

Security Enhancement using Color Code and Geographical Location on Cloud

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Abstract: Pictographic passwords provide a favourable substitute to conventional alphanumeric passwords. They are appealing since people usually remember pictures better than words. The proposed system includes security enhancement using pictographic authentication which includes two step authentication that is, color code authentication and geographical authentication.

Keywords: Pictographic, eavesdropping, shoulder surfing, Bruit force

I. INTRODUCTION

User validation is a fundamental component in most computer security contexts. It provides the basis for access control and user liability [2]. While there are various types of user authentication systems, alphanumeric username/passwords are the most common type of user authentication. They are adaptable and convenient to use [1].

Alphanumeric passwords must satisfy two conflicting requirements. The user will be able to recall it easily while it would be hard by duper to guess [3]. Users are known to choose easily predictable short text passwords, which are target of dictionary and brute-forced attacks. Applying a strong password sometimes leads to converse effect, as a user may write his or her difficult to remember passwords leading to eavesdropping.

In the literature, several methods have been proposed to eliminate the cons of alphanumeric password. One proposed solution is to use an easy to remember long phrases (passphrase) rather than a single word [7]. Another proposed solution is to use graphical passwords, in which graphics (images) are used instead of alphanumeric passwords. This can be achieved by asking the user to select regions from an image rather than entering alphanumeric password.

In this extended abstract, we propose a two level pictographic password authentication system. The system has color code and geographical authentication scheme trying to enhance the security on cloud. In section 2, we provide a brief review of pictographic passwords. Then, the proposed system is described in section 3. In section 4, we briefly discuss implementation and highlight some aspects about the proposed system.

II. PICTOGRAPHIC PASSWORDS

Pictographic passwords refer to using combination of color and geographical location. Graphical passwords are easier to remember, since humans remember pictures better than words [9].

Graphical password techniques are classified into two main categories: recognition-based and recall based graphical techniques [8]. In recognition-based techniques, a user is authenticated by challenging him/her to identify one or more images he or she chooses during the registration stage. In recall-based techniques, a user is asked to reproduce something that he or she created or selected earlier during the registration stage [1].

III. PROPOSED SYSTEM

The proposed authentication system works as follows.

At the time of registration, a user has to provide his/her credentials and then select combination of colors as well as geographical location on the map. In order to validate the user, the system sends an OTP to the provided mail-id. The user has to enter a valid OTP to get registered.

The registered user can access his/her account after providing the legal credentials, color combination and geographical location as pictographic password.

IV. IMPLEMENTATION AND DISCUSSION

The proposed system will be implemented as follows:

- Registration phase: In the registration phase the user provides his/her credentials, select a combination of colors and geographical location.
- Login phase: In the login phase the user can access his/her account after providing the valid credentials.

