Bilateral Trade Flow

STUDENTS

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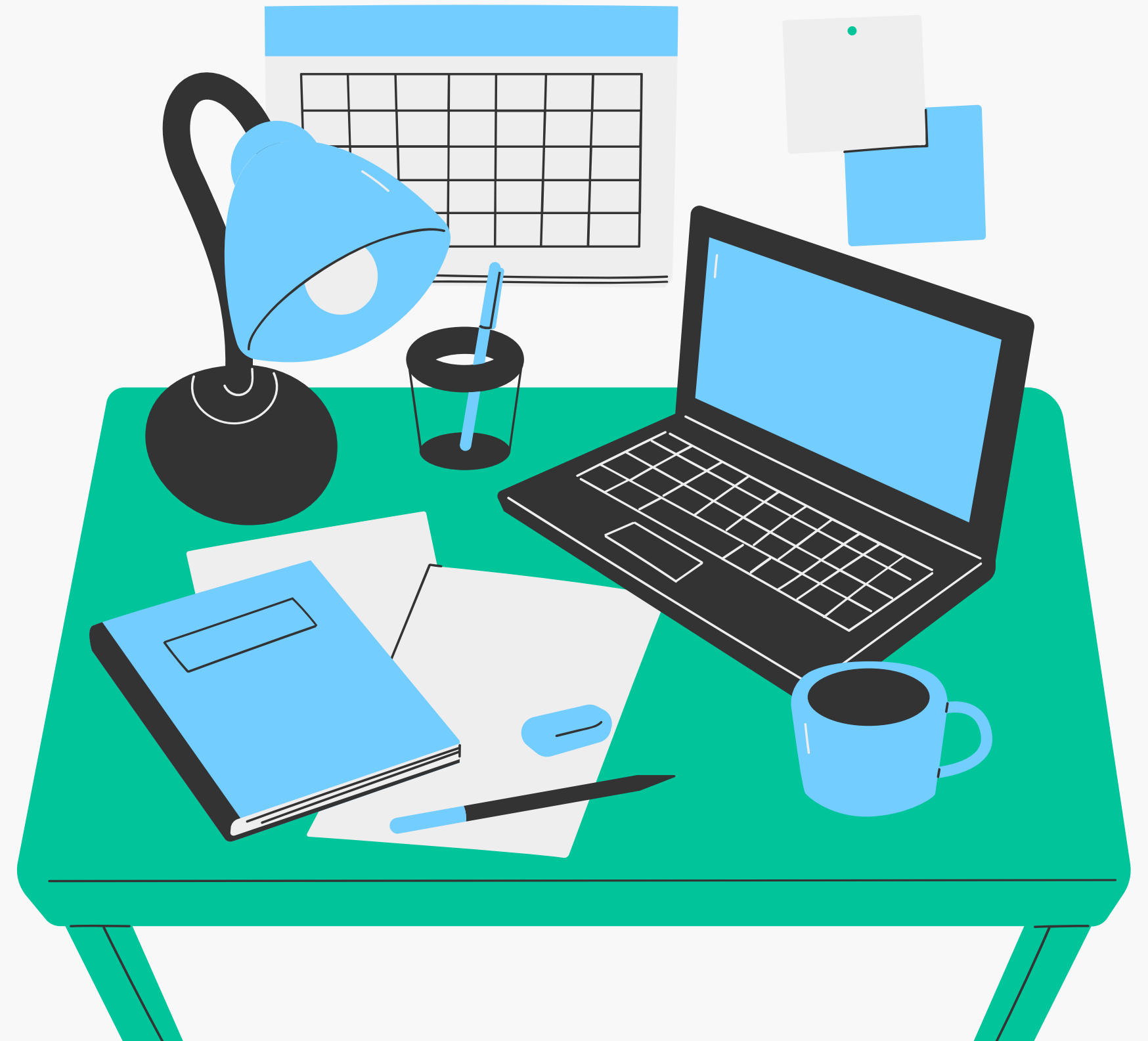Prateek Rao
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- **Estimation of Bilateral Trade