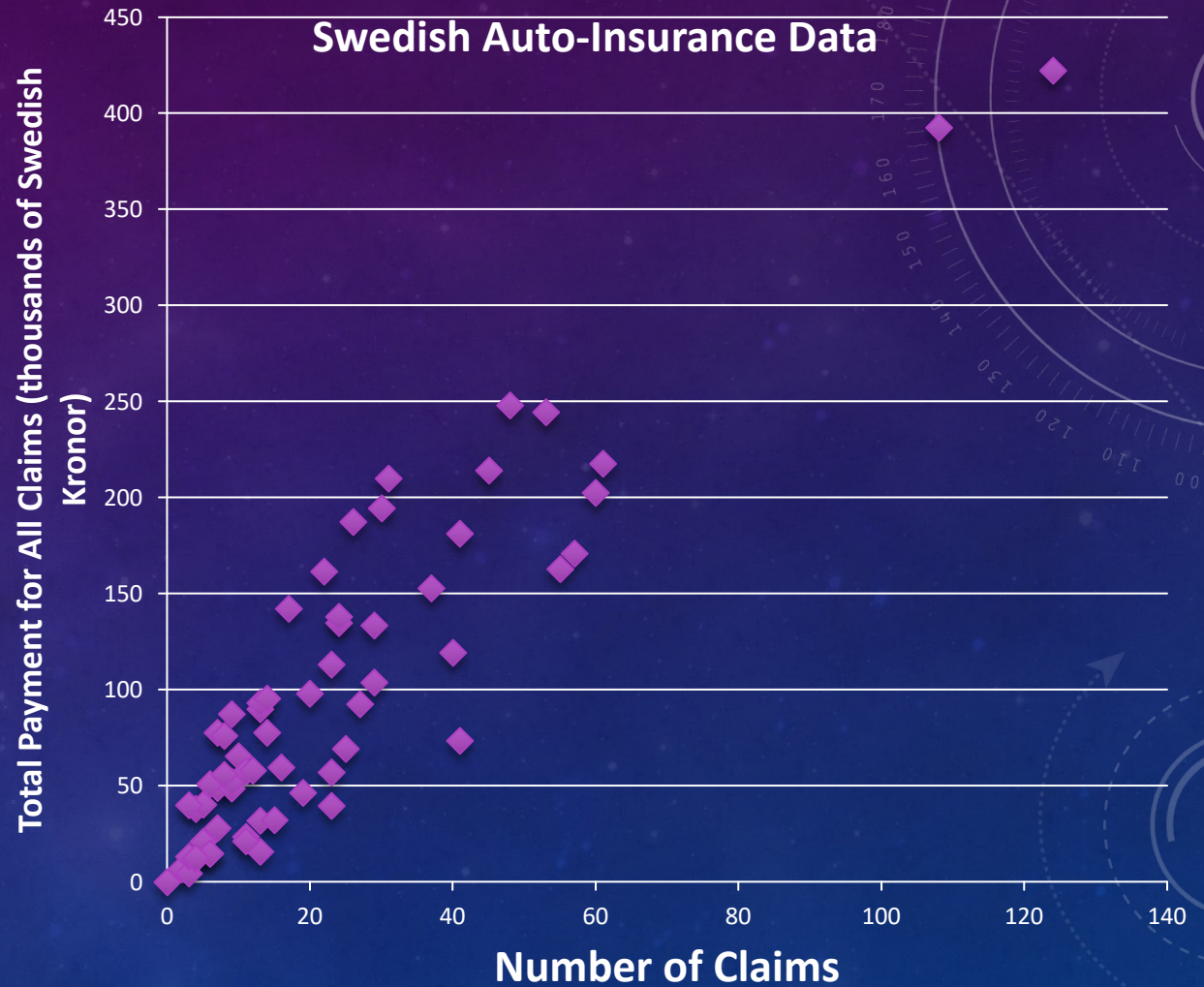
This is a complex collage representing financial markets. It features several overlapping elements:

- A large area chart at the top left showing price fluctuations over time.
- A smaller area chart below it, also showing price movement.
- A bar chart at the bottom left with blue and orange bars.
- A pie chart at the bottom right, divided into orange and white segments.
- A small table of numbers in the middle right, possibly stock prices or exchange rates.
- Faint background text and numbers, including "345771" and various dates like "Wed", "Thu", "Fri", "Sat".

The overall color scheme is dominated by warm tones like gold, brown, and orange, giving it a professional yet dynamic feel.

