INFO257

Database Project Design: Password Management

Written Description

The database we would like to build is a “password-sharing database” (gig password). The problem our database addresses is the secret Text rmation sharing demands in modern society, or in other words, the difficulty in managing individual data under the background of fast-developing technology. As people are having more e-accounts, such as social media, websites, and services apps, it become harder to keep track of all the accounts. Although there are systems generating passwords that could be stored in the google chrome, some people do not believe it, so they are still using their own codes. In some cases, users might also need to share the passcodes with their parents, spouses or friends. But it would be comparably risky to directly send via text messages as it might be hacked.

There are basically two data sources for our database. We would implement signup methods to allow users storing their login credentials in our database. The alternative is we will also extract data collected by XATO for research purpose.

The expected database would have 6 entities named as User, Accounts, Notes, Shared_URL, Shared_Note, Activity. The sharer should first register as a user in our database to store all the personal data points, while the sharee do not need to. A magic link would be generated for one password anytime the user share with others. The user could also set the valid sharing period and the link will automatically expire after the setting period. The activities done by both sharer and sharee would be recorded in the Activity entity for reference. Except for that, user can also choose to add notes for the piece of information he wanted to share, such as “this is the account I promised to share with you last Friday check it out!”

We would like to emphasize on usability by pre-populating the username and passwords for sharees. Once the sharee installs the browser extension of our service, every time the sharee click into the magic link, the browser extension would redirect the sharee to the app or webpage and automatically fill up the corresponding username and password. We are also using the database to track the activities and magic link to avoid the risks of “resharing”.

Preliminary Data Dictionary

User

The User entity stores data related to the user of the application.

Attribute	Attribute Description	Data Type	Primary Key	Nullable
User_ID	User ID; autogenerated	INTEGER	Y	N
Nickname	User's name	VARCHAR(20)	N	Y
Username	User's username to log into password management application	VARCHAR(20)	N	N
Master_Password	User's hash of password to log into password management application	VARCHAR(30)	N	N
Email	User's email address for notifications and emergency access	VARCHAR(30)	N	N
Contact_No	User's phone number for notifications and emergency access	VARCHAR(15)	N	Y
Start_Date	The date the user started using the service	DATETIME	N	N
Is_Activated	Identity if the user's account is activated or deactivated	BOOLEAN	N	N
Public_Key	The public key of the user for asymmetric encryption			

Accounts

The Accounts entity stores data related to the user's online accounts and passwords.

Attribute	Attribute Description	Data Type	Primary Key	Nullable
Account_ID	Account ID; autogenerated	INTEGER	Y	N
Account_Username	User's username to log into online account	VARCHAR(20)	N	N
Password_Hash	User's password to log into online account	VARCHAR(64)	N	N
Website_Name	Website name	VARCHAR(20)	N	N
Website_URL	Website URL	VARCHAR(100)	N	N
Category	The category of the website (social, financial..etc.)	VARCHAR(20)	N	N

Shared_URL

The Shared entity stores data related to the accounts and passwords the user has shared with others.

Attribute	Attribute Description	Data Type	Primary Key	Nullable
Shared_URL_ID	Shared ID; autogenerated	INTEGER	Y	N
Account_ID	The account ID from the Accounts table for the data that the user has chosen to share	INTEGER	N	N
Duration	The length of time the user would like the credentials to be shared	INTEGER	N	N
Start_Date	The date/time that the user has activated the sharing URL	DATE/TIME	N	N

Magic_Link	The generated magic link that is to be shared with others	VARCHAR(100)	N	N
Is_Expired	To keep track of whether the magic link has been expired	BOOLEAN	N	N

Activity

The Activity entity stores data related to whether others have used the magic link to log into the websites.

Attribute	Attribute Description	Data Type	Primary Key	Nullable
Activity_ID	Activity ID; autogenerated	INTEGER	Y	N
Login_Timestamp	The date/time of when the magin link was accessed	DATETIME	N	N
Location	The geographical location where the magic link was accessed	VARCHAR(100)	N	N

Notes

The Notes entity stores data related to the content the user would like to share with others.

Attribute	Attribute Description	Data Type	Primary Key	Nullable
Note_ID	Notes ID; autogenerated	INTEGER	Y	N
Note_Name	The name of the note	VARCHAR(20)	N	N
Content	The content that you would like to share with others	VARCHAR(200)	N	N
Category	The category the note belongs to	VARCHAR(20)	N	N

Shared_Notes

The Shared_Notes entity stores data related to the notes that the user has shared with others.

Attribute	Attribute Description	Data Type	Primary Key	Nullable
Shared_Notes_ID	Shared Notes ID; autogenerated	INTEGER	Y	N
Note_ID	The Note ID from Notes entity of the note the user would like to share with others	INTEGER	N	N
Magic Link	The generated magic link that is to be shared with others	VARCHAR(100)	N	N
Duration	The length of time the user would like the credentials to be shared	INTEGER	N	N
Start_Date	The date/time that the user has activated the sharing URL	DATETIME	N	N
Is_Expired	To keep track of whether the magic link has been expired	BOOLEAN	N	N

Entity-Relationship Diagram