

Here is the small introduction of the language that I described above
So let's start with Python

PYTHON - It is a popular programming language, it was created by Guido van Rossum, and released in 1991.

It is used for -

- web development (server-side)
- software development,
- mathematics
- system scripting.

What can Python do?

- Python can be used on a server to create web applications.
- Python can be used alongside software to create workflows.
- Python can connect to database systems. It can also read and modify files.
- Python can be used to handle big data and perform complex mathematics.
- Python can be used for rapid prototyping, or for production-ready software development.

Why Python ?

- Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc.)
- Python has a simple syntax similar to the English language.
- Python has syntax that allows developers to write programs with fewer lines than some other programming languages.
- Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.
- Python can be treated in a procedural way, an object-oriented way.

Python Syntax Compared to other programming LANGUAGES -

- Python was designed for readability and has some similarities to the English language with influence from mathematics.
 - Python uses new lines to complete a command, as opposed to other programming languages which often use semicolon or parentheses.
 - Python relies on indentation, using whitespace, to define scope; such as the scope of loops, functions and classes. Other programming languages often use curly brackets for this.
- Example - `print ("Hello, World!")`

★ Django Introduction -

Django is a Python framework that makes it easier to create web sites using Python.

Django takes care of the difficult stuff so that you can concentrate on building your web applications.

Django emphasizes reusability of components, also referred to as DRY (Don't Repeat Yourself) and comes with ready-to-use features like login system, database connection and CRUD operations (Create Read Update Delete).

How Does Django Work?

Django follows the MVT design pattern (Model view template)

- Model - The data you want to present, usually data from a database.
- View - A request handler that returns the relevant template and content based on the request from the user.
- Template - A text file (like an HTML file) containing the layout of the web page, with logic on how to display the data.

URLs -

Django also provide a way to navigate around the different pages in a website. When a user requests a URL, Django decides which view it will send it to.

This is done in a file called urls.py.

So, What is Going on ??

When you have installed Django and created your first Django web application and the browser requests the URL, this is basically what happens -

- ① Django receives the URL, checks the urls.py file, and calls the view that matches the URL.
 - ② The view located in views.py, checks for relevant models.
 - ③ The models are imported from the models.py file
 - ④ The view then sends the data to a specified template in the template folder.
 - ⑤ The template contains HTML and Django tags, and with the data it returns finished HTML content back to the browser.
- Django can do a lot more than this, but this is basically the basic steps in a simple web application made with Django.

SQL INTRODUCTION -

SQL is a standard language for accessing and manipulating databases.

What is SQL?

SQL stand for Structured Query Language
SQL lets you access and manipulate databases.

SQL became a standard of the American National Standards Institute(ANSI) in 1986, and of the International Organization for Standardization ISO in 1987.

What Can SQL do?

SQL can execute queries against a database.
SQL can retrieve data from a database.
SQL can insert records in a database.
SQL can update records from a database
SQL can delete records from a database
SQL can create new database
SQL can create new tables in a database
SQL can create stored procedures in database
SQL can create views in a database
SQL can set permissions on tables, procedures and views.

SQL is a standard - BUT....

Although SQL is an ANSI/ISO standard, there are different versions of the SQL Language.

EXAMPLE of SQL -

`SELECT * FROM customers;`

HTML Introduction -

HTML stands for HyperText Markup Language. It is used to design web pages using a markup language. HTML is the combination of Hypertext and Markup Language. Hypertext defines the link between web pages. A markup language is used to define the text document within the tag which defines the structure of web pages. This language is used to annotate (make notes for the computer) text so that a machine can understand it and manipulate text accordingly. Most markup languages (e.g. HTML) are human readable. The language uses tags to define what manipulation has to be done on text.

HTML is a markup language used by the browser to manipulate text, images, and other context in order to display it in the required format. HTML was created by Tim-Berners-Lee in 1991. The first-ever version of HTML was HTML 1.0 but the first standard version was HTML 2.0, published in 1995.

Elements and Tags - HTML uses predefined tags and elements which tell the browser how to properly display.

the content. Remember to include closing tags. If omitted, the browser applies the effect of the opening tag until the end of the page.

HTML Page Structure - The basic structure of an HTML page is laid out below. It contains the essential building-block element (i.e. doctype declaration, HTML, head, title, and body elements) upon which all web pages are created.

STRUCTURE

```
<!DOCTYPE html>           ← Tells version of HTML
<html>                  ← HTML Root element
<head>                  ← Used to contain page HTML metadata
<title> Page title </title> ← Title of HTML page
</head>                  ← closing of .head tag

<body>                  ← Hold content of HTML
  <h2> Heading Content </h2> ← HTML heading tag.
  <p> Paragraph Content </p> ← HTML paragraph tag
</body>
</html>
```

An HTML document can be created using any text editor. Save the text file using .html or .htm. Once saved the file the html file can be opened as a webpage.

Features Of HTML :-

- It is easy to learn and easy to use.
- It is platform-independent.
- Images, videos, and audio can be added to a web page.
- Hypertext can be added to the text.
- It is a markup language.

Why learn HTML?

- It is a simple markup language. Its implementation is easy.
- It is used to create a website.
- Helps in developing fundamentals about web programming.
- Boost professional career.

ADVANTAGES -

- HTML is used to build websites.
- It is supported by all browsers.
- It can be integrated with other languages like CSS, Javascript, etc.