SWEDISH AUTO-INSURANCE DATA

- The Swedish Auto Insurance Dataset involves predicting the total payment for all claims in thousands of Swedish Kronor, given the total number of claims.
- It is comprised of 63 observations with 1 input variable and 1 output variable. The variable names are as follows:
 1. Number of claims.
 2. Total payment for all claims in thousands of Swedish Kronor.



LINEAR REGRESSION MODEL

For our regression model, we are only using the standard python library.

The model assumes a 1 to 1 function. That is: there is only one input variable and one output variable.

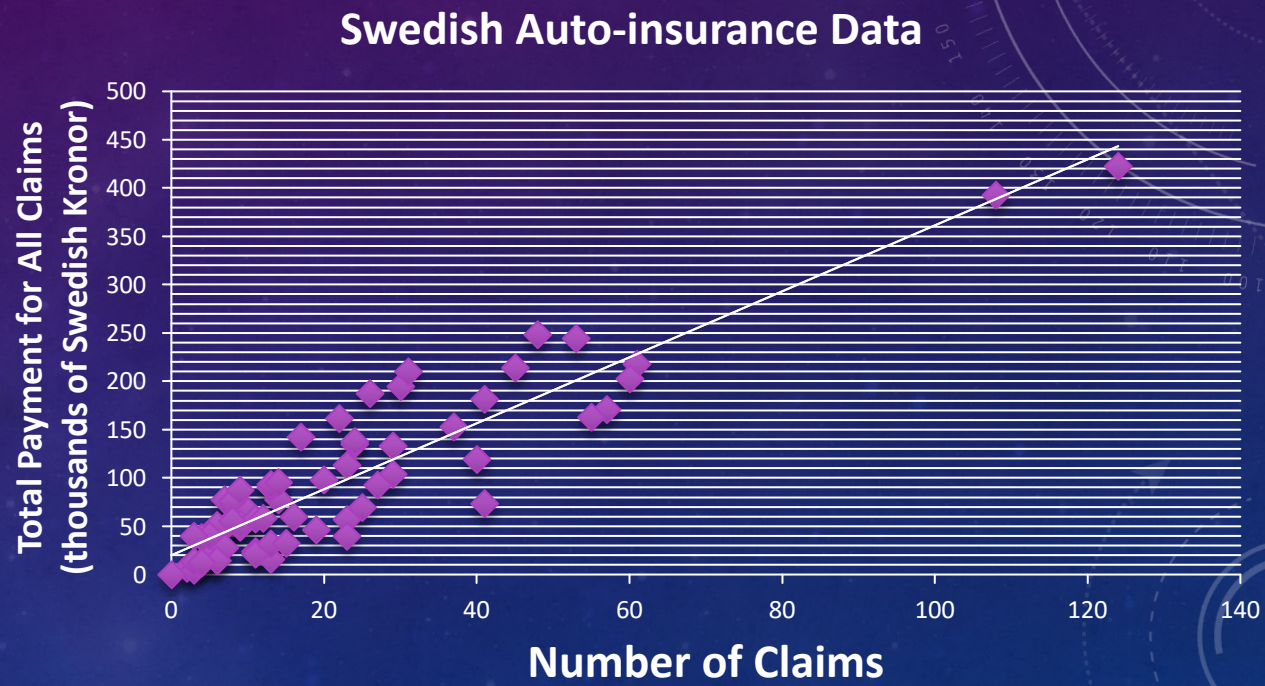
A training dataset of 60% of the data is used to prepare the model and predictions are made on the remaining 40%.

The model returns the coefficients for the linear regression model, the predicted output values, the mean of these values, and the root mean squared error from these values.

From excel, we can generate the line of best fit.

RESULTS FROM THE LINEAR MODEL

Coefficients	Mean value from the predictions	Root mean squared error
$B_0=28.229,$ $B_1=3.318$	81.310	33.630



INTERPRETATION OF THE RESULTS

From our model, we obtain a mean value of 81 thousands of Swedish Kronor. That is the average total payment from all claims is 81 thousands of Kronor.

From our graph, we notice most of the outputs are below 80 thousands of Kronor. Therefore, we use the root mean squared error as our prediction.

Thus, we predict the average payment from all claims is 33 thousands of Kronor.

CONCLUSIONS AND ACKNOWLEDGEMENTS

The average value from our prediction is likely skewed by a few very large values.

The root mean squared error takes care of the outlier values.

The model is one of many predictions. Thus, we need to be open to different predictions.

RESOURCES

- Auto Insurance in Sweden (small dataset). *Kaggle*,
<https://www.kaggle.com/datasets/sunmarkil/auto-insurance-in-sweden-small-dataset>
Accessed by 16 Jul. 2022.
- Linear Regression Model.
https://github.com/dbzdiego/autolinregmodel/blob/main/simple_linear_regression_insurance.py