

Training Report

On

Web Development

For partial fulfilment of the requirement for award

Of

Diploma in Computer Engineering



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(Ludhiana)

SUBMITTED TO

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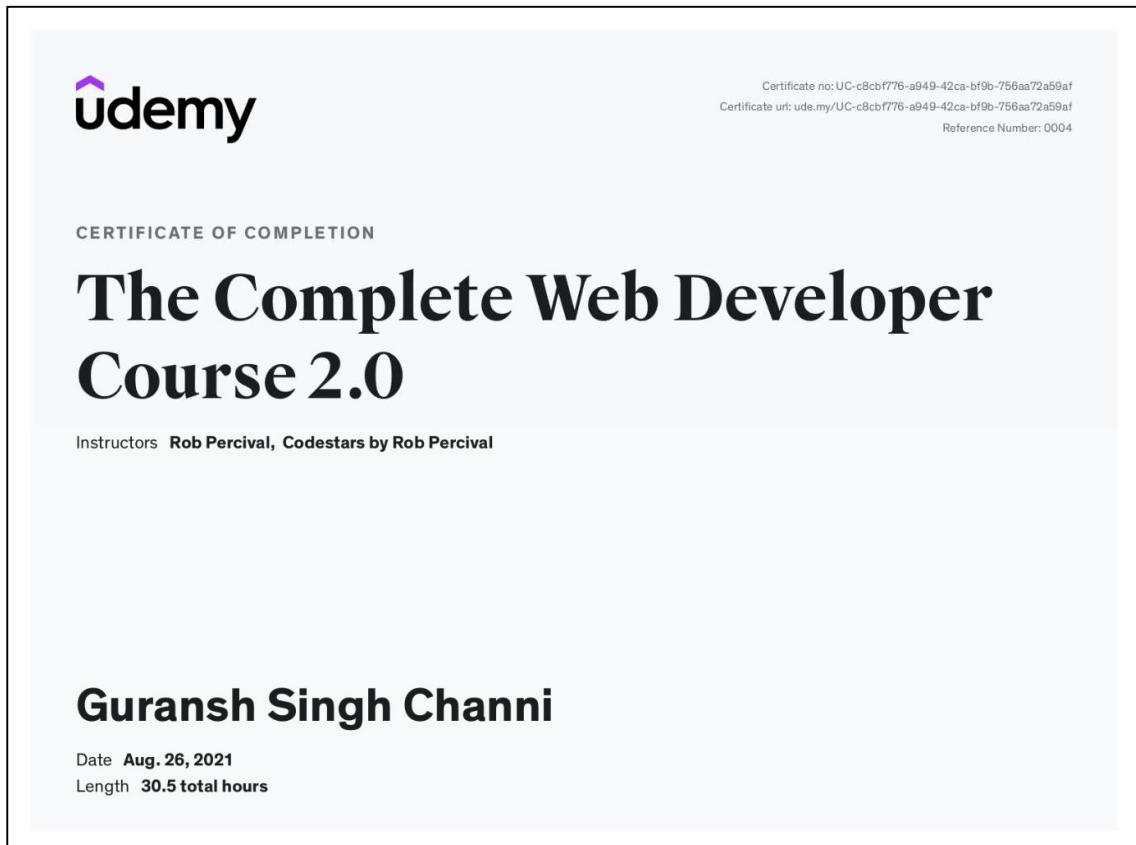
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Certificate



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Yours sincerely

Guransh Singh Channi

Introduction

HTML 5

Hyper Text means a special text which has: Link to other resources in the Internet. It can include Videos, Images and Sounds. The most important part of Hypertext is the ability to link other resources on the server which can be accessed via the link.

Hypertext are displayed on the computer screen mostly Browser like Chrome from Google, Edge from Microsoft and Firefox. Learn more about the Hypertext from [here](#)

HTML is a markup language that web browsers use to interpret and compose text, images, and other material into visual or audible web pages HTML5 is the latest version of HTML.

Tag, Element and Attribute -

Markup language-

Markup languages are written using the Markups.

We mention marks before and after the content to show it has a special meaning to it. Example of Markup: means everything you write using HTML will be with markups and write the content between the markups.

Tags-

A Tag is the text between the left angle bracket (`<`). There are starting tags (such as `<h1>`) and there are ending tags (`</h1>`)

Element-

An Element is the opening tag, the closing tag and anything in between. It is also called as self-closing element.

