CSCI 3308 Software Development Methods and Tools **Fall 2018**
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Submission Deadline: ***24hrs from the end of your respective recitation.***

Lab 10 - Deploying a Node.js App on to Heroku

Prerequisites:

1. We will be about deploying the NodeJs app that we created as part of *Lab 9* onto the Cloud, using *Heroku.*
2. Thus, this lab requires the solutions (zip of the `lab9` directory) from *Lab 9.*
3. If you were unable to solve the last lab or do not have the zip from the last lab, download it from here.
4. Please sign-up for an account on *Heroku* using the following link.
5. Download the *Heroku toolbelt/Heroku CLI* from this link.

Part 1: Preparing your Node.js App such that it can be deployed on to *Heroku*

STEP a: Change your source code such that the Port number and Database configurations are no longer hard-coded.

➔ Heroku needs you to read the port number and the database configurations from specific environment variables. Make changes to your code such that read port number and the DB configurations are read from environment variables.

EXERCISE:

1. Change the `server.js` and the `database.js` files such that the port and the database configuration variables are initialized using environment variables.

`server.js`

```
var port = process.env.PORT;
```

`database.js`

```
var dbConfig = process.env.DATABASE_URL;
```

STEP b: Versioning your project under Git.

➔ Like it was mentioned in Lab - 9, the `node_modules` directory contains all the packages/libraries that were downloaded using `npm`.

➔ We do not want to version these packages under Git. Thus we must ignore this directory before we initialize a Git repository!

1. Navigate into the `lab9` directory from *Lab - 9.*
2. Within it, create a file named `.gitignore` and add the following line into it.

```
node_modules/
```

3. Initialize a git repository within the `lab9` directory by running the following command on your terminal.

```
$ git init
```

EXERCISE:

4. Now add and commit all the files in your `lab9` directory.

Part 2: Configuring Heroku with Postgresql add-on.

STEP a: Create an App on Heroku.

➔ Heroku is a Platform as a Service(PaaS) that allows you to deploy apps with ease!

1. Login in to your Heroku account and navigate to your dashboard.
2. Create a new app. Name the app in the format: `csci3308-lab-10-<lastname>-<firstname>` (Don't include the '<' and '>' symbols in the name!)
3. Let the *Region* of the App default to *United States*.

STEP b: Adding Heroku-Postgres add-on to your app!

➔ Once your app is created we will provision an instance of Postgresql to which your app will connect to.

1. Within your newly created app navigate to the *Add-ons* section inside the *Resources* tab and add the `Heroku-Postgres` add-on.
2. Choose the *'Hobby-Dev - Free'* plan before your provision the add-on!

Part 3: Deploying your app!

STEP a: Creating the database schema inside Postgres provisioned on Heroku.

1. Run the following command in your terminal.

```
$ heroku login
```

➔ This command authenticates you so that you can run Heroku commands from your terminal

2. Provide your Heroku username and password to login to Heroku.
3. Next login to your Postgres Shell provisioned on Heroku using the following command.

```
$ heroku pg:psql -a <your app name>
```

➔ Do not include the '<' and the '>' symbols in the name!

4. Within your *Postgres Shell* run the following commands to create the database schema.

a. *Note: if you find trouble copy-pasting the snippet below, the same snippet is on the GitHub Gist - https://gist.github.com/nikhilsu/4862336942695798facb851c73e840a1*

```
CREATE TABLE if not exists store
( id serial,
  sname varchar(40) not null,
  qty integer not null,
  price float not null, primary key (id));

INSERT INTO store (sname, qty, price)
VALUES ('apple', 10, 1), ('pear', 5, 2), ('banana', 10, 1.5), ('lemon',
100, 0.1), ('orange', 50, 0.2);
```

STEP b: Deploying to Heroku.

1. Add the Heroku git remote by running the following command in your BASH terminal.

```
$ heroku git:remote -a <you_app_name>
```

2. Deploy using the command:

```
$ git push heroku master
```

3. Once your app is deployed, navigate to the URL: https://<your_app_name>.herokuapp.com (Ignore the '<' and '>' symbols)

NOTE: If things go wrong while deploying your app, run the following command to look at the logs. These logs could help you troubleshoot the issue.

```
$ heroku logs
```

Credit:

To get credit for this lab. Turn in a text file that contains the link to your app!