Note 2 Flash

Problem

Many students find that it is helpful to use flash cards to review material learned in class. However, up to now note taking and flash cards creation has been a separate process.

The problem with this is that the student may not be able to remember which part of the notes should be used in creating flash cards since some time has passed between note taking and flash card creation. Typing in the material for each flash card also takes a lot of time and effort.

Besides flash cards, students sometimes need to create a note sheet for use during exams, therefore remembering which material is important enough to be in note sheet is useful.

Also, students today have an increasing number of mobile devices like laptops and cell phones, which makes synchronisation of notes between these devices difficult.

Solution

To solve this problem, we propose *Note 2 Flash*. *Note 2 Flash* is created for students to streamline the process of note taking, flash card and note sheet creation.

During note taking, the student will be able to mark a material that is a candidate for future flash cards or note sheets, anything not marked would just remain as regular notes. At any time, the student will then be able to use *Note 2 Flash* to generate flash cards or note sheets, based on the material marked by the student previously.

While *Note 2 Flash* can store notes locally on the device, *Note 2 Flash* can make use of a backend database to synchronise notes between multiple devices. This gives the added benefit of backing up notes in case one of the devices is lost or stolen.

Competitive analysis

As of the writing of this document, there is no single system that combines the functionality of note taking, flash card creation, note sheet creation and remote synchronisation in one application.

Therefore, *Note 2 Flash* should be able to provide students with a new way of approaching note taking and flash card creation.

Software Architecture
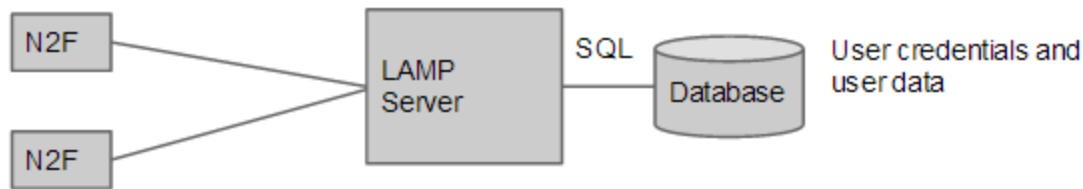
Note 2 Flash will be written in Java using a Model-View-Controller design pattern. The main reason for using this is to allow us to easily change to view, and possibly target multiple device types in the future without changing too much code.

In order to allow different *Note 2 Flash* instances to synchronise notes, each *Note 2 Flash* instance will communicate with a LAMP server to authenticate and get the latest version of notes. The notes can be stored as files in XML format and user credentials can be stored in a MySQL database to ensure that the correct person has access to the correct notes.

Note 2 Flash will communicate with the LAMP Server using java.net.URL and the server side application will be written in PHP to deal with authentication and note synchronisation.

The most interesting aspect of this project is synchronising data between multiple instances of Note 2 Flash, which involves a lot of interaction between different applications.

Challenges and Risks

A challenging issue is the need to develop the logic for the backend database that will authorize users and synchronise data across multiple devices.

To minimize the risk, we can make use of LAMP, which consists of Linux, Apache, MySQL and PHP to minimize the code we need to write for the backend logic. Writing the server side application in PHP will make the learning process easier since PHP is well documented.

Generating printable flash cards might also be a challenge, because it will involve using unfamiliar libraries such as iText or pdf Box.

Stretch Features

One additional feature we could add is support for touch input, which would be a good addition because many devices use touch input.

Another additional feature could be support for all math symbols.