Flow between pairs of countries.**
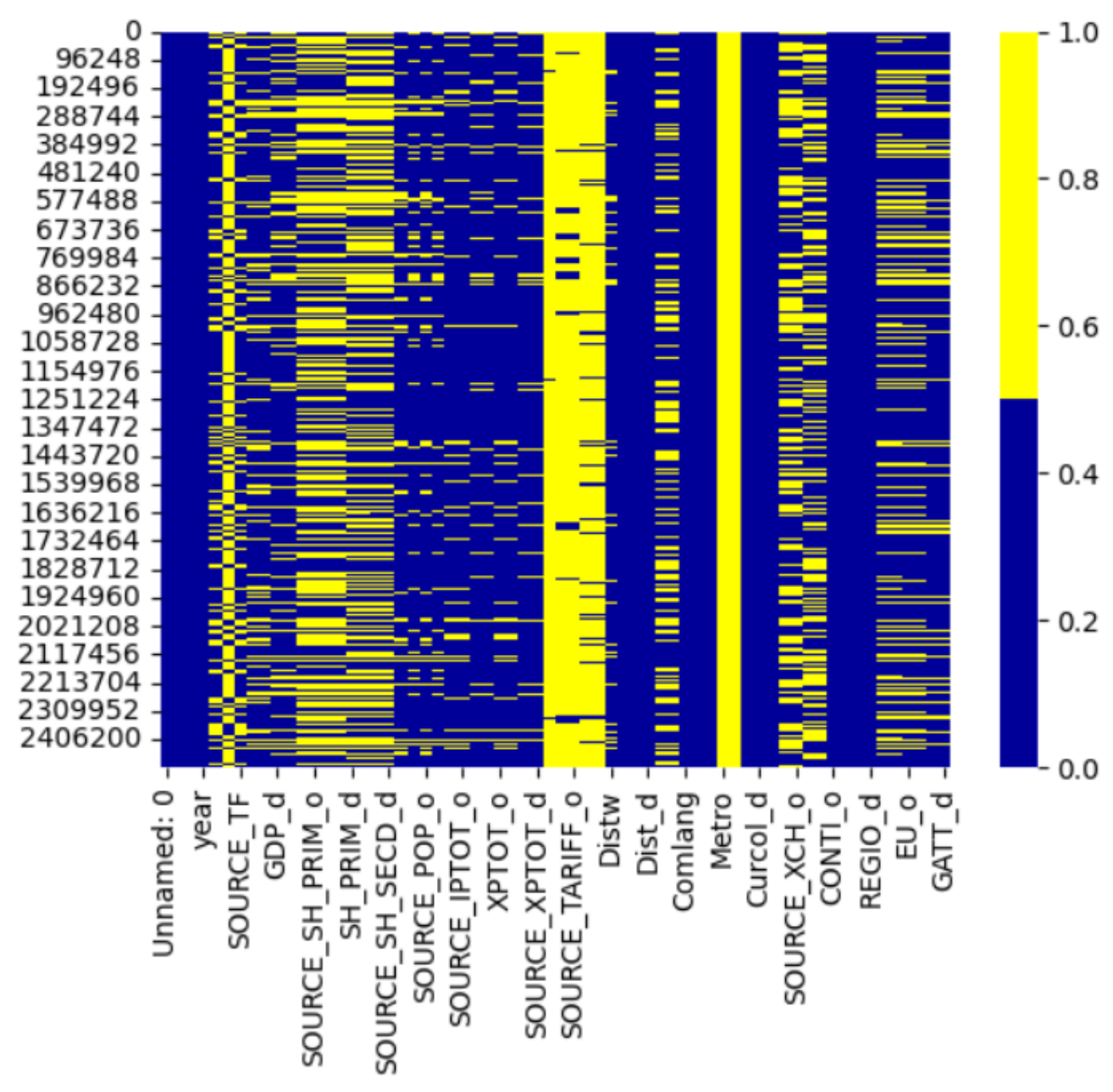
  Bilateral Trade Flow is the difference between total imports and total exports between two countries that is calculated over a fiscal year.

