SDV602 Essay

Python & JavaScript Comparison

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Table of Contents

SDV601 A1 Project Plan

Heritage & Philosophy

Python:

Python was created in 1991 by Guido Van Rossum. He created the language so that he could have access to different styles of programming, functional-oriented and object-oriented. The language was released publicly in the year 2000 as Python 2 and was widely well-received.

Python is a multiparadigm programming language that has the ability to be used with several different programming styles in mind. Other functionality is available through external third-party extensions and libraries. Python is a vast language that can be used in many ways. With the use of modules, Pythons functionality can be expanded to suit your needs.

JavaScript:

Created in 1995, JavaScript is a programming language that was designed to be compatible with most web browsers. The standard JavaScript set with its creation is known as the ECMAScript standard. This standard was put in place to ensure that professional practices would apply to all aspects of web development.

JavaScript can be used in many different instances just like Python. JavaScript achieves this slightly differently than Python does, instead, it uses APIs within its code base to create data structures, expressions, and other functionality. Currently, JavaScript is one of the most popular programming languages with developers across the world.

JavaScript was created based on an older language called Smalltalk and was considered a lightweight easy-to-use version of Smalltalk on release. Over the years JavaScript has been updated with more functionality and new ways of doing things with each new version released.

Platforms

IDE's:

IDE stands for Integrated Development Environments and is used to perform functions such as running and executing code, debugging, interpreting, compiling, and acting as a terminal. It is known as a development environment that programmers can use to write, compile, and debug code all in one place.

Libraries:

Code libraries are collections of prewritten code that are used by developers to make their lives easier. These libraries provide specialized pieces of code that make small, tedious, and constantly repeated tasks easier. By using libraries, developers can spend a greater amount of time implementing the niche sections of their applications instead of having to build everything from scratch.

Package Management:

Package management is conducted using a package management system, these are a collection of software tools that automate the process of installing, updating, configuring, and removing programmers from a computer system. The package manager is activated through a request from the user which prompts the manager to find and download the requested package. The package management system will then install the requested package.

Python:

Python is used to create many different types of applications such as software development, web development, data science, machine learning, and artificial intelligence. This makes Python a popular language because it has such a large scope of things it can achieve.

Python IDE's:

- **PyCharm:** This editor assists the developer with code suggestions, error detection, and more.

Python Libraries:

- **PIP:** This is a package manager that allows the installation and deletion of libraries.

- **Pandas:** This library adds functionality that allows the manipulation of data.

- **MatPlotLib:** This library adds the functionality to create and display graphs in a GUI.

JavaScript:

JavaScript is a language that is mostly focused on web development and most of the software and libraries are suited as such.

JavaScript IDE's:

- **Visual Studio Code:** This code editor is preferred by most JavaScript developers. The other bonus about this IDE is that it can be used with multiple different languages to do many different things, not just web development.

JavaScript Libraries:

- **NPM:** Node package manager is JavaScript's version of a package manager that allows the installation and deletion of libraries.

- **React.js:** React is a library that is used by most web developers and is used to create the front end of a website, the UI elements.

- **jQuery:** jQuery is a lightweight library used with HTML files to create event handlers.

Strengths & Weaknesses

Advantages of Python:

- Python is easy to learn and understand for someone new to programming.
- Python is open source making it easily available to anyone.
- There is a vast number of different applications you can create with Python

Advantages of JavaScript:

- Many open-source services that make learning JavaScript simple and straightforward.
- A vast amount of information online due to the language's popularity.
- Runs on the client side of the web browser, reducing the load on the server.

Disadvantages of Python:

- Python can be slow since it has to run line by line.
- Memory usage can become a problem in larger applications, not having enough to process procedures.

Disadvantages of JavaScript:

- Can have security issues if steps are not taken in order to prevent such things from happening.
- Can have issues with certain web browsers. Some web browsers don't have the functionality to support some aspects of the language.