**What is the flow of information in a typical request, from when we type an address on our browser, to when we receive the response on our browser?**

The browser resolves the URL into a domain name using the DNS and references the name against a web server, the web server sends a GET request to the requested IP. The servers at the IP send back the information in HTML, CSS, and JavaScript, and the information is sent back to the IP of the person who requested it.

**What is MVC, OOP and procedural programming? Why would we use each?**

MVC stand for model, view, controller. The model is what handles all the database information, the views are what handles the UI and display of the information, and the controller interfaces between the model and the view and handles the logic that processes the requests from view to model and vice versa.

OOP – object oriented programming. Used to modularize code into distinct sections. OOP uses encapsulation methods that bind together data and logic that manipulates the data.

**What is jQuery and why do we use it?**

JQuery is an API that allows access to a JavaScript library. It makes html manipulation easier than standard JavaScript.

**Consider a database with the following tables: users, friendships, where users includes id, name, and email, and friendships includes id, user\_id, friend\_id; If our friendships table includes a single association to confirm a friendship between two users, what is the QUERY to pull all of your non-friends?**

FROM friendships SELECT \*

WHERE friend\_id <> user\_id

User.objects.exclude(friendships.friend\_id = this\_id)

**What are some ways to make your website uniform across multiple browsers?**

You can use things like Modernizr, which is a javascript library used for cross-browser compatibility or respond.js, which is a script that allows older browsers to understand newer CSS,

**What are the differences between submitting a form via method="post" vs method="get"?**

GET – used to get information that is not sensitive. GET requests place all required request data in the URL. Get requests can be used for things like searches.

POST – used to pass sensitive information to a server in the message body. POST requests are used for things like login/registration, ecommerce, or anything involving sensitive information.

**What are the advantages/disadvantages of sending data to the server in the url vs making a post request?**

The data in the URL is not encrypted and will be displayed in the URL and can be seen by anyone. POST request data is sent in a message body and will only be seen by the server.

**Why should we never render a page on a post request.**

Because if the user refreshes the page the information will POST again when the page is rendered. This could allow for duplicate credit card charges or multiple database entries.

**You notice that when you click submit on a form, your app breaks. Describe how you would approach debugging this problem.**

You could checks the urls or routes to make sure that the url is listed in the routes. You could also check the action method on the form to ensure that the request is submitted to the correct view.

**What are a couple security threats and how do we defend against them?**

SQL injection can happen if you don’t prevent users from entering in syntax that resembles SQL which will request information from the database or don’t used prepared statements to query a database.

**What is the difference between Session, Post, and Cookies?**

Session stores information client side in the form of cookies. A server can view the client-side cookies to render client specific information. POST is a method that sends information to a server and is not stored client side.

**Explain why and when we use session**

Session is used to store client-side information and is used when information needs to be remembered from one route to another or from one visit to the next.

**What is an ORM and why do we use it?  What are its advantages and also its disadvantages.**

ORM – Object relational mapper

Used to create a language-specific object-oriented representation of a table. One of the benefits is that ORMs can simplify SQL queries, but one the disadvantages is that they don’t allow for very precise queries. Although, there are ways to use specific queries.

**In your models, you may make a class User with the following code: class User(models.Model): Why do we have models.Model inside the parentheses?**

models.Model means that the models is inheriting everything from the Model class. The Model class is a native Django module

**In your models, you may make a class UserManager with the following code: class UserManager(models.Manager): Why do we have models.Manager inside the parentheses?**

models.Manager inherits everything from the Manager class.

**What is self and why does it appear in methods that we define in a class?**

‘self’ is what is used to inherit all information contained in that class. A class can have multiple functions and each can pass information to self to be used in the next function.

**What is the \_\_init\_\_ method in a class?**

This is the class constructor. It is a special variable which points to the current object.

**Name 2 HTTP Verbs and when would we use each**

GET – used to retrieve or pass non-sensitive data.

POST – used to pass sensitive data in a message body

**What is RegEx and what do we use it for?**

Regular expressions are a set of rules for identifying or matching strings. They can be used to search strings from input forms or for url route pattern matching.

**On large web applications, what are the benefits of using a framework?**

Frameworks allow for testing and developing without the need for deployment. Django in particular, is useful because it allows multiple contributors to test and develop autonomously.

**What does a templating engine do for us?**

Templating engines are used by JavaScript to reduce the amount of server side code. They allow some of the server side code to be run in the browser which can reduce stress on a server.

**What are 3 different type of database table relationships?**

One-one, one-many, many-many

**Why do we use routes and how do they work?**

We use routes to determine where in our views a request is sent. Each route will have a specific function or functions that will describe what to do with the data being sent.

**What is a virtual environment and why do we use it?**

A virtual environment is an environment that can be used to run a specific framework. The virtual environment only has the framework in that specific environment and the framework will not be available in another environment.

**Explain what this code does: “from flask import Flask”.**

Imports Flask to allow app creation in the flask environment.

**What is the importance of normalizing your database?**

Normalization prevents duplicate data from appearing in a database by ensuring that each field only has one value, each table has unique fields, and any non-unique fields are foreign keys to fields on tables that share the same information.

**What is an API?**

Allows us access to information or libraries that aren’t found in our web application.

**What is AJAX and why do we use it?**

Asynchronous JavaScript and XML. It is used so that web applications can send and retrieve information from a server asynchronously (in the background) without interfering with the display and behavior of the existing page.

**What is the difference between an HTTP request/response and an AJAX request/response?**

An http request directly impacts the current browser. An AJAX request response does not impact the current browser and will be translated directly by the current JavaScript Script.

**What is the difference between client and server validation, and when do we use either or both?**

Client side validation happens on the client side and is done in the browser. This is advantageous to the user because the user experience isn’t affected by the server response. However, disabling javascript can bypass the client side validation and allow malicious attacks on server information. Server validation is done server side and requires a full request response cycle.

**What are the major differences between Flask and Django?**

Django allows for better collaboration on projects by way of using applications. One projects can have multiple apps and it is possible to modify and test each app separately.

**(VB) What are differences between tuples, lists, and dictionaries.**

A tuple is an immutable list. A list is the same as an array of stored values, A dictionary is a list but is composed of key/value pairs (i.e. ‘name’: Timothy). They act almost the same as JavaScript objects.