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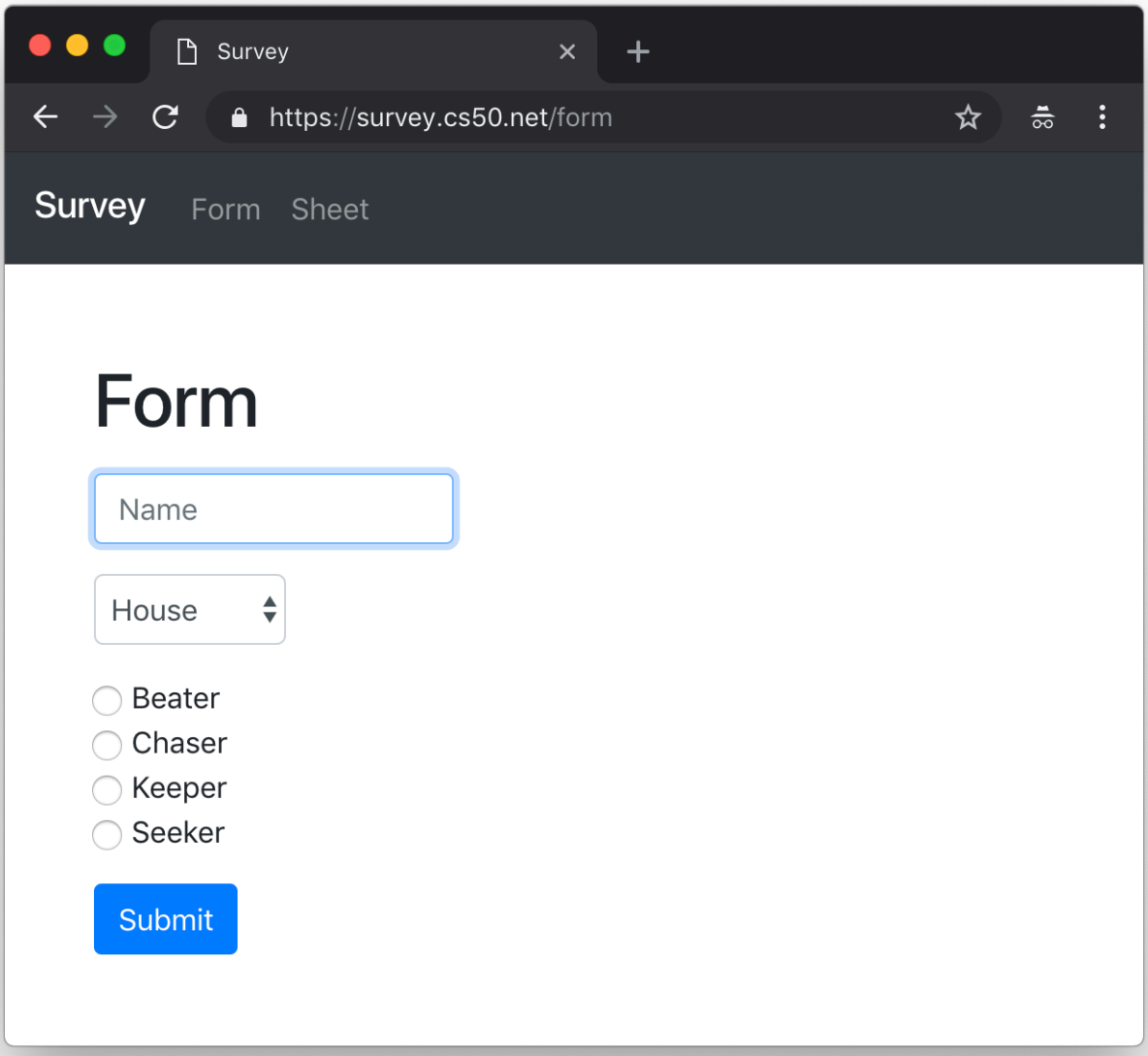
# Survey

