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I have always been fascinated by computers and technology in general. Growing up, I dreamed of creating video games for a living but have since realized they are monumental tasks. I knew I still wanted to learn more about programming and EWU was close to home. I will be using Windows 10 for the class.

A front-end developer is responsible for creating what the user will see when using a website or application. They use HTML, CSS, and JavaScript to create something the user can interact with and make use of the application. A back-end developer handles the server, application, and database of a website or application. They handle requests coming from the application and update or return the data to the front-end accordingly. A full-stack developer is knowledgeable of both front-end and back-end languages. They understand how to set up servers, design APIs, and design the client-side view.

Visual Studio is a popular IDE for web development. It supports a wide variety of languages, ASP.NET, Node.js, C++, Unity, and includes tools for Azure. You can collaborate in real time using Live Share and make use of Git integration. It also has a large community marketplace for tools and plug-ins. Visual Studio Code is a stripped down and lightweight version of Visual Studio. I have used VS for a few classes and have come to love it. IntelliJ has multiple IDEs focused on web development. One of these is IDEA. It focuses mainly on Java, but also offers support for SQL, HTML, JavaScript, and other languages. It can automatically add tools related to the current context, has Git integration, is cross-platform, has intelligent code completion, and more. IDEA offers both a free and feature-rich paid version. PHPStorm is another offering that is centered around PHP and related frameworks, and supports HTML5, CSS, Sass, TypeScript, and JavaScript among others. It includes support for databases, Docker, type inference, and has intelligent coding assistance to keep your code neat and maintained.

NetBeans is a free IDE for JavaScript, HTML, PHP, C, and C++. From experience, it can be a bit confusing to set up, but supports refactoring, word and bracket matching, tips, and the workspace can be customized to your liking. Light Table is another free cross-platform and open source IDE. It has handy features like the ability to pin an expression to see its values in real

time, inline evaluation, and plug-ins for JavaScript, HTML, Python, and others. Brackets is and IDE advertised as being for web developers, by web developers. It offers a live preview of your code and the ability to edit another file within the main window right next to the code referencing it. Brackets also includes extensions and refactoring support.

The Model-View-Controller architecture is a pattern that separates an application into three components, allowing these components to be developed and tested independently. The Model holds the current state and data of the application and the business logic and operations that can be performed. The View is the user interface portion of the application. It presents data from the model and should contain little logic. The Controller component handles user interaction, decides which view to display, and updates the model. Attributes can be validated on the client side before data is updated. The MVC allows for highly cohesive and loosely coupled code that can be easily modified down the road.

The Active Record pattern is used to wrap a table or view into a class. An instance of this object is linked to a single row in the table and contains methods to access and modify the data. This pattern is good for applications that do not require much business logic. It does break the single responsibility principle as it retrieves, saves, and validates properties. An Active Record entity must also access the database each time it is altered which can lower application performance if used carelessly.

PHP: https://www.w3schools.com/php/php_intro.asp

https://www.php.net/manual/en/tutorial.php

https://www.studytonight.com/php/introduction-to-php

Laravel: https://www.youtube.com/watch?v=ImtZ5yENzgE

https://www.youtube.com/watch?v=BXiHvgrJfkg

https://laravel-news.com/your-first-laravel-application

SQL: https://www.youtube.com/watch?v=HXV3zeQKqGY

https://www.youtube.com/watch?v=7S_tz1z_5bA

https://www.codecademy.com/learn/learn-sql

Front-end JavaScript frameworks exist to keep an application's state and view in sync, provide routing, and provide templates for commonly used functions. ReactJS is component based, with each component containing its own logic and style. These components can also keep track of their individual state. It can be implemented in only a portion of the project instead of needing to be worked in throughout, making integration quick and easy. Changes are made on a virtual DOM and then compared to the original, and then only the differences are updated. Vue is mainly focused on the view layer of the application. It is also component based and uses a virtual DOM like ReactJS. It allows for scoped CSS attributes and supports plug-ins. HTML can be used as a template, allowing for easy integration with existing HTML applications. Vue also offers a CLI project generator to create the basics for your application, providing more configuration options than React's implementation. AngularJS uses data binding to update the view or model whenever the other changes, so handling DOM manipulation isn't a problem. It also allows for creating custom HTML syntax for use in your project, and uses plain JavaScript.