

# Tool Library Loan System

## Java Cohort 0 Capstone Project

### Introduction

You are building an application for the local non-profit Tool Library. The Tool Library helps members make repairs to their homes and gardens by loaning hand tools and power tools for 1-7 days. Members pay an annual fee to have access to the library but can borrow most tools for free.

Up until now the library has been managing its inventory of tools using a PostgreSQL database designed by one of its volunteers. This database keeps track of all of the different kinds of tools that the library loans and how many of each that the library owns.

The Tool Library would now like a system for keeping track of tools that have been loaned to library members. The existing PostgreSQL database will need to be extended to keep track of loan information and a web application interface needs to be developed to allow librarians who don't know SQL to record loans and returns.

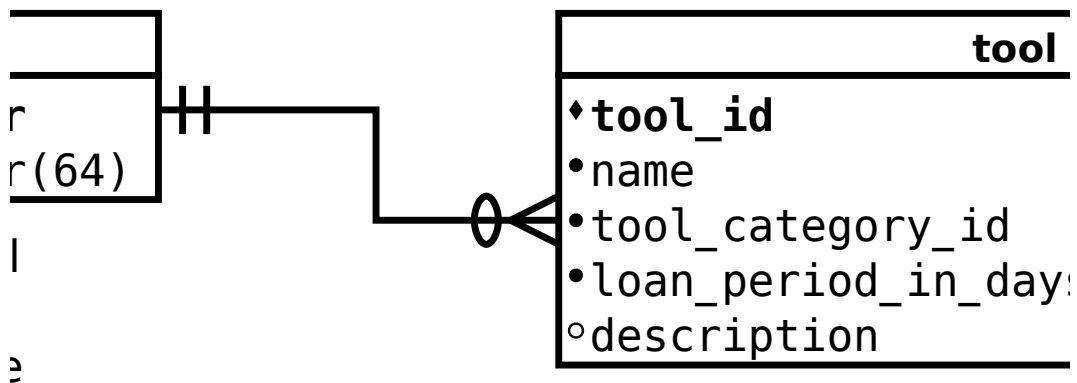
### User Stories

A library volunteer with experience working on Agile software projects has documented the Tool Library's requirements for the new system as "user stories". A user story is a simple, informal description of something that a user of a system would like to be able to accomplish using the system. A series of rough drawings of what the user interface of the system might look like (i.e. wireframes) were also created to give a better sense of what the system should do.

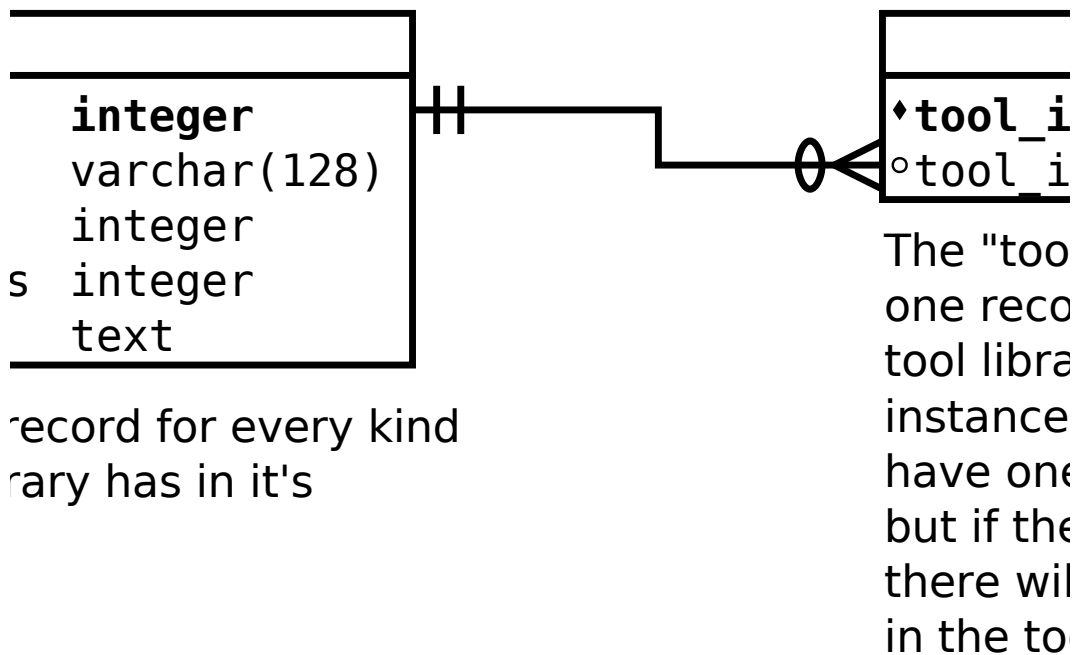
The user stories and wireframes provide direction for building the functionality of the system, but the team will need to use their own creativity in collaboration with the Tool Library volunteers to fill in the details. In particular, the Tool Library is relying on the team to make decisions about user interface design, look and feel, and branding.

tool_category	
♦tool_category_id	integer
◦name	varchar

Reference table that stores all valid tool categories such as 'Electric Power Tool', 'Gasoline Power Tool', or 'Hand Tool'



The "tool" table has a r  
of tool that the tool libr  
collection.