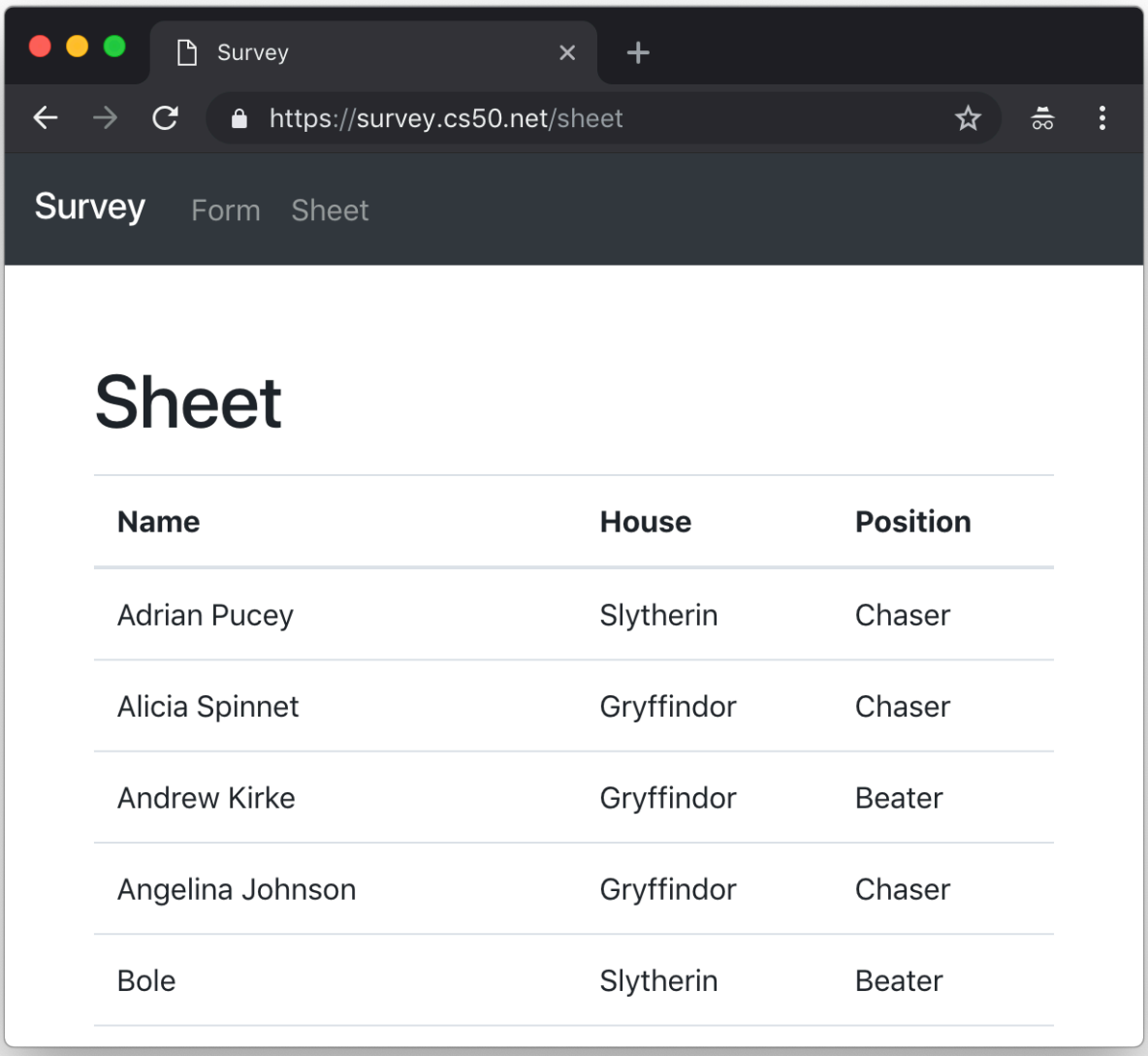
## tl;dr

Implement a web app that enables a user to

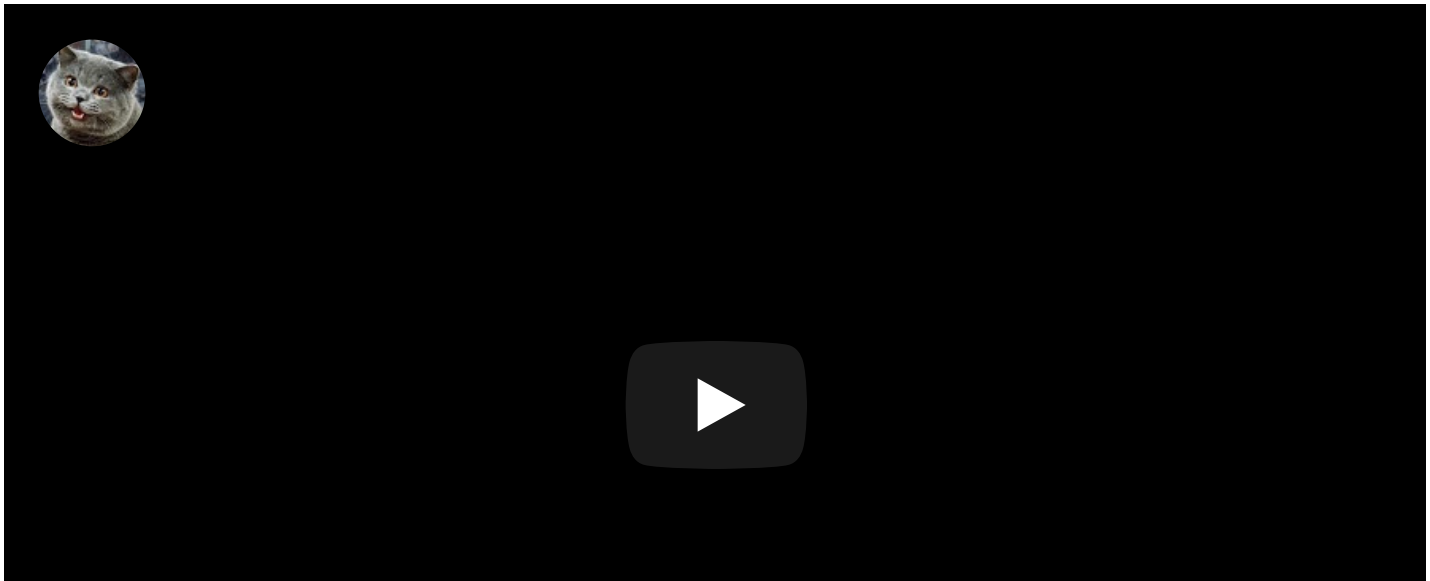
- fill out a form, a la Google Forms, the results of which are saved to a comma-separated-value (CSV) file on the server, and
- view a table of all of the submissions received, a la Google Sheets,

a la the below.






# Introduction



# Getting Started

Here's how to download this problem's distribution into your own CS50 IDE. Log into CS50 IDE (https://ide.cs50.io/) and then, in a terminal window, execute each of the below.

1. Execute `cd` to ensure that you're in `~/` (aka your home folder).
2. Execute `mkdir pset7` to make (i.e., create) a directory called `pset7` in your `~/` directory, if you haven't already done so.
3. Execute `cd pset7` to change into (i.e., open) that directory.
4. Execute `wget https://cdn.cs50.net/2018/fall/psets/7/survey/survey.zip` (https://cdn.cs50.net/2018/fall/psets/7/survey/survey.zip) to download a (compressed) ZIP file with this problem's distribution.
5. Execute `unzip survey.zip` to uncompress that file.
6. Execute `rm survey.zip` followed by `yes` or `y` to delete that ZIP file.
7. Execute `ls`. You should see a directory called `survey`, which was inside of that ZIP file.
8. Execute `cd survey` to change into that directory.
9. Execute `ls`. You should see this problem's distribution inside.

## Understanding

`application.py`

This file represents your web app's "controller," all of the logic that implements its functionality. Atop the file are a few imports of libraries followed by some configuration of Flask, per the comments therein. Below that are declarations of four routes, two of which are for you to do!

`templates/layout.html`

This file represents your web app's layout, an HTML structure that all of your views will share.

`templates/form.html`

In this file will live your very own form, only the skeleton of which we've written for you.

`templates/error.html`

In this file is a template for any messages you might like to display to the user in the event of some error.

