Project 1

By

Yang Gao
Database Design
yxg122530

PLATFORM AND THIRD-PARTY LIBRARY USED

This program is python 3 based. It is built and tested with Python 3.4.3.

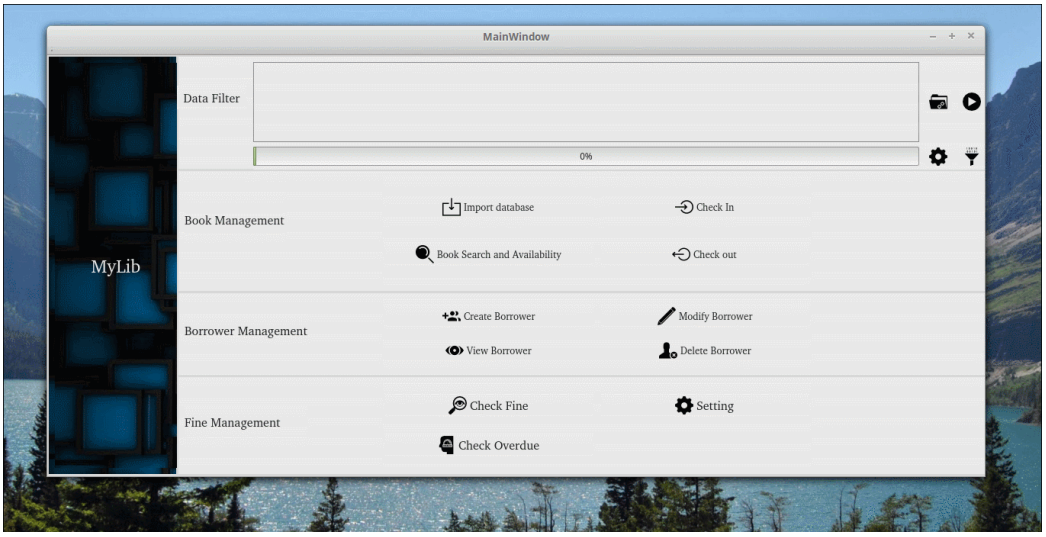
Platform and third-party library dependence:

Qt version 5.2.1 a cross-platform application framework used for developing cross-platform native application

Python3 – PyQt5 Python 3 bindings for Qt5 (Python interface of Qt5)

MySQL – python interface

INTRODUCTION

- This application provides a user-friendly GUI interface which support common library operations: check in, check out, check fine, etc.
- 

CUSTOMER NEEDS ASSESSMENT

Here are some customer need assumptions.

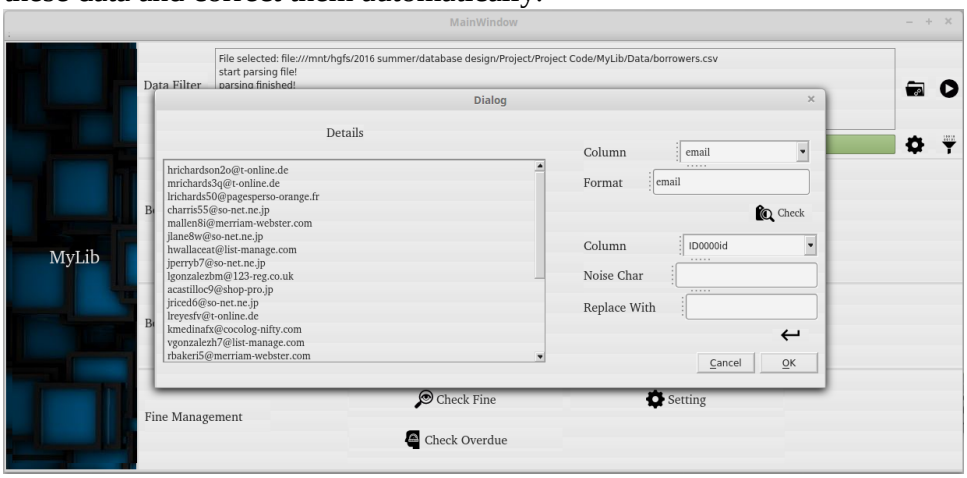
Need Assumption
Portable and Fast Data noise preprocessing Easy to use for common library operations: check in/out … Able to review all the history records Remote connection

User account management
Secure
Data import

DESIGN DECISION

Decision

1. Portable and Fast
   Require cross-platform application development framework and it should also be native and hence fast. Qt5 is a good choice which supports Linux, Unix and Windows.
2. Data noise preprocessing
   Data always come with noise. Provide a GUI interface for data noise filtering. User is able to select part of data from the source file according to certain pattern either provided by user or embedded in the system, observe these data and correct them automatically.



format rule:

d - represents a single digit

l - represents a lowercase letter

L- represents an uppercase letter

url - represents a url

num - represents a number

strs - represents any normal string

email - represents an email address

/ - represents 'or'

User is allowed to provide their own pattern based on above rule, for example:
SSN can be written as ddd-dd-dddd
ISBN can be written as ddddddddddd/L

3. Easy to use for common library operations
   Provide GUI interface for common operations. Please refer to User Guide directory under the project directory for details
4. Able to review all history records
   Never delete any record in the table except a few specific operations. All the book_loan and fine record can be found in the database. Application is capable of choosing correct record for processing.
5. Remote Connection
   Provide a GUI interface for log in. User may provide the IP address where the MySQL server locates.
6. User Account Management
   Provide GUI interface for user management. Refer to User Guide directory under the project directory for details
7. Secure
   Designed and implemented with resistance to SQL injection
8. Data Import
   Provide GUI interface for automatic data import and an importing script for Library database. The common entry interface is the start method