OntarioTech UNIVERSITY

Software Project Management

Lab 2 Project Proposal

Graphical Password Strategy

A picture is worth a thousand words

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1. Introduction

The purpose of the Graphical Password Strategy is to give users another option when it comes to authentication. A puzzle, or pattern will give users a simple quick way to sign onto their applications while still maintaining a difficult to guess or attack pattern, much like a complex password. Many users prefer not to memorize strong passwords that contain upper case, lower case, and special characters. As a result, many users will opt to have a simple password which can be easily guessed. There is a growing need in the industry for new solutions to address security concerns and quick easy authentication methods for user needs.

This application aims to tackle the security problems while keeping the user experience quick and convenient. Using a graphical interface to draw a pattern, a user can simply memorize a few movements either with a computer mouse or a few touches of their fingers on the device screen. It will only take a few moments to authenticate and when a user needs to do this consistently, this is a quick and easy process. The graphical interface addresses security concerns like the use of spyware to track keystrokes to get the users passwords and it makes a brute force attack a much more difficult problem to tackle. For example, if the graphical interface contains 8 elements, there is a factorial of 8 (specifically 42,320) possible combinations that the elements can be arranged in. A brute force attack given additional security measures that this problem could potentially take years to crack.

Additionally, the application enhances the user experience such that they do not need to memorize a long password containing a bunch of randomized upper case, lower case, special characters, and numbers. A graphical interface is a quick movement of fingers or a mouse, and just as quickly as they entered their pattern, they're logged in.

2. Project Objectives

A project such as a Graphical Password seems rather straightforward, however there are a number of complications and objectives to be addressed and stated. The main goal is a system that is easy to implement and user friendly, providing a unique, smooth login process that the user finds appealing and interesting. A list of objectives goes as follows:

1. Implement a secure method to store picture passwords on a server database
2. Have a simple and easy-to-navigate interface for the user
3. Have a cost effective development plan so that a profit can be made
4. Must be scalable in order to meet user demand during peak and off times
5. Allow quick, easy, seamless logins to user accounts
6. Allow users from any platform to access the login system

3. Project Measures

The goal of implementing a Graphical Password Strategy is twofold in the sense that it exists to simplify user experience and to secure the user experience for the user. With this understanding, we can identify some measures of success for any Graphical Password Strategy that is implemented.

1. The first measure of success is the scope of the project itself. If the objectives set out to accomplish got accomplished, the project was a success.
2. The second measure of success is how long it took to complete the project. If the project proceeded on schedule and finished on time then that is a measure of success.
3. Related to the second, the third measure of success is if the company was within its budget. In other words, a measure of success can be if the company turned a profit. This is often the greatest measure of success. It is strongly correlated to the schedule since the budget is often built based on the estimation given by the schedule.
4. A fourth measure of success is employee satisfaction. Engineers should be able to look at whatever they make with pride and so a project should inspire joy when completed. In a similar manner, customer satisfaction is also a very large measure of success.
5. This brings us to the fifth and final measure of success: quality of cost. If the project costs a lot to upkeep and maintain after being delivered or has a high amount of overhead and labor costs due to failure to meet customer expectations, then the project cannot be considered a success. This is why the requirements stage of project planning is where projects tend to fail. In that sense, this can be considered the largest measure of success to the company itself.

4. Project Infrastructure

1. The Graphical Password interface will be implemented using a web application. It will have both a mobile application and web interface so that cross platform users are able to sign in with this option.
2. A Login API will be constructed to handle all platform logins to save on hosting costs. It will be implemented using the NodeJS Express framework with HTTPS to allow for quick and easy secure authentications to the system.
3. An SQL database will be required to store the user information such as their username and a hashed version of their password combination for sign in, this way a user can seamlessly sign in on any of their devices and pick up where they left off.
4. The application will be hosted on a distributed cloud service (such as AWS) so that it can be scaled to meet different user demand for peak and off times. This way the cost of hosting can be minimized while still maintaining a great user experience.