`static/styles.css`

In this file will be any of your own CSS properties for any or all of your app's views.

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# Specification

- Complete the implementation of `templates/form.html` in such a way that the form therein contains not only a button but also
  - one or more text fields of any type,
  - one or more checkboxes or two or more radio buttons,

    - one or more select menus, each with two or more options, and
    - zero or more other inputs of any type.

  Style that form using Bootstrap (http://getbootstrap.com/docs/4.1/components/forms/) so that it looks nicer than it would with raw HTML alone.

  Add to that file some JavaScript code that prevents users from submitting the form if they have not provided values for one or more fields, alerting the user accordingly, as via `alert` (https://www.w3schools.com/jsref/met_win_alert.asp) or Bootstrap (http://getbootstrap.com/docs/4.1/components/forms/#validation).

- Complete the implementation of `post_form` in such a way that it
    - validates a form's submission, alerting users with a `message` via `error.html` if they have not provided values for one or more fields, just in case your JavaScript code let something through (or was disabled),
    - writes the form's values to a new row in `survey.csv` using `csv.writer` or `csv.DictWriter`, and
    - redirects the user to `/sheet`.
- Complete the implementation of `get_sheet` in such a way that it
    - reads past submissions from `survey.csv` using `csv.reader` or `csv.DictReader` and
    - displays those submissions in an HTML `table` via a new template.

  Style that table using Bootstrap (http://getbootstrap.com/docs/4.1/content/tables/) so that it looks nicer than it would with raw HTML alone.

  Optionally enhance the table with JavaScript, as via DataTables (https://datatables.net/examples/styling/bootstrap4).

Provided you meet these specifications, you're welcome to alter the aesthetics of your app however you'd like, as via Bootstrap (http://getbootstrap.com/docs/4.1/) or your own CSS and HTML.

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# References

- Bootstrap (http://getbootstrap.com/docs/4.1/)
  - Forms (https://getbootstrap.com/docs/4.1/components/forms/)
  - Tables (https://getbootstrap.com/docs/4.1/content/tables/)
- `csv` (https://docs.python.org/3/library/csv.html)
  - `csv.writer` (https://docs.python.org/3/library/csv.html#csv.writer)
  - `csv.DictWriter` (https://docs.python.org/3/library/csv.html#csv.DictWriter)
- DataTables (https://datatables.net/examples/styling/bootstrap4)
  - Options (https://datatables.net/reference/option/)
- HTML Forms (https://www.w3schools.com/html/html_forms.asp)
  - HTML Form Elements (https://www.w3schools.com/html/html_form_elements.asp)
  - HTML Input Types (https://www.w3schools.com/html/html_form_input_types.asp)
  - HTML Input Attributes (https://www.w3schools.com/html/html_form_attributes.asp)

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# Testing

## Correctness

Afraid there's no `check50` for this problem; it's incumbent upon you to write and test your code using the testing and debugging strategies we have discussed throughout the course. As in past problems where you have not had access to `check50`, know that your correctness score on this problem will be based on whether you meet the requirements of the specification as outlined above, whether your code is free of bugs, and whether your HTML is well-formed and valid. To ensure that your pages are, you can use the W3Schools HTML Validator (https://validator.w3.org/#validate_by_input) service, copying and pasting your HTML directly into the provided text box. Take care to eliminate any warnings or errors suggested by the validator before submitting!

## Style

```
style50 application.py
```

Afraid `style50` does not support HTML files, and so it is incumbent upon you to indent and align your HTML tags cleanly, as the per the examples shown in prior weeks' lectures. Know also that you can create an HTML comment with:

```
<!-- Comment goes here -->
```

but commenting your HTML code is not as imperative as it is when commenting code in, say, C, Python, or JavaScript.

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# Staff's Solution

https://survey.cs50.net/ (https://survey.cs50.net/)

It is reasonable to view its HTML and CSS.

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# How to Submit

Execute the below from within your `~/pset7/survey` directory, logging in with your GitHub username and password when prompted. For security, you'll see asterisks (`*`) instead of the actual characters in your password.

```
submit50 cs50/problems/2019/x/survey
```