Attribute-

An Attribute is a name=value pair inside the Element. Attribute help to show additional details about the element.

Example: `<h1 German Shepard = ELEMENT German Shepard = ELEMENT with ATTRIBUTE Color = "brown">` is called as Attribute.

HTML

This is the root element and tell browser that this is a HTML document. All the HTML tags should be inside this element. You should not define anything outside this element

. HEAD

Head element is used for the following things:

Include other supporting files required for this page. Tell search engine about your page. Set Title for your Page. Mention the Meta

data about your page. All the elements you define in the HEAD tag are not displayed on the page.

BODY

This is the place where you define all the elements. Any element defined under body will be displayed on the page.

Usage of Headings -

Headings are used to display title of the paragraph or show some text in bigger size and bolder.

There are 6 headings tags -

h1 is the bigger and h6 being the smallest.

Usage of Paragraphs-

Paragraphs are the place where you put most of your content to display on the browser. Paragraph tags helps to organize the content nicely into small container which makes content easy to read and edit it. TAG: <p>

ELEMENT: <p>some text<p>

Usage of Definition List

Definition list is used to define Definition of list. It is often used as a header for the list.

Usage of Ordered List

Ordered List is used to show list of items with numbers. It is often used to list the points like 1, 2, 3. The numbers will be auto generated by the tag.

Usage of Article

Article is used to define one group of content which has heading, links and paragraph to make up one independent content on the page. A blog page can have list of all the articles displayed in small summary.

Article can have header, paragraph and footer. It makes up into a logical grouping of things in that article. tag is used to group the articles into sections.

TAG: <section>, <header>, <footer>

CSS 3

CSS stands for Cascading Style Sheet. It is used to describe how the content should be displayed on the browser, print or screen. With CSS Language, you can control the layout of the page, color of the text, size of the font, spacing between the text, width and height of the elements and complete presentation of the web page.

Load the CSS once per page and it will manage the entire page layout and presentation. Helps to change the page layout based on the screen the site is viewed on like Mobile, Tablet or Computer Screen.

CSS helps to separate the presentation work from the HTML page and the developer can focus on building the content and displayed it separately.

Global Standards also suggest to use CSS and do not use any HTML attributes to style the tag. Reuse the same CSS for multiple WordPress site to have the same look and feel.

It represents the name of Selectors are the HTML tags that you want to apply the style on. Custom selectors are the selectors which name does not matches with the HTML tag name.

Example: h1 is a selector and h1a is a custom selector. the attribute you want to change. value is the value of that property. {} is called as block. {property: value;} is called as Declaration.

Collection of Declaration is called as Declaration Block. You can separate each declaration with; inside the block. Declaration property is predefined like color, font-size it cannot be custom name

Usage of Internal CSS

Cascaded Style Sheet (CSS) can be written in many different places in HTML page. One of the methods of defining the CSS is inside the same HTML page. This type of CSS includes is restricted to page level only means you cannot reuse this code in some other pages.

Benefit of using this internal CSS is when you want specific changes to apply for

style> tag is used to write the CSS inside this tag. This tag <style> define inside the <head>

Usage of External CSS

Cascaded Style Sheet (CSS) can be written in many different places in HTML page. One of the methods of defining the CSS is externally which means you can write CSS inside a file and import it into the HTML page.

External CSS means the CSS is written externally into another file which is later linked in the page. This type of external CSS is very powerful and helpful technique which is commonly used in every website development.

Benefit of using this external CSS is that you have one CSS file that is included in all the website pages.

By just changing at one place in the CSS it will impact the overall site design look and feel.

This is one of the best practices to separate the design with the html tags and store them in an external file and include it in all the HTML pages.

External CSS filename should be .CSS and it is included in the section with tag

<Link>tag is used to link the resource to the HTML page. The attribute of link tag will let the browser knows what type of resource it is.

rel attribute is used to tell browser what kind of resource it is. rel = “stylesheet” means it is a file with CSS inside it.

type attribute tells the type of the content in the file. In this case, it is text/css href attribute is similar to tag

href to map the location of the file in the server with the path and filename.

media attribute tells the browser to embed the file for screen purpose

Usage of Inline CSS

Inline CSS is defined inside the tag itself like an attribute. Inline CSS overrides all the styles defined in internal CSS and External CSS. This is defined in the HTML tag as a attribute.

