

A Web-Based Complaint Desk

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Abstract

The “complaint desk” is a web based system that records grievances. Users of the system can report their grievances using a web interface, and all the information is stored in a backend database.

To quote Josh Billings, “the wheel that squeaks the loudest, is the one that gets the grease” Or in other words, the aim of the compliant desk is to empower citizens so that “their voices are heard”.

The idea behind this complaint desk is to build a mechanism which will not only be a source of revenue but will also provide a service to the community by giving people an opportunity to participate in an endeavor that will make their voices heard. To discourage users from abusing this service, a user is required to have a valid credit card, this serves two purposes, it will not only validate the identity of the user but will also generate revenue as a small fee will be charged for reporting a grievance.

Introduction

The scope of this project is limited to developing the user interface of the complaint desk. A fully functional complaint desk is to be developed over

the course of the next few years. More functionality will be added on and concerns not addressed at the present time, like legal and ethical issues will be addressed. At the present time, these issues are beyond the scope of this project. As per the vision of our client, the compliant desk is based on three models:

1. Revenue Model

The user will have to pay a nominal fee for reporting a grievance, only using a valid credit card. The system will record the user’s personal details and be able to recognize the kind of credit card the user is using. The system will not however, be validating the credit card. This is out of scope of the present project.

2. Data Capture Model

The aim of this system is to provide a simple interface, so that even a novice user will be able to record a grievance with ease. Keywords or hints are provided so that the user can navigate the system and report his/her grievance.

3. Reporting Model

The database design enables creation of reports by querying the database. It is a powerful tool, which can keep track of the types of grievances reported. Later on, as more functionality is added on, reports can be generated to give details about resolution.

In addition, to reporting, the database is also designed so that a user can see

details of problems reported by all the users of the system.

Relevance

Finding similar types of systems proved to be a difficult task. We did find some instances of complaint desks or consumer welfare desks that record complaints from citizens about businesses, organizations or agencies that were operating in a particular country, county or city. These welfare desks were either set up government agencies or better business bureaus but they had limited powers. They just recorded the grievances that were submitted by the citizens. There was no evidence of any action being taken by the authorities.

We also found references to help desks, which addressed some specific issues like student complaints, computing help desks etc. In fact, our team had developed a computing help desk in the first part of this Capstone course. This project involved putting together a computing help desk system for Pace University students, faculty, and employees, and also for members of the local community, particularly for non-profit organizations. The help desk system consisted of a Web interface to the backend database. The database was designed to deal with problem management. We used Oracle as our backend database, and Perl scripts were used to connect to the database.

What distinguishes the complaint desk from the ones mentioned above is that the complaint desk's scope is much broader than the welfare desks. The complaint desk will enable people from all walks of life to report with "any type" of grievances they may have against

organizations. People's complaints need not be limited to just businesses or agencies. This complaint desk is designed to empower citizens to report complaints about any issue that they want to be addressed.

Since the user is paying a fee to report a complaint and use the system, the issue will be followed up with the right authorities and the user will also have the capability to checking the status of his complaint at each step of the process.

Methodology

The complaint desk is a web-based system. The complaint desk can be accessed through the web interface, which connects to the backend database. Users will need to login to the complaint desk before they can report a grievance. Figure 1 describes the data design of the complaint desk.

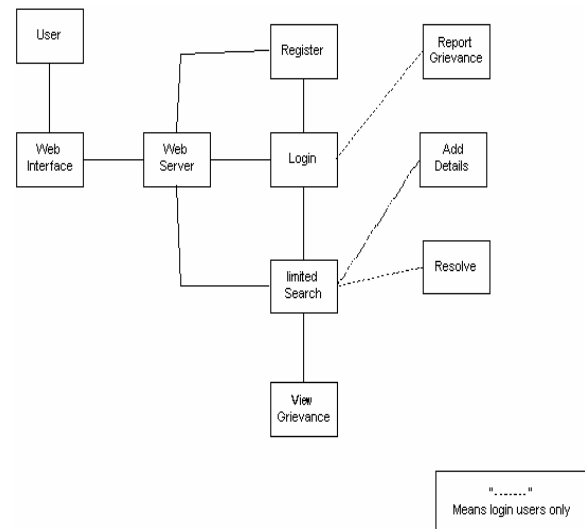


Figure 1 Data Flow Diagram

The database has been created using MySQL. Since the project is expected to

grow over time, our team felt we should design the system that would be scaleable. So, MySQL was chosen as the database of choice, as it is easy to use, free and compatible with PHP. PHP is also an open source, server-side, and HTML embedded scripting language used to create dynamic Web pages.