DISADVANTAGES -

- HTML can only create static web pages. For dynamic web pages, other languages have to be used.
- A large amount of code has to be written to create a simple web page.
- The security feature is not good.

CSS INTRODUCTION :-

Cascading Style Sheets, fondly referred to as CSS, is a simply designed language intended to simplify the process of making web pages presentable. CSS allows you to apply styles to web pages. More importantly, CSS enables you to do this independent of the HTML that makes up each web page. It describes how a webpage should look: it prescribes colours, fonts, spacing and much more. In short you can make your website look however you want. CSS lets developers and designers define how it behaves, including how elements are positioned in the browser.

While html uses tags, CSS uses rulesets. CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document.

Why CSS?

CSS saves time: You can write CSS once and reuse the same sheet in multiple HTML pages.

- Easy Maintenance - To make a global change simply change the style, and all elements in all the webpages will be updated automatically.
- Search Engines - CSS is considered a clean coding technique, which means search engines won't have to struggle to "read" its content.
- Superior styles to HTML - CSS has a much wider array of attributes than HTML, so you can give a far better look to your HTML page in comparison to HTML attributes.
- Offline Browsing - CSS can store web applications locally with the help of a offline cache. Using this we can view offline websites.
- CSS Syntax - CSS comprises style rules that are interpreted by the browser and then applied to the corresponding elements in your document. A style rule set consists of a selector and declaration block.

Selector -- h1

Declaration -- { color: blue; font-size: 12px; }

The selector points to the HTML element you want to style.

The declaration block contains one or more declarations separated by a semicolon.

Each declaration includes a CSS property name and a value, separated by a colon.

For Example:

color is property and blue is value.

font-size is property and 12px is value.

CSS declaration always ends with a semicolon, and declaration blocks are surrounded by curly braces.

INTRODUCTION To JAVASCRIPT

Javascript is a lightweight, cross-platform, and interpreted compiled programming language which is also known as the scripting language for webpages. It is well known for the development of web pages, many non-browser environments also use it. Javascript can be used for client-side developments as well as server side developments. Javascript is both imperative and declarative type of language. Javascript contains a standard library of objects, like Array, Date, and Math and a core set of language elements like operators, control structures and statements.

Client - side : It supplies objects to control a browser and its Document object model (Dom), Like if client - side extensions allow an application to place elements on an HTML form and respond to user events such as mouse clicks, form input, and page navigation. Useful libraries for the client side are Angular Js, React Js, VueJs and many other.

Server-side : It supplies objects relevant to running Javascript on a server. Like if the server-side extensions allow an application to communicate with a database and provide continuity of information from one invocation to another of the application or perform file manipulations on a server. The useful framework which is mostly used is node.js.

Internal Js : We can add JavaScript directly to our HTML file by writing the code inside the `<script>` tag. The `<script>` tag can either be placed inside the `<head>` or the `<body>` tag accordingly to the requirement.

External Js : We can write JavaScript code in other file having an extension .js and then link this file inside the `<head>` tag of the HTML file in which we want to add this code.

Syntax -

```
<script>
  // Javascript code
</script>
```

Small History of Javascript - It was created in 1995 by Brendan Eich while he was an engineer at Netscape.

Features Of JavaScript :

Acc. to a recent survey, JavaScript is the most popular language on earth.

Here are a few things that we cardo with JavaScript :

- JavaScript was created in the first place for Dom manipulation. Earlier websites were mostly static, after JS was created dynamic websites were made.
- Functions in JS are objects. They may have properties and methods just like another object. They can be passed as arguments in other functions.
- Can handle date and time.
- Performs form Validation although the forms are created using HTML.
- No compiler is needed.

APPLICATIONS OF JAVASCRIPT :

Web - Development - Adding interactivity and behaviour to static sites JS was invented to do this in 1995.

Web - Application - With technology, browsers have improved to the extent that a language was required to robust web applications.

Games - Not only in websites, But JS also helps in creating games for leisure. The combination of JS and HTML5 make JS popular in game development as well.

Smartwatches - JavaScript is being used in all possible devices and applications. It provides a library PebbleJS. This framework works for applications that require the internet for its functioning.

Machine Learning - This JavaScript ml5.js library can be used in web development by using machine learning.

And many more features JS provide us.

Limitations of JavaScript -

- Security risks - JS can be used to sneak to fetch data using AJAX or by manipulating tags that load data such as ``, `<object>`, `<script>`. These attacks are called cross site script attacks. They inject JS that is not the part of the site into the visitor's browser thus fetching the details.
- Weak error handling and type checking facilities: It is weakly typed language as there is no need to specify the data type of the variable. So wrong type checking is not performed by compiler.

BOOTSTRAP INTRODUCTION

Bootstrap is a free and open source tool collection for creating responsive websites and web applications. It is the most popular HTML, CSS and JS framework for developing responsive, mobile-first websites. It solves many problems which we had once, one of which is the cross-browser compatibility issue. Nowadays, the websites are perfect for all the browser (IE, Firefox and Chrome) and for all sizes of screens (Desktop, Tablets, Phablets, and phone). All thanks to Bootstrap developers Mark Otto and Jacob Thornton of Twitter though it was later declared to be an open source project.

Why Bootstrap?

Faster and Easier Web-Development
It creates Platform-independent web pages.
It creates Responsive Web-pages.
It is designed to be responsive to mobile devices.
It is freely Available on www.getbootstrap.com.