Usage of Linking CSS

CSS files can be linked together and embed into one another. Linking one CSS into another CSS file can help to split the functionality into smaller units

Pseudo class are separated with “:” along with the HTML tags.

Usage of Pseudo Elements

Selector Pseudo Elements Selector are rules that you want to add right after the element is closed. Irrespective of what is there after the tag. For Example, You want to add “!!!” after every paragraph ending. Then you can use the Pseudo Element Selector.

Usage of Precedence

There are many ways to write the same rule in different ways but which one will be applied on the browser depends on the precedence of the rule.

Some rule has higher priority or precedence over the other rules.

Here are some the rules of precedence:

Order of precedence and last one is applied and gets higher precedence.

ID selector has higher precedence than class selector.

```
div {color: red;}
```

```
div {color: blue'}
```

div will be blue in color because of the order of the precedence. CSS rule that is more specific has more priority and applied.

```
text-blue {color: blue;} div.text-blue {color: blue;}
```

div.text-blue gets the higher precedence over normal .text-blue class selector because it is very specific to div tag.

Usage of Inheritance

All the styles are inherited from the parent styles. This is very important concept to understand

. Let's say you set the background color of body as red color then all elements get the red background. If we make the font color as red in body then all the text on the page will be red in color.

The style is inherited from parent tags to child tags.

Usage of Last Rule Wins

When working with CSS you will often find a situation when we want to apply that last rule and it should work everytime irrespective of all the other inheritance rules applied on that tag.

We can specify the last rule to the tag using the inline css on the tag itself. This last rule can be applied with style attribute on the tag.

All the elements will have this style attribute using which you can apply the desired style which will override all the styles mentioned in the internal or external CSS.

JavaScript

JavaScript main purpose is to execute program at the browser

Usage of Internal JavaScript can be written in many different places in HTML page. One of the methods of defining the JavaScript is inside the same HTML page

This type of JavaScript includes is restricted to page level only means you cannot reuse this code in some other pages.

Benefit of using this internal JavaScript is when you want specific changes to apply for that page level only

Usage of External JavaScript (JS) can be written in another file and included inside the HTML page

This type of external JS is very powerful and helpful technique which is commonly used in every website development.

Benefit of using this external JS is that you have one JS file that is included in all the website pages. By just changing at one place in the JS it will impact the overall site design look and feel.

Usage of Inline JavaScript

Inline JavaScript is defined inside the HTML tag itself like an attribute. Inline JS overrides all the styles defined in internal JS and External JS.

Inline JS code is executed first. This is defined in the HTML tag as a attribute.

Calling this alert is handled by the browser itself. When user clicks on the link, browser will raise the click event on this tag and because we ask to raise an alert when this event is raised. This method is called.

Whatever is mentioned inside the onClick value will be executed as JavaScript. JavaScript is written inside this onClick event within double quotes “”. All the JavaScript is exactly similar as mentioned in internal and external JavaScript.

JavaScript Terminology

These are the terms you need to know if you are a JavaScript Programmer.

Semicolon (;) – Semicolon symbol is used to indicate the browser that line is finished.

Brackets – [] – These are used to represent Arrays. Braces – {} – Flower brackets are used to define the scope like starting point and ending point and we write the code inside this block.

Like starting of function and ending of a function. parentheses – () – Is used to call a function. Identifiers – are the name given to variables, functions, properties or object. Anything you name it is identifier.

Variable – Any identifier that stores a value. Operators – Special symbols that are used to perform some operation. Like Arithmetic operator + is used to add two numbers.

Testing Debugging JavaScript

Because JavaScript runs in the browser the only way to debug the JavaScript program is from the browser tools Chrome and Firefox has plenty of debugging tools that can help to find the issue and fix it.

We can pause the execution of JavaScript program and debug it steps by step. You need to learn this method to find the issues in JavaScript and Fix it. Inspect Window

Usage of Identifiers

Identifiers are the name that we give to variables, functions, objects, properties and events. There are some rules that you need follow to define the Identifiers.

- Identifiers can contain only letters, numbers, underscore and dollar sign

Usage of Primitive Data Types

Primitive data types mean the basics data types that can be used in JavaScript programs.

There are 3 Primitive Data Types:

1. Number Data Type
2. String Data Type
3. Boolean Data Type

Number Data Type is used to store whole, positive, negative and decimal numbers.

String Data Type is used to store character data.

Boolean Data Type is used to store true and false values.

