Credit Card Data Report

December 9, 2020

All data labeled "differentially private" in this document satisfies differential privacy for ϵ=2.0 by sequential composition

1 Statistics

1.1 Basic Averages

The follwing statistics were all generated using the sparse vector technique to determine a clipping parameter for the data, and then generating differentially private sums and counts to find a differentially private average.

1.1.1 Average Age

The average age of all credit card customers is 46.33, the differentially private average age of all customers is 46.22. This gives an error of 0.2236%.

1.1.2 Average Months on Book

The average months on the book of all credit card customers is 35.93, the differentially private average age of all customers is 36.11. This gives an error of 0.5183%.

1.1.3 Average Credit Limit

The average credit limit of all credit card customers is 8631.95, the differentially private average age of all customers is 8526.09. This gives an error of 1.2264%.

1.2 Basic Counts

The follwing statistics were all generated using the report noisy max method to determine the highest count in a given parameter.

1.2.1 Income Categories

The most common income category of all credit card customers is Less than $40K. The most common income category as determined by using a differentially private method is Less than $40K.

1.2.2 Income Categories

The most common education level of all credit card customers is Graduate. The most common education level as determined by using a differentially private method is Graduate.

1.3 Conditional Averages

1.3.1 Average Credit Limit for Customers 33 years old and younger.

The average credit limit of credit card customers who are 33 years old and younger is 7212.7, the differentially private average is 3447.74. This gives an error of 52.199%.

1.3.2 Average Credit Limit for Customers older than 33 years old.

The average credit limit of credit card customers who are over 33 years old is 8719.6, the differentially private average is 8710.11. This gives an error of 0.1088%.

1.4 Conditional Counts

1.4.1 Most Common Income Category for College Educated Customers

The most common income level for college educated customers is Less than $40K, the most common one calculated with a differentially private method is Less than $40K.

1.4.2 Most Common Income Category for non College Educated Customers

The most common income level for non college educated customers is Less than $40K, the most common one calculated with a differentially private method is Less than $40K.