  Accurate predictions are important as they can significantly influence international trade sanctions, policies and relationships between countries.
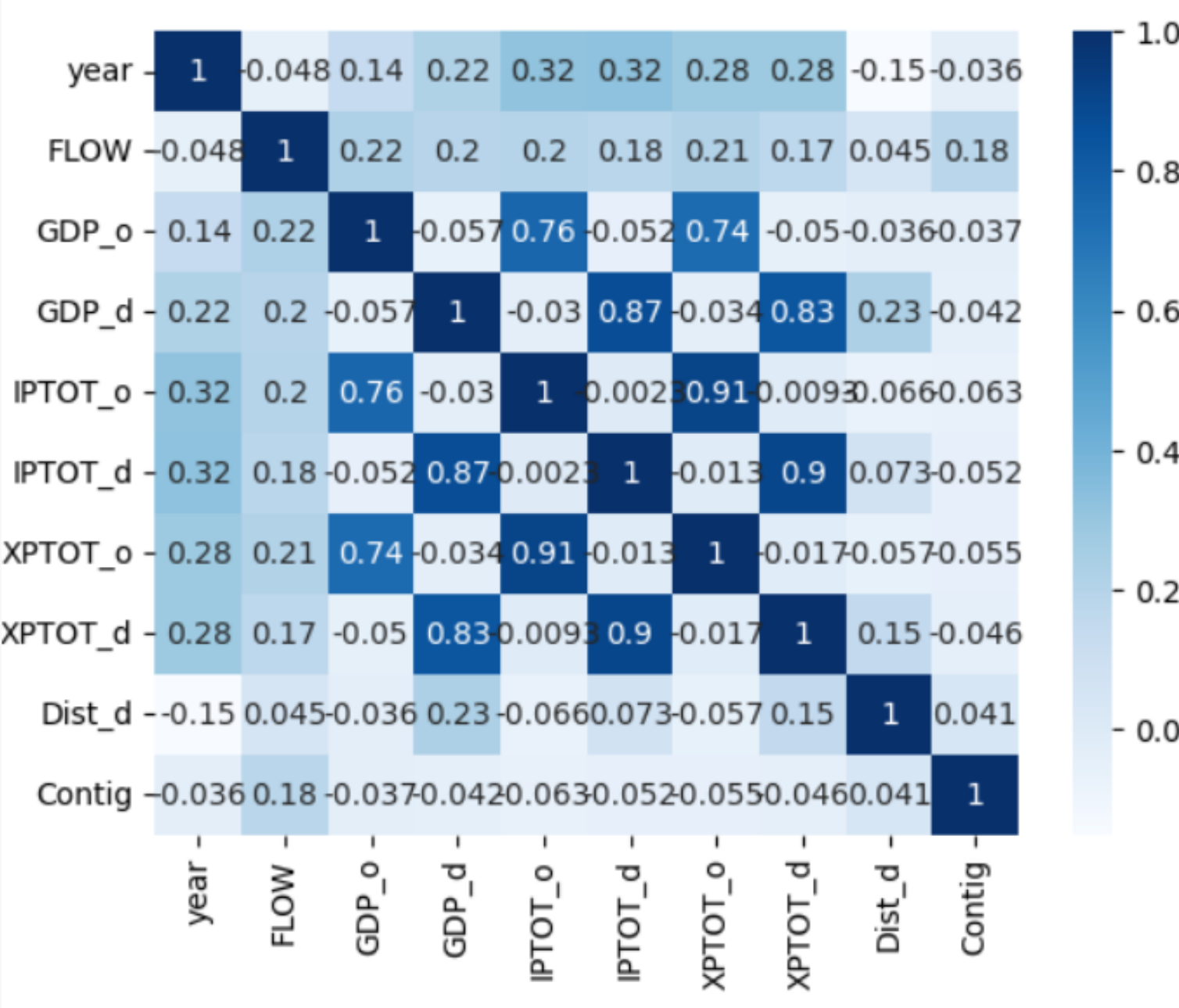
Null Value Analysis

