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Professional Certificate in Python Web Development

# Project: Python Web Development

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## Python Web Development Key Terms and Vocabulary

Python is a versatile programming language that is widely used for web development. In this Professional Certificate course, you will learn how to leverage Python for building dynamic and interactive web applications. To fully understand the concepts and techniques taught in this course, it is essential to familiarize yourself with key terms and vocabulary related to Python web development.

### 1. Web Development

Web development refers to the process of creating websites or web applications that are accessible through the internet. It involves a combination of programming, design, and server management to build functional and visually appealing websites.

### 2. Python

Python is a high-level programming language known for its simplicity and readability. It is widely used in web development due to its versatility and large ecosystem of libraries and frameworks.

### 3. HTML

HTML, or Hypertext Markup Language, is the standard markup language used to create the structure of web pages. It defines the elements and content of a webpage, such as headings, paragraphs, images, and links.

### 4. CSS

CSS, or Cascading Style Sheets, is used to define the presentation and layout of a webpage. It controls the visual aspects of a website, such as colors, fonts, spacing, and positioning of elements.

### 5. JavaScript

JavaScript is a programming language that adds interactivity and dynamic behavior to web pages. It is commonly used for client-side scripting to create interactive elements like forms, animations, and pop-ups.

### 6. Django

Django is a high-level Python web framework that encourages rapid development and clean design. It follows the Model-View-Template (MVT) architectural pattern and provides built-in features for authentication, URL routing, database management, and more.

### 7. Flask

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Flask is a lightweight Python web framework that is easy to learn and quick to set up. It is known for its simplicity and flexibility, making it a popular choice for small to medium-sized web applications.

## 8. MVC Architecture

MVC, or Model-View-Controller, is a software design pattern commonly used in web development. It separates the application into three interconnected components: the model (data), the view (presentation), and the controller (logic).

## 9. RESTful API

REST, or Representational State Transfer, is an architectural style for designing networked applications. A RESTful API uses standard HTTP methods (GET, POST, PUT, DELETE) to perform CRUD (Create, Read, Update, Delete) operations on resources.

## 10. SQL

SQL, or Structured Query Language, is a domain-specific language used for managing relational databases. It allows developers to query, update, and manipulate data stored in a database.

## 11. ORM

ORM, or Object-Relational Mapping, is a programming technique that converts data between incompatible type systems – in this case, between object-oriented programming languages like Python and relational databases like MySQL or PostgreSQL.

## 12. Git

Git is a distributed version control system used for tracking changes in source code during software development. It allows multiple developers to collaborate on a project, manage different versions of the code, and track changes over time.

## 13. Deployment

Deployment refers to the process of making a web application accessible to users on the internet. It involves configuring servers, setting up databases, and ensuring the application runs smoothly in a production environment.

## 14. Virtual Environment

A virtual environment is a self-contained directory that contains a specific version of Python and its dependencies. It allows developers to work on multiple projects with different dependencies without affecting each other.

## 15. Frontend

The frontend of a web application refers to the part that users interact with. It includes the user interface,

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design, and functionality that are visible in a web browser.

## 16. Backend

The backend of a web application refers to the server-side code that runs on the server. It processes requests from the frontend, interacts with databases, and generates dynamic content to be displayed on the frontend.

## 17. API

API, or Application Programming Interface, defines how different software components should interact with each other. It allows developers to access the functionality of a web application or service programmatically.

## 18. DevOps

DevOps is a set of practices that combines software development (Dev) and IT operations (Ops) to improve collaboration, automation, and efficiency in delivering software applications.

## 19. Continuous Integration/Continuous Deployment (CI/CD)

CI/CD is a set of practices that automate the process of integrating code changes into a shared repository (Continuous Integration) and deploying code changes to production (Continuous Deployment) in a fast and reliable manner.

## 20. Scalability

Scalability refers to the ability of a web application to handle increased traffic or workload without sacrificing performance. It involves designing the application architecture to accommodate growth and demand.

## 21. Security

Security is a crucial aspect of web development that involves protecting web applications from threats such as hacking, data breaches, and unauthorized access. It includes implementing encryption, authentication, and other security measures to safeguard sensitive data.

## 22. Cross-Site Scripting (XSS)

Cross-Site Scripting (XSS) is a security vulnerability that allows attackers to inject malicious scripts into web pages viewed by other users. It can be used to steal sensitive information, hijack user sessions, or deface websites.

## 23. Cross-Site Request Forgery (CSRF)

Cross-Site Request Forgery (CSRF) is a type of attack where a malicious website tricks a user into unknowingly submitting a request to a different website where the user is authenticated. This can lead to unauthorized actions being performed on behalf of the user.

## 24. Single Page Application (SPA)

A Single Page Application (SPA) is a web application that loads a single HTML page and dynamically updates the content as the user interacts with the application. SPAs provide a seamless user experience by avoiding page reloads.

## 25. Responsive Design

Responsive design is a web design approach that ensures a website's layout and content adapt to different screen sizes and devices. It allows websites to be accessible and usable on desktops, tablets, and smartphones.

By understanding and mastering these key terms and vocabulary, you will be well-equipped to navigate the world of Python web development and build powerful and efficient web applications. Through hands-on exercises, projects, and challenges in this course, you will apply these concepts in real-world scenarios and enhance your skills as a Python web developer.