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67-262 Database Design & Development

Group: T07

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The Venmo Database Phase 2

The goal of our project was to define a functional database for the C2C payment application
Venmo, based off of its current features and functionalities.

Relational Model

User(**userid**, email, balance, password, creditCardNo)
Individual(**userid**, fname, lname)
Business(**userid**, businessName, transactionFee)
Transaction(**transactionId**, amount, description, date, time, location, like, comment, <u>payerId</u>,
<u>receiverId</u>) -- Absorbs association entity between User and Transaction
Payment(**transactionId**)
In-App Purchase(**transactionId**, appName, businessName)
Request(**transactionId**, status, timeOfDecision, date)
Friend(**friend1id**, **friend2id**, dateOfFriendship, noOfInteractions) -- Absorbs association entity
between User and Friend

Functional Dependencies

User (1NF)
 - userid -> email, balance, password, creditCardNo
 - email -> userid, balance, password, creditCardNo
 - creditCardNo -> userid, email, balance, password

Individual (BCNF)
 - userid -> fname, lname

Business (BCNF)
 - userid -> businessName, transactionFee

Transaction (BCNF)

- transactionid -> amount, description, date, time, location, payerId, receiverId, like, comment

Payment (BCNF)
- transactionId

In-App Purchase (BCNF)
- transactionId -> appName, businessName

Request (BCNF)
- transactionId -> status, timeOfDecision, date

Friend (BCNF)
- friend1id, friend2id -> dateOfFriendship, noOfInteractions
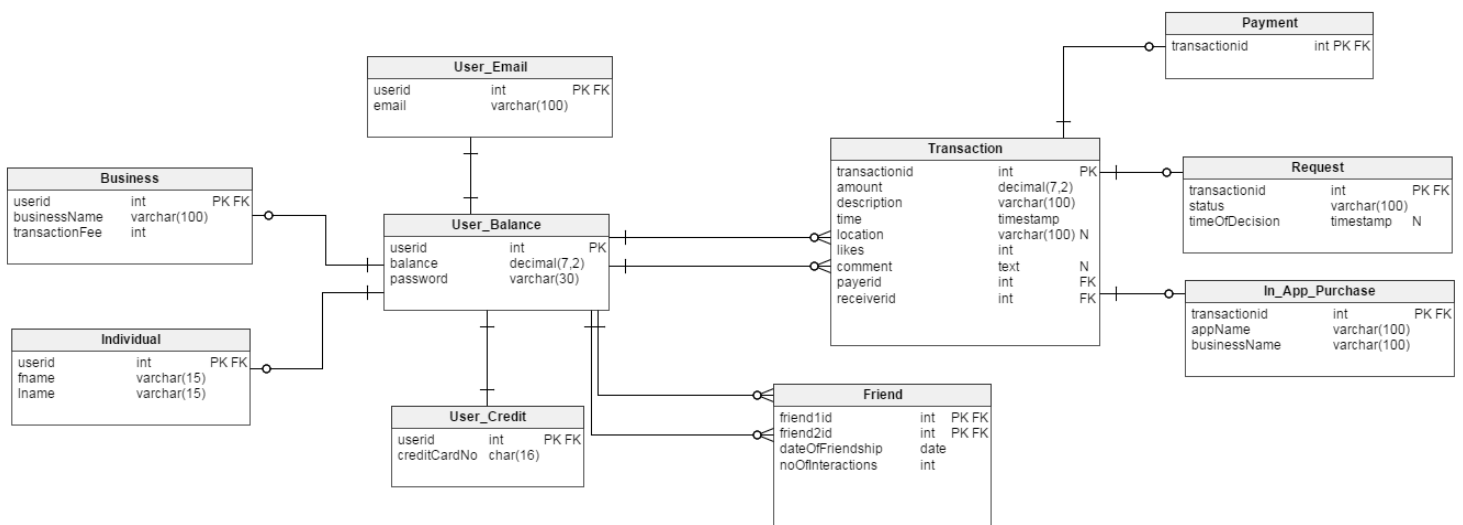
Normalized User
User_Email(userid, email)
User_Credit(userid, creditCardNo)
User_Balance(userid, balance, password)

Physical Model

The physical model representing the normalization changes is shown below:

Updated User Stories

We have updated our user stories from phase one to better fit our relational model. Each of these user stories have their respective query in the attached files.

#	As a	I want	So that
A	Individual	to have a list of the top three of my friends who have the largest balance of money on venmo	I know which of my friends have the most available venmo money
B	Business	to find the average amount spent by my customers	I can gauge approximately how much users are spending and optimize my prices
C	Venmo Employee	to have graphs of the trends of the number of transactions over time	I can understand how much the app is being used
D	Individual	to send money to another user	I can pay them back for lunch
E	Individual	to have a history of my payments	I can maintain my financial integrity
F	Individual	to find the largest payment made in the last month by someone I know	I can ensure that they are spending money responsibly
G	Business	to comment "thank you" on all of the transactions my customers have made to the business	I can show them my gratitude
H	Venmo Employee	to find the number of transactions in certain price ranges made by users	I can understand for what reason the app is mostly being used
I	Individual	to find the average spent at different businesses	I can find a place where I will spend the least amount of money
J	Individual	to reject all of my pending transaction requests	I don't have to individually reject all of them