The yellow shaded areas show the missing data that needs to be treated.

Correaltion Analysis


Depicts the relations between the target FLOW and the other attributes.

- The dataset consists of 2.5 million instances, ranging from 1827 - 2014.

- First step of data cleaning included dropping null values from selected features which could impact results.

- Further, we dropped FLOW values of less than £100 due to insignificance.

- Categorical Variables were suitably encoded.

IV   FEATURE ENGINEERING
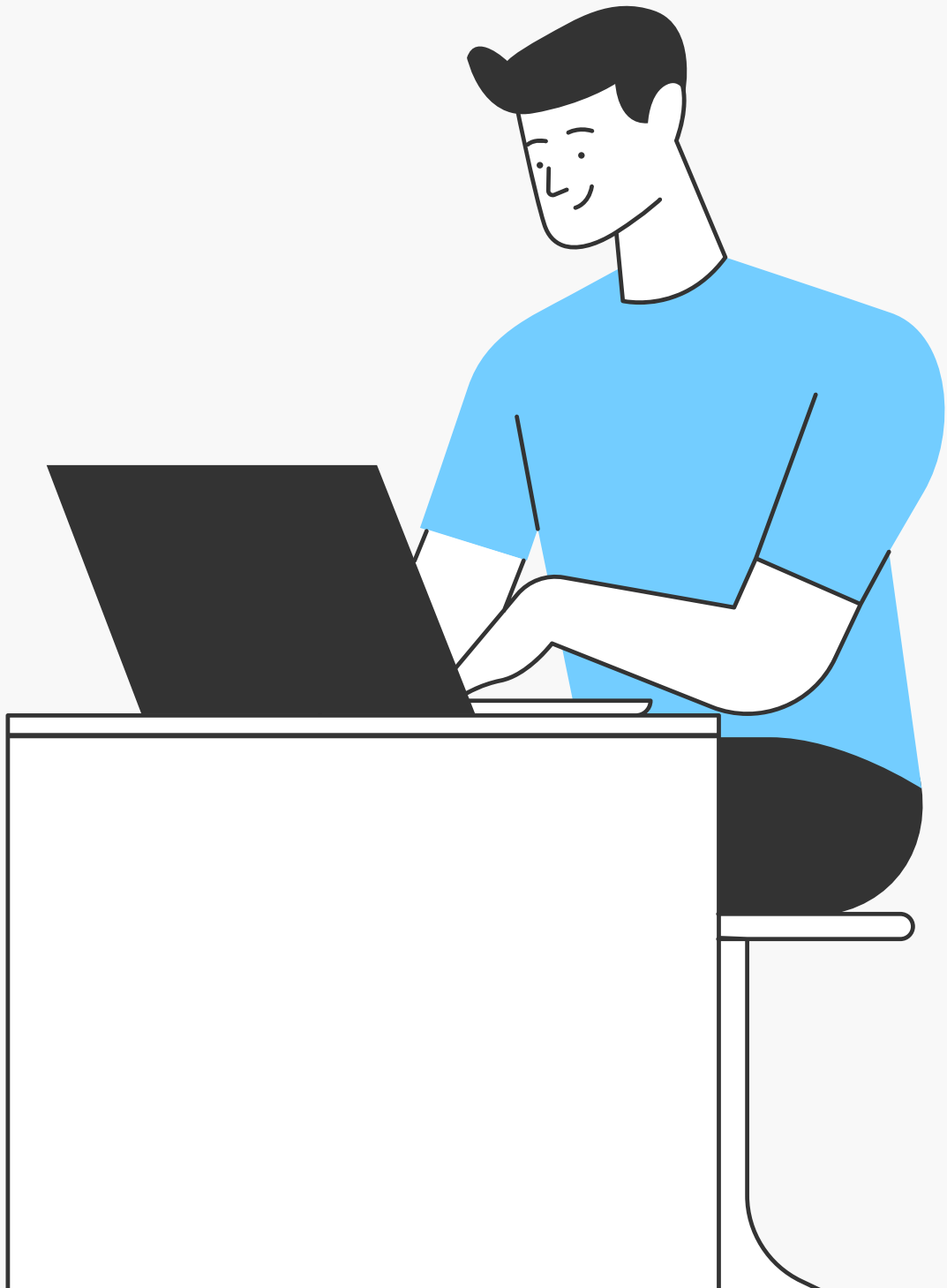
- Shortlisted 12 features, which are the features used in the Gravity Model for prediction.

- Distribution of flow is uneven, so we transformed the dataset using a logarithmic function, to make the features normally distributed.

- Dropped instances for years before 2009, as we intend to learn recent trends.

