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1. Introduction

Lab safety is a major concern in an academic institution. There are many steps and procedures lab safety organization follow to keep the labs safe. Posting lab rules and safety procedures in the lab and regular safety inspections are all part of the lab safety.

Our main objective is to create a simple but efficient web application platform for lab safety inspection. Our application will have features which will help lab inspectors to make their inspections much easier and more time efficient. We are trying to improve lab safety through our application.

2. Current System

The current system is very simple. Lab inspectors will have to perform inspections when they are assigned to a specific lab. Once they are done with the inspection, everything else is done via an email. Inspection report is converted into a pdf and it will be sent to the person in charge. The person in charge will review the report and will send feedback. An admin will have to remind the inspectors for any upcoming inspection.

2.1 Problems with the current system

The problem with current system is that it takes time to process the inspection once a lab is assigned to an inspector and it's not possible to see the status of an inspection. Inspectors won't be able to comment on different questions. Also, since there are no reminders for upcoming inspections, its easy to miss an inspection. Since the inspector sends the report to the person in charge, there is no specific place to store all the completed inspections.

If the admin fails to remind instructors about any up coming inspections, it will be missed and the lab inspection might not happen. This is a very severe issue in a lab. Also, once the lab inspection is finished it's not possible for others to see all the finished inspections.

2.2 Solution for the current system

Since time is a major issue in inspections, its better to have an instant feedback system. When there is an instant feedback for an inspection, it will be easier and faster to fix any problems which was detected during the inspection.

Inspectors should be able to comment on questions which they are not sure about. A status indicator will help others know how far the inspection has reached and will be able to continue other process according to that status.

A regular reminder will help inspectors know when the next inspection is due. Once an inspection is done, a reminder should be set for the next time. Regular inspections won't be missed if the inspectors are reminded regularly.

3. Our Design

Our Design has features which can improve the current lab inspection system. We believe other software lack integration and most of the features were not specific to the academic industry. Also, most of the software's are really expensive. We are automating the inspection by making all the inspection stages online.

Our application will allow admin and inspectors to login. Inspectors will be able to view their assigned inspections. Admin will be able to create new accounts for inspectors and will also be able to assign inspections to various inspectors. Once a task is assigned, it will create a status bar which shows the progress.

Our application will have questions for specific labs such as dry labs and wet labs. All the questions will be preset and an inspector will be able to choose the right option from those questions. Inspectors will be able to comment on different questions. If the inspector has any suggestions, they will be able to comment on questions.

Our application has an email server which will send emails to inspectors when an inspection is assigned to them. It will also send emails to admin when an inspection is finished. Also, email reminders will be sent automatically when an inspection is due.

3.1 Improved safety

Through the web application we are trying to improve lab safety inspection. Since our application has an email reminder, its hard to miss any upcoming inspections. The status bar will allow inspectors to see the progress of an inspection. Since they can see the status of an inspection, they will be able to plan the next inspection accordingly. The in-app email server will send automated emails when an inspection is finished, inspectors won't have to worry about sending their reports to a person in charge. Since all the reports are stored in once place, admin will be able to login to the application to see all the reports. They don't need another storage for the completed inspection reports.

4. Risks and Safety Concerns

There are no new hazards being introduced through the development of our web application. If any, we are only making the inspection much simpler than it is today. Since the application can store inception data and inspector's data, running out of storage might be an issue in the future. But it is not a huge concern since it is fixable. Missing email reminders might be another safety concern.

5. Workplace Involvement

Our project was introduced by the Engineering safety coordinator at the University of Regina. They wanted a simpler and more efficient system for inspections. She explained how the current safety inspections work and gave us sample inspections reports with questions. We were able to utilize the reports as an outline for out web application