CSE 331: Software Design & Implementation

Homework 9 (due Friday, June 2nd at 11:00 PM)

In this assignment, you will implement the client and server portions of an application described below. This assignment consists entirely of coding work. Submit your final version to "HW9 Coding" on Gradescope. Turning in your work for this assignment is a little trickier than usual, so follow these steps carefully!:

- `cd` into the directory that contains the `/client` and `/server` directories.

- Delete the `node_modules` directories from each directory (you can do this manually or use the command: `rm -r client/node_modules && rm -r server/node_modules`).

- Generate a zipped file containing both of these folders On Mac you can run: `zip -r submission.zip client/ server/`. On Windows you can select both folders, right click, and select 'Send to' > 'Compressed (zipped) folder'. You'll want to rename the zip that is created to 'submission.zip'.

- Go to Gradescope and select the `submission.zip` file that was created by running the last command.

- Make sure you get all the autograder points! If you have an issue and need to try something else you'll need to run `npm install --no-audit` in both of the directories again to get your `node_modules` back.

    You can start by checking out the starter code using the command:

    `git clone https://gitlab.cs.washington.edu/cse331-23sp-materials/hw-draft.git`

    Install the node modules, with `npm install --no-audit`, in both the `client` and `server` directories.

1. Arts & Drafts (100 points)

You and a friend went trick-or-treating together, but your friend didn't have their own bag for storing their candy, so all the candy went into your bag. Afterward, you brought the bag home and needed to find some way to split it fairly with your friend, who was now at their home. Together, you decided that the fairest option would be to have a candy draft, where you take turns picking the next candy from those remaining.

Since you aren't together at the same place, you will need to write a web application that you can both use to carry out the draft. It occurred to you later the application would be useful for other kinds of drafts, so you decided to make a general application that can be used for drafting any items, not just candy.

Write a web application, with both client and server parts, that allows one user to create and then multiple users to participate in a draft. The required functionality is spelled out the next page.

When implementing your application, it is, as usual, a good idea to crash if the program has a bug, but you are not allowed to crash on invalid inputs from the user. (Those are not bugs!) You must either show an error message or prevent the user from submitting invalid inputs.

Thoroughly test your application. Like in homework 8, there are UI portions of this assignment that are best tested with manual testing (which we will, of course, perform on your app), but other areas can and should have unit tests written for them and turned in with your work.

When grading we will be looking for high quality code (including design, documentation, testing) and app functionality (including error handling).

2. Extra Credit: Feeding Time at the New (0 points)

Add any new features that seem useful! You will get points for any feature that works correctly and seems like it would be valuable to the user.

Required Functionality

This section describes the minimum, required functionality, along with screenshots with one way of providing that functionality to the user. You do not need to make your application look exactly like this, nor must the functionality be identical. It is fine to make changes that make the application *more* functional. **This video also includes a walk-through of what our final product looks like**.
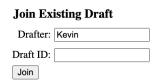
Create a New Draft

Users must be able to create a new draft, specifying the lists of the items available for drafting and the names of the drafters. You must support drafts that complete with some items still not drafted. In this version, we do that by asking the user the number of rounds (i.e., the number of picks for each drafter).

Create New Draft

Drafter: Kevin

Rounds: 3

Options (one per line)
```
Snickers
Payday
Twizzlers
Gummy Bears
Hot Tomales
Skittles
Sour Patch Kids
```

Drafters (one per line, in order)
```
Kevin
James
```

Create

This version asks the user to also give their own name ("Drafter"), so that they can jump directly into the draft once they create it. However, it is also reasonable to have the user enter their name later. (That would also allow a user who is not participating in the draft to create it.)

Join an Existing Draft

Users must be able to join an already-created draft. One way that this could work is that the the application could issue a unique "ID" for the draft after it is created. The draft creator could pass this information along to the drafters, who could enter it in, along with their names, in order to join the draft.

Join Existing Draft

Drafter: Kevin

Draft ID:

Join

Note that the "Drafter" text area is shown separately in both of these screenshots to show that it is relevant to both of these functionalities, but it is reasonable to only include one area for this as the demo video shows.

(Continued on the next page. . .)

See the Draft Status

Once users join the draft, they should be able to see all the the picks made so far (initially none), along with who is making the next pick.

Status of Draft "1"

Num	Pick	Drafter
1	Payday	Kevin

Waiting for James to pick.

Refresh

This version shows the ID of the draft at the top, but that is not necessary.

The application must either allow the user to update the list of picks (to see any new picks that have been made) or must automatically update it periodically (e.g., every few seconds).

Make a Draft Pick

If it is that user's turn, they must be able to make their choice.

Status of Draft "1"

Num	Pick	Drafter
1	Payday	Kevin

It's your pick!

Snickers ⌄ Draft

Show Completed Draft

Once all picks have been made, all drafters (and anyone watching the draft but not participating) should see that the draft is over.

Status of Draft "1"

Num	Pick	Drafter
1	Payday	Kevin
2	Snickers	James
3	Skittles	Kevin
4	Hot Tomales	James
5	Gummy Bears	Kevin
6	Twizzlers	James

Draft is complete.