Simple Linear Regression

R-squared = 0.134

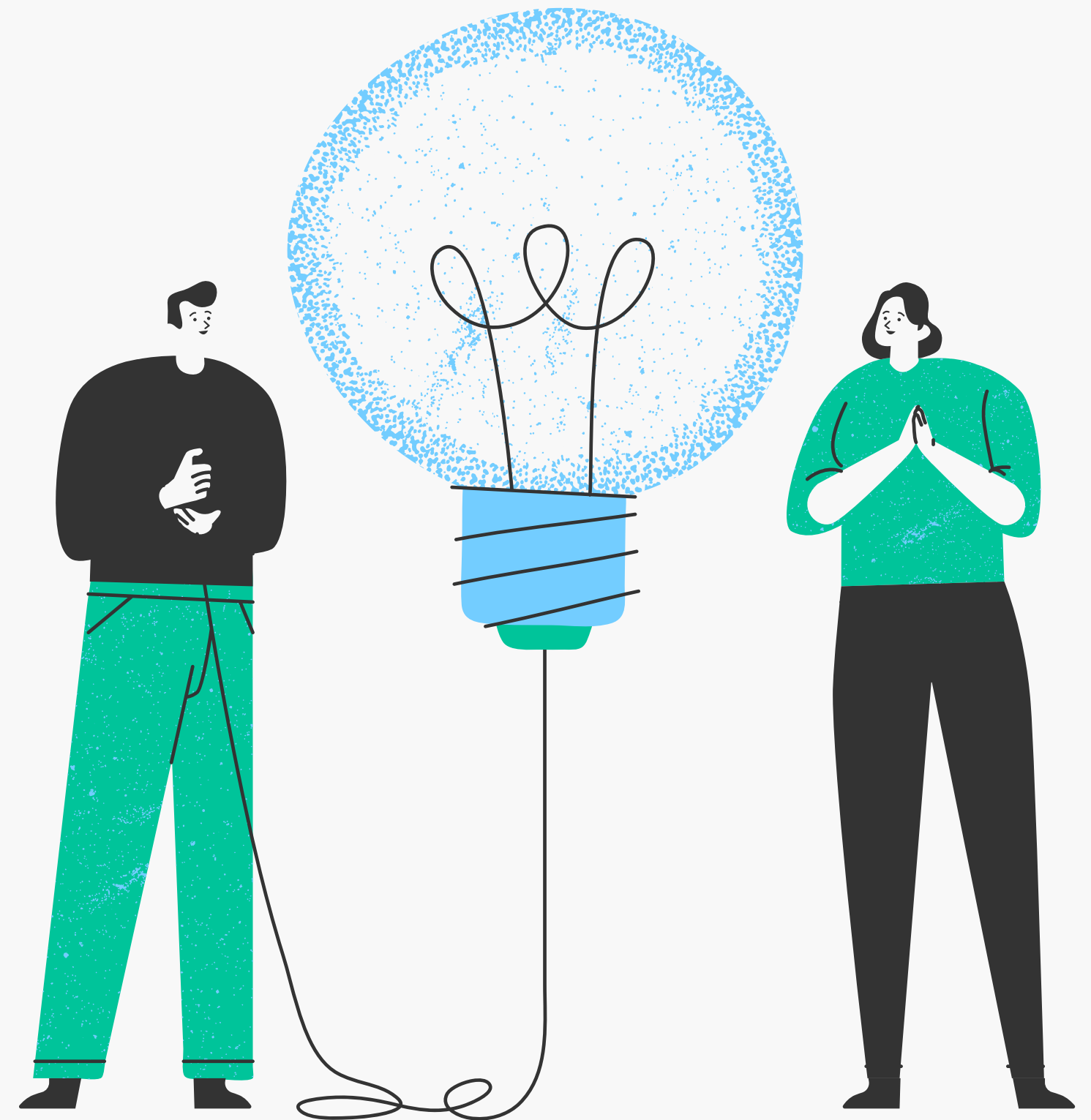## Linear Regression with Log Linear Values

R-squared = 0.654

Support Vector Regression with Log Linear Values

R-squared = 0.671

VI   FUTURE WORK

- Explore further time-agnostic models, with ensemble learning and deep neural networks.

- Transform the dataset to time-series, and use time-series analysis.

- Deep Learning based time-series networks can be applied to work with a larger feature space.

Thank you!