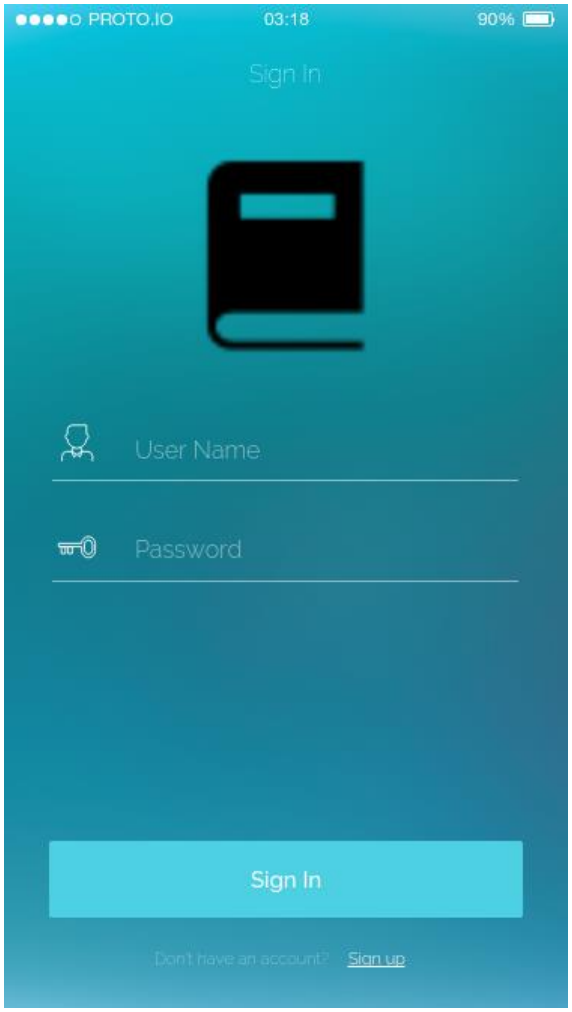

Course: CS 4523

Semester: Spring 2019

Advisor: Professor Strauss

Project Name: Library Tracker

Team Members (A27): Girish Ramloul - gr1188

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Motivation

We saw a need, as students, to optimize an aspect of the returning processes at the Bern Dibner library. When students go to rent a laptop or a book, they are given a paper receipt with the name of the item they rented and the time it is due. Now the library has a late fee system that ranges from $2.50 a half hour to $25 an hour late. Let's say a student forgot what time an item is due and loses their receipt (which a good amount of students do, and I speak from experience), the only current way they can tell when their items are due is by logging online through their NYU account and going through the library system to find the items they have checked out or by inquiring at the front desk, which requires its own extended process. Most of the time, both of these processes are slow and inconvenient and it just leads to students not returning their items on time and receiving late fee charges that can go up to $250 depending on how late it is. Using our knowledge of the Library system and our expertise as coders, we plan to create a mobile app to better this situation. In our mobile app you will be able to login using your NYU credentials and in easy and convenient way be able to see what items you have checked out and when they are due. In addition, the app will have the ability to send you push notifications when your items are approaching their due times. Therefore, making it easier for students to know when their items are due and reducing the chance that they will get a late fee charge.

Functional Requirements

The application must serve as a way to remind us to turn in an item before it becomes overdue. It should send a simple push notification to a student's phone a certain number of hours before the late fees begin. As soon as the student checks out the item and said item is scanned, the application is automatically updated. For example, Student A checks out a laptop and is automatically sent a confirmation notification once the item is scanned; this notification includes the specific item checked out, the time it was checked out, and the amount of time left before this

item is due. The student can update his/her settings to decide how many notifications they would like and how many hours/minutes in advance they would like them sent in. Student A has set two notifications to be sent to him: one being an hour and the other being twenty minutes before the late fees start.

In addition, the student can open the application and see what items are currently checked out under his/her name. Student A currently has a laptop checked out that is due in 30 minutes, a laptop charger due in 30 minutes, and a software engineering textbook due in two days.

Within the application as well, we would like to see the availability of certain items. For example, we can see that there are currently seven laptops available for check out. If there are no laptops available, the application should give an estimated wait time until the next one is available.

We also feel that it would be beneficial to let students reserve items ahead of time with a time constraint. Student A, for example, sees that there is a laptop available but is nervous that someone may check it out within the 20 minutes that it is going to take him to get to the library. Luckily, the application allows him to reserve an item for up to 45 minutes before it cancels his hold on the item.

The student should also be able to check his/her balance in addition to being able to pay it off. Like most cash transfer applications, the application should be able to accept credit card information and allow the student to transfer funds to Dibner in order to pay off any fines.

Constraints

The team identified two potential types of constraints: business and technical constraints.

Business Constraints

- Deadlines/Milestones

School libraries, the target audience, already have a computerized system to keep track of book and equipment rentals. The proposed application aims to optimize the existing system by providing a platform to the renters to keep track as well. The renters are the end-users of most of the features in the application and since they are mostly students, the team does not anticipate rigid deadlines on the project. However, to ensure the application meets the requirements and quality metrics, the project manager requires the team to deliver 25% of the work within the first month.

- Budget

The budget set aside for the project is limited, most of which will be personally funded by the team members themselves. The team plans on pitching the application to potential investors and in relevant contests.

- Expertise Required

The project will require both front and back end development expertize. The team only has prior experience in database management and adequate web design. To build the application, the team will also have to be versed in User Interface design and Mobile app development.

- Amount of staff required

The team is limited to three software engineers only. A larger number of staff is desirable.

- Legal considerations

The application will need access to the students' school credentials and the library's repository. Schools can be reluctant to provide same.

Technical Constraints

- Secure way to pay late penalties

The team will need to devise a way to secure money transactions over the platform. The lack of an IT risk analyst in the team makes the task more challenging.

- Cross platform design

The application has to be compatible with both iOS and Android systems. Some of the features may be different depending on the operating system, which can add delays.

- Deployment strategy

The application will be tested with large sets of data prior to deployment but some of the limitations will only show up after the project is live. The team has the responsibility to reduce bugs to prevent the system to crash when it is implemented.

- Software licensing

The team intends to use open-source resources but the specific features of the application may require tools that are not easily accessible. The team will have to adapt while making sure quality is not compromised.

Deliverables

Project Deliverables	Date Due
Project Proposal	2/13
Requirements and Analysis Documentation (RAS)	2/13
Project Management Plan (SPMP)	2/27
Design Description (SDD) - Initial	3/6
Design Document Final (w/Code)	4/26
Implementation/Demonstration	4/26