## HW7: Backend Development

**SWE 432 Fall 2016**

**Due: 10/27 before the start of class**

In this assignment, you will add a small Node.js backend to your web app, hosting it on Heroku and using it to persist data to Firebase and handle a file upload.

**Step 1: Setup Heroku Hosting**  
In order to host a Node.JS application, you will need a hosting provider that supports Node.JS. In this class, we will be using Heroku. Using the instructions in Lecture 15, you should create an account on Heroku and create a new Heroku Node.JS app for your project. **For future reference - add bit about making a nodejs backend first**

**Step 2: Node.JS Backend**

In this step, you will create a Node.JS backend for your web app.

In order to protect the security of your web app’s data, you will rearchitect your web app so that (1) all write interactions with Firebase from require authentication (using a special service key, as described in the ImmutableTodo example - <https://github.com/gmu-swe432/lecture14demos/tree/master/immutabletodoserver> ), (2) only the backend is authenticated to write to Firebase. In order to persist data to Firebase, you should pass data first to your Node.JS backend. Your Node.JS backend should support a RESTful interface for your web apps data, describing at least 3 resources using unique URIs and using the appropriate HTTP actions for interacting with these resources. Additionally, you should ensure that all of the static files in your web app (e.g., HTML, CSS, and client side JS) are served to the client through your Node.JS backend.

**Step 3: File Upload**

In this step, you will upload a file. You should add an functionality for the user to upload a file on the client, send it to your node server, and then persist it to Google Cloud Store. You are free to choose whatever sort of file makes sense for your web app. For example, you might let users upload a profile picture.

**Submission Instructions**

1. Submit your changes to the same Github repository that your group has used in the past HW and TAs (or send the instructor and TAs email if this has changed). Create a HW6 pull request from your branch into hw-submissions. Merge the pull request. Create a HW6 release from hw-submissions. Deploy your application to Heroku, and add the link to your deployed app on Heroku to the Readme page for your project on Github.