MySQL is very easy to set up, administer, manage and manipulate and learn. Also, since it is open source, there are a lot of resources available freely, that can be used to make future enhancements.

The web application consists of HTML pages, PHP pages/scripts and Java Script. PHP was chosen as the preferred scripting language because of its benefits, capabilities and our limited resources. A fact that was also taken into consideration was that once this project was implemented, there would be certain maintenance requirements to consider. It must be possible for teams in the future, to come to maintain the project, and we felt that PHP would be the easiest language to maintain and do future enhancements on.

The hardware requirements of the complaint desk are comprised of a database and a Windows based server.

As the scope of this project is limited to the development of the user interface of the complaint desk, the database design only involves the creation of tables that will capture the user information and the kind of grievance the user is reporting. This is stored in the database, so the user can come back later and search the grievances that were submitted. The users will need to login into the system to report grievances.

The complaint desk is now being hosted on the Pace University server. The URL to the web site is:

<http://utopia.csis.pace.edu/cs615/2002-2003/team8/>

To make navigation simple, the complaint desk is using a login and log off sessions. The system is making use of PHP sessions to check the authentication the user. If the user is not logged in, the user is redirected to the login page. But, if the user is a first time visitor to the desk, he needs to register, giving his details. He will also need to choose a user id and password.

The complaint desk's model is based on generating revenue by charging a fee for reporting a complaint. To use the system, the user will have to provide a valid credit. At the present time, our system only accepts Visa, Master Card or American Express. The complaint desk system recognizes the type of the card the user is using. If the user enters an invalid credit number, the system will recognize it. Cash transactions and validation of the credit card is out of the scope of this project.

The system, will guide the user through the process of registering. Errors messages will show missing information. After the user has entered all the information correctly, the user is now ready to login to the system and submit a grievance.

Figure 2 is a screen shot of the Login page. The user can search the database for other grievances after logging into the system.



Figure 2
Login Page

All the information captured from the customer is secure. We are encrypting the user password using MD5 hash [md5()] provided by PHP. The credit card number is encrypted using Base64 encryption [base64_encode()] also provided by PHP version 4.1 and above. The user need not have to login to use the search the grievances that were reported. The user can search for grievance based on grievance subject, category, against whom it was made and the address where the grievance occurred.

The user can also search based on the grievance itself. The user can also do a wild card search on the grievance field. The result of this query will be a list of the grievances that fit the criteria chosen.

The complaint desk's functionality is driven by the submit grievance page. When the user clicks on the submit grievance tab, he/she will be redirected to the login page. If the user has not registered on the web site, the user will need to complete the registration form and then login. But if the user is already registered, he/she can log in and start to submit the grievance. Once the user is logged in, he/she will be directed to the submit grievance page.

The grievance can be reported by clicking on the “submit grievance” link. There are two parts to the grievance page: submit a grievance and add a new category. Associated with them, are two PHP files named grievance.php and addCategory.php. The user will need to provide a subject for the grievance.

The user must be logged in and should have completed payment prior to submitting a grievance. The \$userid in the session is used to check the user's identity. To illustrate, a user named “Mr. Q A Tester” has logged in and paid for submitting a grievance using his credit card. After clicking on submit a grievance, this form where the QA Tester can submit a grievance.

Figure 3
Submit Grievance Page

To make the process of submitting a grievance simply, keywords are made available for the user to choose from the category drop down menus.

Category information is stored in the keyword table. They are read out and partitioned into groups and then are used to create the “category” options list in the grievance page. The user must select a Category, there are two requirements need to be meet: Category1 can not be empty, and Category2 must be selected before user chooses Category3. An alert message will pop up if any of these requirements fail the checking. If the user has selected an option in the first category, the second category option list will automatically be refreshed to reflect only the category which was already selected in the first category.