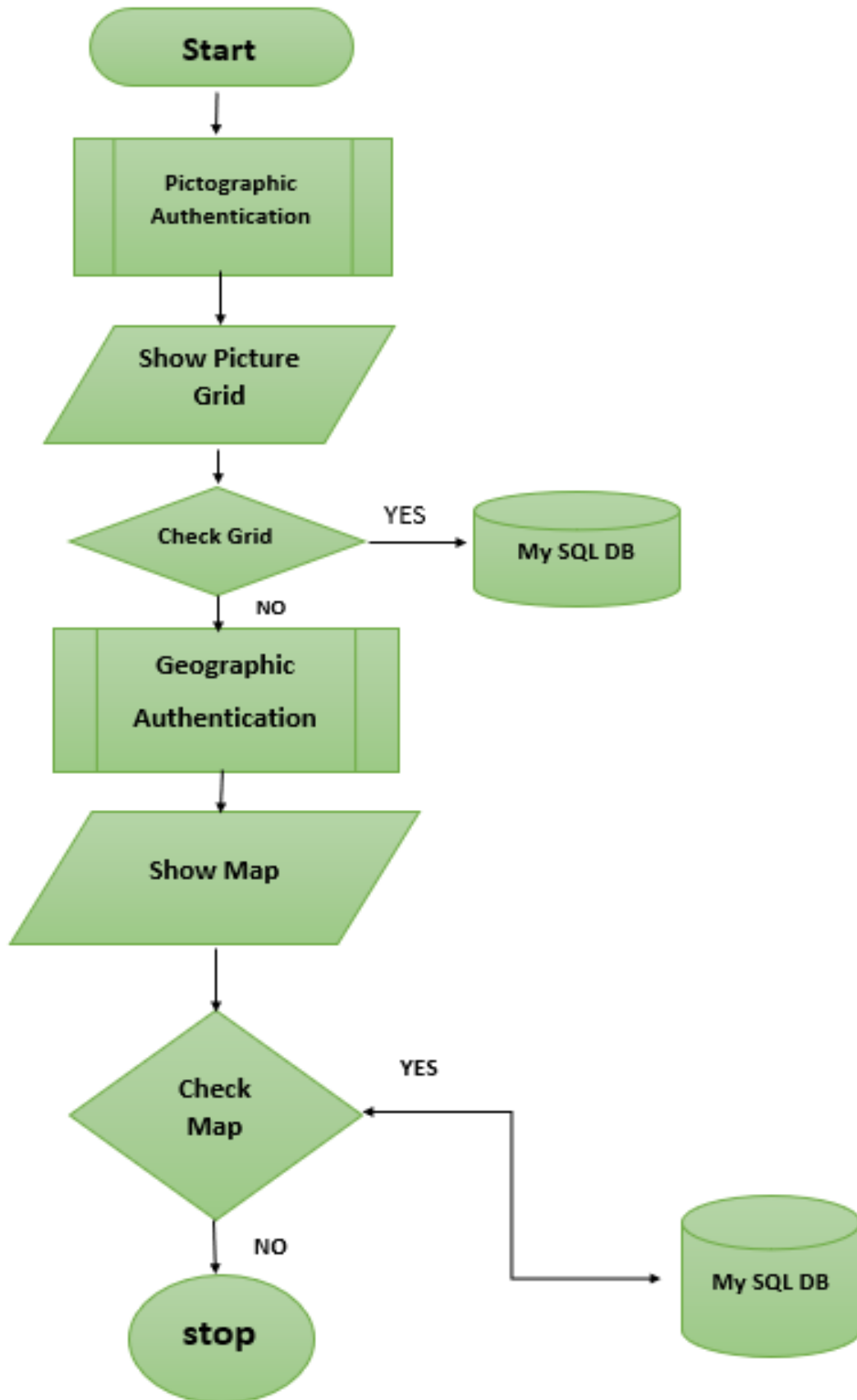


Figure 1. Registration phase

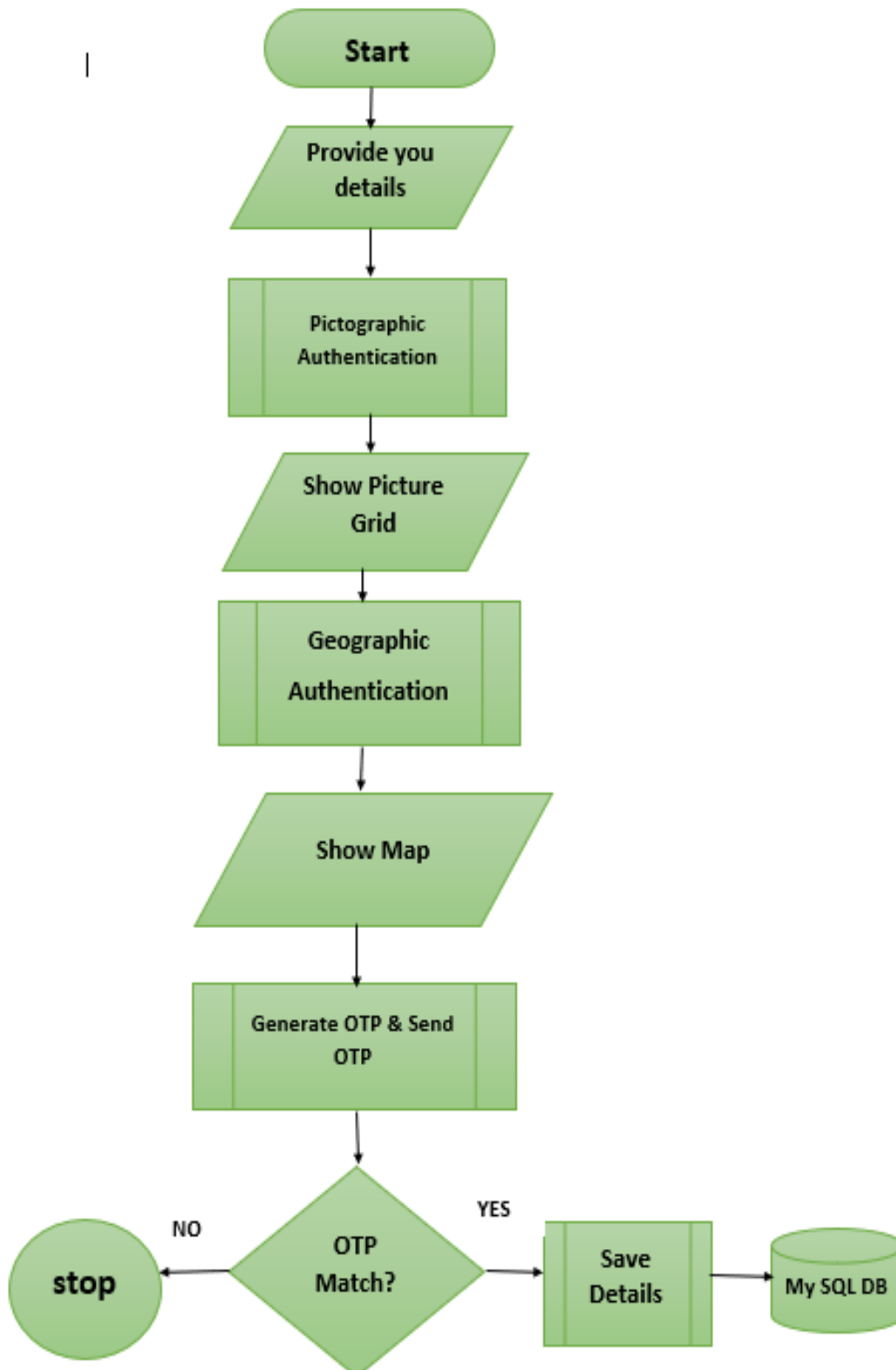


Figure 2. Login Phase

V. CONCLUSION

User authentication is a fundamental component in most computer security context. In this extended abstract, we proposed a simple pictographic password authentication system. The system uses pictographic passwords.

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