



Engineering
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School of Computing
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School of Computing & Information Sciences

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Computer Equipment Checkout Tracker

Students: Jayden Sandoval, Samuel Gonzalez, Josein Alsadah, Roberto Ocampo

Instructor: Dr. Masoud Sadjadi, Florida International University

Problem

Professors and other educators that regularly rent out electronic equipment need a better way to keep track of their devices and who have checked them out. Similarly, students need an easier and more efficient system in place to check out devices and return them.

Current System

The current systems we have seen utilized by educators to accomplish this goal are using manual logging methods such as pen and paper and excel spreadsheets. We believe this to be too slow and unreliable especially on a scale such as a university class or lab.

Requirements

Educators: Should be able to quickly check which devices are available, which student has checked out an electronic device, when a device was checked out, and add or remove devices.

Students: Should be able to see which devices are available and be able to check them out and return in the same place.

System Design

- All information (device ID, device name, availability, etc.) is stored in a centralized database
- Student logs in with their student email and password, this information will be stored in the DB
- Students choose from a dropdown list of available devices and check out them out
- Once checked out, the DB will automatically log the student info and which device they checked out. This is timestamped and dated. It will also mark that specific device as “unavailable”.
- Once the student returns the device the DB will update with date and time of when this happened.
- Device is updated to “available” in DB

Object Design

- “Devices” table: stores device; ID, name, type, quantity, and availability
- “Student table: stores student information (acquired from login)
- “Transactions” table: stores which devices were checked out by which student and when
- DB triggers: automatically happen when “transactions” table updates with new devices. Automatically updates availability of devices in “Devices” table

Implementation

The website is designed using PHP and utilizes JavaScript, HTML, and CSS. There is one centralized database that has 3 tables storing all the information. XAMPP can be used to locally test the server before going live with a proper server.

Verification

In the live version educators will be the only ones to access the server that the database is running on. This is done to protect sensitive student data as well as keeping from bad actors from removing devices and stealing them. In the live version there will also be a student MFA in the form of a verification code sent to their student email. This will keep from others checking out equipment under their credentials.

Screenshots

device_id	device_name	device_type	status	last_checked_out	checked_out_by
1	Laptop-01	Laptop	Available	NULL	NULL
2	Laptop-02	Laptop	Available	NULL	NULL
3	Laptop-03	Laptop	Available	NULL	NULL
4	Tablet-01	Tablet	Available	NULL	NULL
5	Tablet-02	Tablet	Available	NULL	NULL
6	Tablet-03	Tablet	Available	NULL	NULL

Device Name	Type	Status	Last Checked Out
Laptop-01	Laptop	Available	Never
Laptop-02	Laptop	Available	Never
Laptop-03	Laptop	Available	Never
Tablet-01	Tablet	Available	Never
Tablet-02	Tablet	Available	Never
Tablet-03	Tablet	Available	Never

Summary

Our project was created to streamline the checkout of electronic devices that educators and students must go through. On the educator level it allows for easier addition of new devices, who has checked out those devices, and when they were checked out. On the student level it allows for a faster way to see what devices are available, and the ability to quickly check them out and return them.

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