<b>tool_inventory</b>	
<b>inventory_id</b>	<b>integer</b>
<b>id</b>	<b>integer</b>

"tool\_inventory" table has  
 one record for each tool in the  
 library's collection. For  
 example, the "tool" table may only  
 have one record for "Chainsaw",  
 but if the library owns 3 chainsaws,  
 there will be 3 records for chainsaws  
 in the tool\_inventory table.

## **Launch Application**

(tool\_library\_home.jpg)

Tool librarians can loan tools to patrons or process a tool return by launching the Tool Loan Application.

## **View Tool Inventory**

(tool\_inventory\_page.jpg)

When loaning tools to a library member, a librarian can view the tool inventory in order to find the tools being loaned.

## **Add Tool to Cart**

(tool\_inventory\_page.jpg)

When a library member is borrowing tools, a librarian can add tools to a “shopping cart” so that it’s easier to loan multiple tools at once.

### **Notes:**

- It should be easy for the librarian to see how many items have already been added to the cart



## **View Tool Loan Cart**

(view\_shopping\_cart\_page.jpg)

A librarian can view the contents of the “shopping cart” in order to verify that all tools have been added before finishing the loan process.

Notes:

- While viewing the shopping cart the librarian should have the option to return to the inventory list to add more tools in case they forgot to add something

## Checkout Tools

(finish\_processing\_loan\_page.jpg)

After selecting all of the tools that a library member is borrowing, a librarian can finish processing a new loan for a patron by recording their name, driver's license number, and phone number.

### Notes:

- The librarian should be able to see the list of tools being loaned while checking out in order to verify one last time that everything has been recorded

## **Find Tool Loan Record**

(existing\_loans\_page.jpg)

When a library member returns tools, a librarian can find the loan records in order to record the tools have been returned.

## **Return a Tool**

(loan\_return\_page.jpg)

A librarian can record when a library member returns a tool so that the tool is available to be loaned again.

### **Notes:**

- When a tool is returned, it should no longer show up in the list of current loans

## Calculate Fees

(loan\_return\_page.jpg)

A librarian can tell if any fees are due at the time tools are returned so that they can collect the fees from the library member.

### Notes:

- Loan fees are automatically calculated based on these rules:
  - \$5.00 fine if tools are not returned clean and cords coiled
  - Late fees per tool/per day are as follows:
    - \$0.50 for hand tools
    - \$1.00 for power tools
    - \$5.00 for one day rentals
  - \$2.00 maintenance fee per rental for gasoline powered tools

[http://localhost:8080/tool-library-web/existing\\_loans](http://localhost:8080/tool-library-web/existing_loans)

Logo / Banner

Customer Name	Tool Name	Rental Date	Due Date
Big Bird	Tank Sprayer 6H1	12/6/2015	12/13/2015
Big Bird	Electric Hedge Trimmer	12/5/2015	12/12/2015
Big Bird	Hitch & Ball	12/7/2015	12/8/2015
Customer Name	Tool Name	Rental Date	Due Date
Customer Name	Tool Name	Rental Date	Due Date
Customer Name	Tool Name	Rental Date	Due Date



Logo / Banner

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Equipment

Tool Name

Tool Type

Due Date

---

Tool Name

Tool Type

Due Date

---

Tool Name

Tool Type

Due Date

---

Finish



http://localhost:8080/tool-library-web/loan\_cart



Add More Tools

Tool Name	Tool Type	Due Date
Tool Name	Tool Type	Due Date
Tool Name	Tool Type	Due Date

Checkout



[http://localhost:8080/tool-library-web/tool\\_loan\\_return](http://localhost:8080/tool-library-web/tool_loan_return)

## Logo / Banner

Return Date: 12/9/2015  
Customer Name: Big Bird  
Phone: (216)111-2222

### Tool Return Details

Tool Hitch & Ball  
Rental Date: 12/7/2015  
Due Date: 12/8/2015

### Fees & Fines

Late Fees: \$5.00  
Maintenance Fees: \$0.00  
Cleaning Fine: \$5.00

Total: \$10.00






[Finish](#)



http://localhost:8080/tool-library-web/tool\_inventory



View Cart 

Tool Name	Tool Type	Uses	Loan period	Add 
Tool Name	Tool Type	Uses	Loan period	Add 
Tool Name	Tool Type	Uses	Loan period	Add 
Tool Name	Tool Type	Uses	Loan period	Add 
Tool Name	Tool Type	Uses	Loan period	Add 
Tool Name	Tool Type	Uses	Loan period	Add 

Logo / Banner

Existing Loans

New Loan