

Application Proposal

Project Requirements (For Easy Reference)

In this assignment, you will be constructing an application with a small group of 3-4 developers.

The team members for this application will vary over the semester, so it is important that you follow good programming practices. Readable code is an important security property.

Your application idea must be approved by the instructor before you start programming. To get approval, please submit a 1-page writeup that describes the problem you will tackle. There should be a sentence that explains if you will need hosting or other resources to build and deploy this project. This writeup should include a table that lists the components of the application, the language each component is written in, and which teammate will be responsible for each component. It is expected that each project will involve multiple languages, but in rare circumstances an exception may be possible.

The writeup should also describe different security modes of the application. This can be per-user or per-use-case. For example, a file backup service might only allow users to access their own files (per-user). It could also have a way to set files to be read-only or append-only (per-use-case). Please bold the sentence that describes the security modes.

Your application is welcome to, and is in fact encouraged to, leverage outside open source projects. However, you will be judged based upon the code your group writes. Do not take credit for code written by other people or in other contexts. (This will be considered academic dishonesty.)

Applications that take advantage of interesting platforms are encouraged. For example, Android or iOS applications will be considered favorably and the scope of these programs can be simplified to account for the complexity of using the platform.

Once approved, you will need to set up a project webpage with wiki, bug tracker, and public code repository either using Trac / SVN, github, or similar. (If you want to use Trac / SVN, please notify us and we will have an instance created.) For the first portion of the assignment, apart from posting your 1-page writeup, you are free to have this be as sparse as you like. However, keep in mind that your grade will be impacted by how much of your code others can understand later.

You will be expected to build a working prototype of your application by October 30th. Please scale your application appropriately (~1-2 thousand lines of code).

Good luck and feel free to ask questions!

Application Concept Options

1. Create a secure message board system and a mobile application to access it.
2. Create a secure message board system accessible through any browser.
3. Secure Android to Android chat program.
4. Secure password storage on mobile device.
5. Secure text messaging program.
6. Create a secure mobile application for doctors and EMTs that accesses a medical records database.

Application Security Elements

- Multifactor authentication
 - user has registered mobile device
 - user knows login/password
 - wishlist: fingerprint scan (FYI - Motorola Atrix has built-in fingerprint scanner.)
- Login credentials are not cached.
- Medical data is displayed but not stored on device (possible?).
- Code obfuscation to hide private key.

Project Responsibility Matrix

Project Schedule

~~~~NOTE: THERE ARE ONLY **15 DAYS** WE HAVE TO BUILD (11) AND TEST (4) BEFORE THE DUE DATE, WHICH AVERAGES OUT TO BETWEEN **30 AND 60 LINES OF CODE PER DAY** REQUIRED FROM EACH OF US DURING THE 11 DAYS OF DEVELOPMENT~~~~

Friday 10/12 to Saturday 10/13 12pm: Propose and slightly develop ideas (1 day)

Saturday 10/13 12pm to Saturday 6pm 10/13: Vote on ideas. Highest point value gets developed. (1/4 day)

Saturday 10/13 6pm to Sunday 10/14 12pm: Put together the base proposal for professors. (3/4 day)

10/15 through 10/25: Develop according to the responsibility matrix. (11 days)

10/26 through 10/29: Integration, General Testing and Security Testing. (4 days)

10/30 - Working application prototype due.

## Component Details

### Medical Record Database

The database shall contain a simple set of fields to exercise its usage in the system. Fields shall include: first name, last name, ICE contact (In Case of Emergency), blood type (drop-down list), allergies (free text), primary doctor (name & phone).

### Webhost Application

The web server application will accept incoming Internet connections. Registered users (EMTs and doctors) may login and access medical records of patients that they are treating. A level of access may introduced; doctors may have read/write permissions to certain data fields (e.g. allergies), while EMTs may only be given read access.

### Mobile Application

The registered user shall remotely access the medical record database using the client-side mobile application via a registered mobile device (smartphone or tablet). The target platform for this project shall be an Android-compatible smartphone.

| Application Component     | Language              | Responsible Teammate*    |
|---------------------------|-----------------------|--------------------------|
| server: medical record DB | SQL                   | Jeffrey, Moran (Queries) |
| server: webhost app       | Python, C (MySQL API) | Anthony                  |
| client: mobile app        | Java, Android SDK     | Saurabh                  |
| client: web page views    | JavaScript, HTML, CSS | Moran                    |

\*Teammates should support each other as needed.

# Project Documents and Files

Writeup/Proposal - <https://docs.google.com/document/d/1fY9zI2KvOu3o3dtPujRpvrb4eAzSbkctHg30jX5G024>

Schedule - <https://docs.google.com/spreadsheets/ccc?key=0AvGH3DcGUlmdF8zZ2JHS2xXaiIneWV1eVIWHI0VIE> - Schedule

Google Groups Page - <https://groups.google.com/forum/?fromgroups#!forum/poly-application-security-project---team-sja>

Github Project Page - xxx

## References

<http://www.androidhive.info/2012/01/android-login-and-registration-with-php-mysql-and-sqlite/>

<http://mysql-python.sourceforge.net/MySQLdb.html>

(Anthony, this link is a GREAT find! -Jeff)

<http://www.sitepoint.com/cookieless-javascript-session-variables/>

<http://narnia.cs.ttu.edu/drupal/node/43>

[http://httpd.apache.org/docs/2.2/ssl/ssl\\_howto.html](http://httpd.apache.org/docs/2.2/ssl/ssl_howto.html)

<http://infohost.nmt.edu/tcc/help/lang/python/apps.html>