**CS 3240 - F20 / Django Practice Assessment**

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| **Computing ID** | **Name** |
| **ppk4jn** | **Parth Kasat** |
| **URL:** https://***<<FILL THIS IN HERE>>***.herokuapp.com/polls/ | |

**Deadline:** Your written assessment PDF must be submitted to Gradescope before **11:59 PM EDT on Friday, September 18.** We will look at the latest commit on GitHub so you do not need to do anything else there to submit.

**Late Penalty:** You may submit up to 48 hours late. If you do so, the max score you can earn is 8000 XP.

**Assessment:** To earn 10000 XP, you must have the following:

* 6000 XP for a working, customized Django app using Bootstrap running on Heroku
  + 3000 XP for a working app
  + 2000 XP for Bootstrap integration
  + 1000 XP for Heroku deployment
* 4000 XP for the Written Assessment

**WARNING:** Some students have found that this project takes much longer than they originally anticipated. It strongly depends on your previous experience with web development, Bootstrap, and Django. PLEASE start on this project early and keep up with your deadline!

**Learning Objectives:** At the end of this activity, a student should:

* Understand the basics of setting up a Django-based, Python webapp, including your dev environment
* Get some experience in searching the web for examples / information on Django-related tasks
* Learn the basics of how the Django database works using models
* Learn how to do basic form manipulation in Django
* Learn how to do basic webapp styling using Bootstrap 4
* Get some exposure to basic unit testing in Django

#### **Step 0: Accept the GitHub Classroom Assignment**

Every student should head to<https://classroom.github.com/a/3QzlCSIK> to accept the assignment and generate a GitHub repository.

*This is an individual assessment - you may not work with anyone else!* The purpose is for every student to have their own experience with learning the basics of Django.

**Step 1: Install Python, pip3, and Django (as necessary)**

The first thing you should do is start with the install guide (<https://docs.djangoproject.com/en/3.1/intro/install/>):

1. Make sure you have Python installed (check first by running on a command line “python3” or go to <https://www.python.org/downloads/release/python-385/>)
2. Make sure you have pip3 installed (should be auto-installed with the previous link or go to <https://pip.pypa.io/en/stable/installing/>)
3. Then install the Django framework:  
    (<https://docs.djangoproject.com/en/3.1/topics/install/#installing-official-release>).

#### **Step 2: Complete the Django Tutorial**

Everything in this assessment is based around first completing the Django tutorial found at<https://docs.djangoproject.com/en/3.1/intro/tutorial01/> . Complete all seven steps of the tutorial.

Is the code available online? Of course it is - it's a tutorial. Are you going to learn much by just copy/pasting? Nope. Is that going to hurt you down the road, both in this assessment and in the semester? Absolutely. Play fair and actually do the tutorial.

We recommend learning how to build Django apps using a virtual environment - <https://packaging.python.org/guides/installing-using-pip-and-virtual-environments/>. It will make things easier, particularly if you have more than one version of python installed. PyCharm will do virtual environments for you as well, if you prefer to use an IDE.

As you are working on the Django tutorial, you should be committing and pushing your code up to the GitHub repo you created in Step 0. Please look at this example repo here of another Django project:<https://github.com/uva-cs3240-f20/Staff-TextbookExchange> . Specifically notice that the root of this repo is the directory in which you find the manage.py file in your project. There are two ways to get your project into GitHub: 1) do a git clone that will create a project folder on your computer than you can add your code to or 2) create a new Django project and do git init and git add \* and all the other git setup procedures. **If you do not do this correctly, the later steps may not work!!! Make sure this is correct!**

#### **Step 3: Adding a Feature**

Now, add a new model called "Comments" that has a name field and field for the body of text for a comment. Create a new view so any user that goes to /polls/comments (such as http://127.0.0.1:8000/polls/comments) can submit a comment about the poll. When the user goes to /polls/comments/list all of the current comments should appear on the page.

#### **Step 4: Integrating Bootstrap 4**

Now time to make your app look a bit nicer! Google for how to integrate Bootstrap 4 into Django. You'll find several examples, along with some that will have info about forms. Use whatever you find, making sure to bookmark the sites and/or writing down the URLs - you'll need to submit them later in the written part of the assignment.

You need to style the following aspects of your app:

* Forms
* Overall layout (cannot be justified upper-left)
* Header (doesn't have to have any "real" links, but show a top-level menu)
* Footer (add author, copyright, etc. info to the bottom of the page)

The exact styling is up to you, but we will be looking for reasonable effort to show that you explored the Bootstrap libraries.

#### **Step 5: Deploy to Heroku**

Create an account on Heroku at<https://signup.heroku.com> .

Next, ensure Heroku has access to your GitHub repos by linking your GitHub account in the Heroku settings. Follow the instructions at<https://devcenter.heroku.com/articles/django-app-configuration> to learn how to make your project work on Heroku. You can look at the <https://github.com/uva-cs3240-f20/Staff-TextbookExchange> repo for some examples of how to set up some of the configuration files. There are several ways to do this and if you find another way online, that’s fine.

Once you think your project is ready, you can login at<https://dashboard.heroku.com/apps> and create a new app. Under the Deploy tab, you can connect the GitHub repo for the project. This is why you have to get the project root setup correctly in Step 1! Once you connect the repo, you can scroll down to “Deploy Branch” on that same page and Heroku will clone your project and put it online! The link can be found in the Settings tab if you can't find it otherwise.

#### **Step 6: Complete the Written Assessment**

Complete the questions on the following pages and submit to Gradescope. **You MUST indicate which page each question answer appears on! For the app-based questions, choose page 1 of your PDF.**

**Written Questions**

1. Define and discuss the term “framework” in the context of using Django to build a web application. Why would a developer choose to use something like Django to create an app?

2. What is a “model” in Django? How does it make data management easier?

3. What is the purpose of including / using Bootstrap (or a similar Javascript / CSS library) in a web application? Consider how you added Bootstrap to your app (e.g. the lines of code). What challenges could this introduce if Bootstrap changes the library at all?

4. Heroku is a cloud service for hosting web applications, among other things. What advantages are there to using such a service? Disadvantages?

**Sources Used**

Title: <title of program/source code>

Author: <author(s) names>

Date: <date>

Code version: <code version>

URL: <where it's located>

Software License: <license software is released under>

Title: <title of program/source code>

Author: <author(s) names>

Date: <date>

Code version: <code version>

URL: <where it's located>

Software License: <license software is released under>

Title: <title of program/source code>

Author: <author(s) names>

Date: <date>

Code version: <code version>

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Software License: <license software is released under>

<add more as needed - remove this line>