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

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Smart card-based data collection

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 tracked back to any individual.