Library Management System

Architecture Design with Data Management

Version 1

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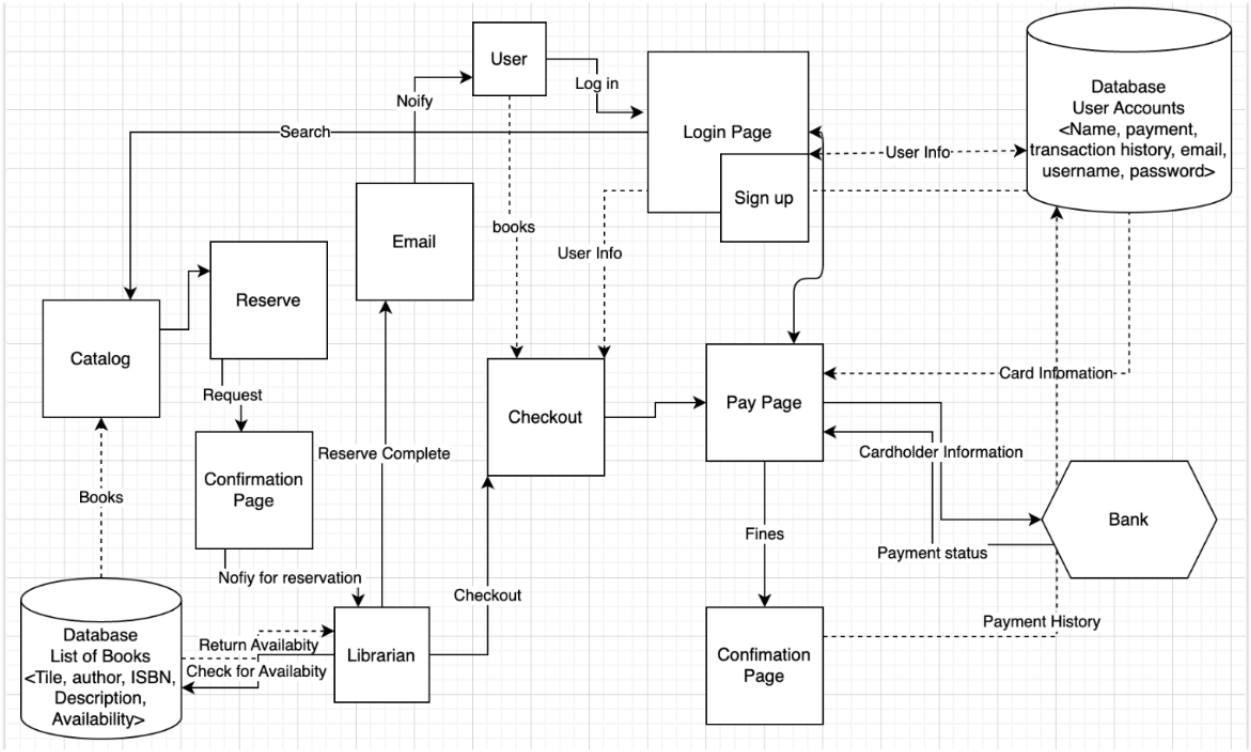
1.0 Design Specification

Note there are no changes or updates to this diagram



2.0.0 Data Management Strategy

Index	ISBN	UID	DDS Number
A000001	9780545582889	474237	356.865
A000002	9786053751342	358905	674.345
A000003	9780060173227	567895	824.575
A000004	9780060154745	457899	435.787
A000005	9780060838584	246798	553.442

Figure 2-1 SQL Database

We plan on using a SQL database server as both a method of data retrieval and data pushing. To do so, we organize the SQL database by a Unique Identifier (UID) to catalog the books for online data requests. To achieve this, the database will also hold the ISBN of the book as well as the library's Dewey Decimal Catalog (DDC), which will help identify the book within the local library database and allow for book return sorting via the DDC. When a request for data is pulled online, the data request will be indexed via the book's UID, the SQL system will then make a pull request from the local database, which will forward the book UID and return with the relevant data about the book such as author, availability, book type, etc.

Book Database				
UID	Title	Author	Availability	Location
474237	Harry Potter and the Sorcerer's Stone	J.K. Rowling	1/3	G-1-4
358905	The Name of the Wind	Patrick Rothfuss	2/6	F-4-4
567895	To Kill a Mockingbird	Harper Lee	3/4	A-3-4
457899	The Gulag Archipelago	Aleksandr Solzhenitsyn	3/3	G-3-2
246798	Fast Food Nation: The Dark Side of the All-American Meal	Eric Schlosser	2/5	C-3-1

Figure 2-2 Local Library Database

For payment holds and account fees, a third-party payment processing system will be used, so all relevant information will not be stored on the library's local database or the SQL server. However, for account management, relevant account info such as phone numbers, hashed passwords, and member addresses will be stored on the local database.

User Information Database				
Name	Email	Password	Address	zip code
Alex Smith	Alexsmith1094@gmail.com	71lovedove	1842 Lovely Dovly Dr	91821
Lupus Masuma	animelover2004@yahoo.com	narutoxoxo	192 Janded lane	92387
Joseph Stevens	jstevens@gmail.com	cUF#*FhDNQ2	357 Blossom Avenue	92111
Hugh Mackner	hughmackattack@gmail.com	myPaSsWoRd	44623 McLane Drive	91950

Figure 2-3 User Information Database

Tradeoff Discussion

Our strategy is to use SQL, a well-established database creation tool for years. The database will be local so that the library database can still be accessed even when the internet is down. This database would contain two different tables for both the library catalog and the personal information of users.