

Preserving Traveler Privacy for Analyzing Repetitive Travel Patterns in Public Transportation Systems

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Smart card-based data collection



Card ID

Method 1 

Without alteration:

- Directly stored card identifiers on the server.
- Privacy concerns arise due to the storage of travelers history.

Method 2 

Transforming card identifiers into pseudonyms.

- using only pseudonym is not sufficient.
- Data can be tracked back to an individual.

Method 3 

Data protector:

- Combination of Bloom filter and Homomorphic encryption.
- Encrypted data will be saved on the server, and the server cannot decrypt it.

Ensuring data can not be track back to any individual