The same logic is applied to the third category. The database operation and the partition logic are done on the server side using PHP logic, and the dynamic effect of the option list is implemented using Javascript functions.

Another distinctive feature of the complaint desk is that the grievance page has a button that allows the user to add new categories. Figure 4 illustrates how new categories can be added to the keyword list.

ADD NEW CATEGORY:

Category 1: or

Category 2: or

Category 3: or

Figure 4
Add New Category

This addition will be added to the database as an available category if it is approved by the admin or added in by 10 or more users reporting grievances. However, the user can submit a grievance using this new category once.

Logic has been built into the system, to prevent a user from misusing the complaint desk. For example, a user cannot submit a grievance using a future month or date, this means that the selected date cannot beyond the current date.

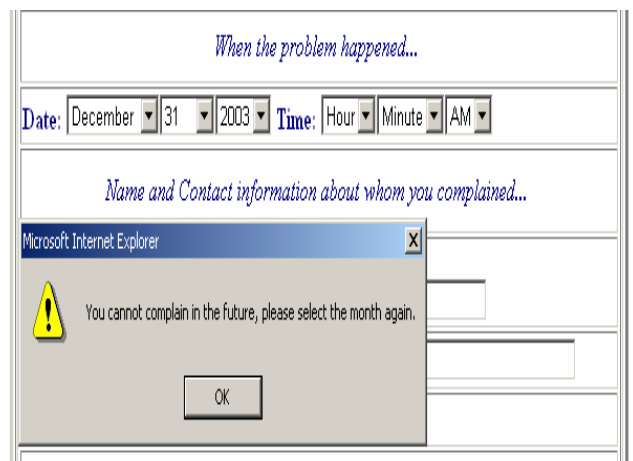


Figure 5
Error Message about submitting a grievance with a future date

An alert message like the one illustrated in Figure 5 will pop up if the date chosen is a future date.

All the details about the grievance that the user entered will be stored in the database, so that the user can come back and search for the grievance and as more functionality is added to the system in the future, he will also be able to track the progress of the grievance.

Results

The complaint desk, as of today, only the user interface of the complaint desk has been designed and implemented as per the client's requirements.

So we as yet, do not have any information regarding the usefulness of the product in the intended environment. But as it stands today, the user can log into the complaint desk, report grievances, search the database for grievances that were reported.

But once all the aspects of the complaint desk have been completed and it is ready to be implemented, this product will be very unique and one of its kind.

As a team, we had experience developing a system like this. We had developed a computing help desk in the first part of this two-part capstone course. In many ways, this product is similar to the help desk, in that, both are web-based products that link to a backend database.

But when the team started on this venture, designing the complaint desk proved to quite a challenge, as we had to translate our client's vision into a feasible product. Added to this, we had problems setting up the database.

We had decided to use Oracle as our backend database, but we had change to MySQL as we found it more compatible with PHP. Also, in future, given that MySQL is free, enhancements to the complaint desk can be made without any added cost.

But with hard work, open and clear communication and due diligence we have completed the design and implementation of the user interface for the complaint desk.

Areas for Future development

Some of the issues that need to be addressed in future development are:

1. The design of the agency/organization interface: This interface will contain all the information about the agency/organization, or person whom the complaint is being made. This will also need to have a backend database, which will store all the information about the grievances and what actions were taken to address it.
2. Validation of the credit card information of the user: We are just getting this information and storing it in an encrypted form in the database. Future development will have to address how this credit card information can be validated.
3. Ethical and Legal Issues: These issues will have to be addressed before the complaint desk can become a fully functional system.

Conclusion

The complaint desk “has miles to go” before it can become a fully functional product. We, as a team, have just finished development of the first phase of the complaint desk.

Since the idea behind this complaint desk is to build a mechanism which will not only be a source of revenue but will also provide a service to the community by giving people an opportunity to participate in an endeavor that will make their voices heard.

We have implemented the user side of this complaint desk, more development is necessary over the next few years to add more functionality to make this into a viable commercial product.

References

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