**Data link (**https://www.kaggle.com/datasets/priyamchoksi/credit-card-transactions-dataset**)**

**The Credit Card Transactions Dataset provides detailed records of credit card transactions, including information about transaction times, amounts, and associated personal and merchant details. This dataset has over 1,296,675 rows.**

**1. trans\_date\_trans\_time**

* **Description** : This column contains the date and time of the transaction.
* **Type** : Timestamp or string (depending on how it's formatted).
* **Usage** : Useful for analyzing transaction patterns over time, such as daily/weekly/monthly trends or detecting anomalies during specific periods.

**2. cc\_num**

* **Description** : The credit card number associated with the transaction.
* **Type** : Numeric or string (if padded with leading zeros).
* **Usage** : Identifies the specific credit card used in the transaction. Can be used to track transactions made by the same card.

**3. merchant**

* **Description** : The name or identifier of the merchant where the transaction occurred.
* **Type** : String.
* **Usage** : Helps categorize transactions based on the merchant and can be useful for fraud detection if certain merchants are flagged as high-risk.

**4. category**

* **Description** : The category of the merchant or the type of purchase (e.g., "grocery", "travel", "entertainment").
* **Type** : Categorical (string).
* **Usage** : Provides insight into the nature of the transaction and can help identify unusual spending behavior.

**5. amt**

* **Description** : The amount of money involved in the transaction.
* **Type** : Numeric (float or integer).
* **Usage** : Critical for fraud detection, as unusually large or small amounts might indicate suspicious activity.

**6. first**

* **Description** : The first name of the cardholder.
* **Type** : String.
* **Usage** : Can be used for identity verification or linking transactions to a specific individual.

**7. last**

* **Description** : The last name of the cardholder.
* **Type** : String.
* **Usage** : Similar to **first**, this helps identify the cardholder and link transactions to an individual.

**8. gender**

* **Description** : The gender of the cardholder.
* **Type** : Categorical (string, e.g., "M" for male, "F" for female).
* **Usage** : May be used for demographic analysis or to identify patterns in spending behavior based on gender.

**9. street**

* **Description** : The street address of the cardholder.
* **Type** : String.
* **Usage** : Useful for verifying the cardholder's location and detecting potential fraud if transactions occur far from the cardholder's home address.

**10. city**

* **Description** : The city where the cardholder resides.
* **Type** : String.
* **Usage** : Similar to **street**, this can help verify the cardholder's location and detect anomalies.

**11. state**

* **Description** : The state or province where the cardholder resides.
* **Type** : String.
* **Usage** : Another geographical indicator that can help in fraud detection.

**12. zip**

* **Description** : The ZIP code of the cardholder's residence.
* **Type** : Numeric or string.
* **Usage** : Useful for geolocation and detecting transactions that occur outside the cardholder's usual area.

**13. lat**

* **Description** : The latitude coordinate of the cardholder's location.
* **Type** : Numeric (float).
* **Usage** : Used for geospatial analysis to determine the proximity of the transaction location to the cardholder's home.

**14. long**

* **Description** : The longitude coordinate of the cardholder's location.
* **Type** : Numeric (float).
* **Usage** : Complements **lat** for geospatial analysis.

**15. city\_pop**

* **Description** : The population of the city where the cardholder resides.
* **Type** : Numeric (integer).
* **Usage** : May be used for demographic analysis or to identify patterns in spending behavior based on urban vs. rural areas.

**16. job**

* **Description** : The occupation or job title of the cardholder.
* **Type** : String.
* **Usage** : Useful for understanding the cardholder's income level or spending habits based on their profession.

**17. dob**

* **Description** : The date of birth of the cardholder.
* **Type** : Date or string.
* **Usage** : Helps calculate the cardholder's age, which can be used for demographic analysis or to identify age-related spending patterns.

**18. trans\_num**

* **Description** : A unique identifier for each transaction.
* **Type** : String or numeric.
* **Usage** : Ensures each transaction can be uniquely identified and tracked.

**19. unix\_time**

* **Description** : The timestamp of the transaction in Unix time format (number of seconds since January 1, 1970).
* **Type** : Numeric (integer).
* **Usage** : Useful for precise time-based analysis and comparisons across different systems.

**20. merch\_lat**

* **Description** : The latitude coordinate of the merchant's location.
* **Type** : Numeric (float).
* **Usage** : Used for geospatial analysis to determine the distance between the cardholder and the merchant.

**21. merch\_long**

* **Description** : The longitude coordinate of the merchant's location.
* **Type** : Numeric (float).
* **Usage** : Complements **merch\_lat** for geospatial analysis.

**22. is\_fraud**

* **Description** : Indicates whether the transaction is fraudulent (1) or legitimate (0).
* **Type** : Binary (integer, 0 or 1).
* **Usage** : The target variable for fraud detection models. Used to train machine learning algorithms to predict fraud.

**23. merch\_zipcode**

* **Description** : The ZIP code of the merchant's location.
* **Type** : Numeric or string.
* **Usage** : Useful for comparing the merchant's location with the cardholder's location to detect potential fraud.

**Summary:**

This dataset contains a mix of transactional, demographic, and geospatial data. It can be used for various purposes, such as:

* Fraud detection: Analyzing patterns and anomalies in transactions.
* Customer segmentation: Grouping customers based on their spending behavior, location, or demographics.
* Risk assessment: Identifying high-risk merchants or regions.