Keywords

These are the list of the keywords that you should not use to define variables. Keywords should not be used as Identifiers.

Keywords separated with space: abstract arguments Boolean break byte case catch char class const continue debugger default delete do double else Enum eval export extends false final finally float for function go to if implements import in instance of int interface let long native new null package private protected public return short static super

Reserved Words

These are the list of the reserved words that you should not use to define variables, functions, objects or properties. Reserved words should not be used as Identifiers.

Usage of Assignment Expressions

Expressions are evaluated into a result value or final value or single value.

There are couple of Expressions:

1. Assignment Expressions
2. Comparison Expressions
3. Arithmetic Expressions
4. Logical Expressions

= is the assignment operator which assigns the value to the variable.

message = "something"; is an assignment expression that assign value to the message variable.

Usage of Comparison Expressions

Expressions are evaluated into a result value or final value or single value.

> is the comparison operator which compares the two values. message variable will be having a true or false.

Comparison Operations:

- < – Less than
- > – Greater than
- == – Equal to
- === – Equal value and Equal Data Type
- !== – Not Equal Value and Equal Data Type
- != – Not Equal • >= – Greater than or Equal to

Conditional (Ternary) Operator

JavaScript also contains a conditional operator that assigns a value to a variable based on some condition.

Variable name = (condition)? value1:value2 counter = (10<=10)? 10: 0;

Usage of Arithmetic Expressions

Expressions are evaluated into a result value or final value or single value.

There are couple of Expressions:

1. Assignment Expressions
2. Comparison Expressions
3. Arithmetic Expressions
4. Logical Expressions

Arithmetic expression always evaluates into a single value. A series of operations that results into a single value.

- — Decrement

Order of Precedence

Order of precedence decides which operates evaluates first. From Left to Right, these operators have higher priority

- ++

- —
- * / %
- + -

Usage of Logical Expressions

Expressions are evaluated into a result value or final value or single value.

Logical Operators are used to check the if the condition is true or false based on many conditions.

&& is the logical operator which checks left side and right-side value and decides if the condition is true or false.

$(5 > 3)$ – true

$(8 < 5)$ – false

true && false = false result variable will have false Boolean value.

Order of Precedence

Order of precedence decides which operates evaluates first.

- NOT
- AND
- OR

Usage of String Operations

There two string operators that can be used to join the string:

1. +
2. +=

Usage of Arrays

Arrays are special type of Objects that holds one or more items called as elements. Each element could be primitive data type or object.

length is used to indicate the number of elements in the array. Define an Array

ARRAY LITERAL: `var arrayName = [1, 2, 'white', false];`

ARRAY CONSTRUCTOR: `var arrayName = new Array (length / values);`

Usage of Date and Time

Date () is a class library available to access the date. However, Date is not a primitive data type. We need to create an instance of Date to access the date functions.

`var today = new Date ();` By default, dt will have user system date and it can be displayed with its methods.

Date Methods

Statements-

1. If statement is used to check a condition and make a decision based on the result of the condition. It can choose some action when the condition is true and also take some action when it false.
2. Switch statement are used to check a value and make a decision based on the result of the value matching.
3. While statements are used to loop a block code and run it until a condition is met. Running the same block of code until the condition is satisfied.
4. For Loop are used to loop a block code and run it until a condition is met. Running the same block of code until the condition is satisfied.

Functions-

Functions is a block of statements that performs an action.

We can pass parameters to functions and it can return a value from the function using “return” keyword.

Syntax of Function Declaration:

```
function nameOfFunction (Parameters) {return some Value;}
```

Objects-

Object groups variables and functions together. Variables in objects are called as Properties.

function in Objects is called as Methods.

If Hotel is an Object, then numberOfRoom is a property and checkAvailability () is a function.

Events

Events are actions that user performs on the browsers. Functions that handle the events are called as Event Handlers.

Common Events with the elements:

- onClick
- ondblClick
- onmouseover
- onmouseup
- onmouseout

Try Catch Blocks Exceptions

in programming are referred as Runtime Errors. When Runtime Errors happens there is a way to catch those errors and pass it to the application and make a clean exit from the program.

This is called as Exception Handling.

The process of making sure the code will not break and if it does it know the reason for it and make a clean exit.

To handle Runtime errors in the JavaScript we have try-catch blocks. Using this we can catch the errors and decide what to do next

. Throw is a keyword to throw an error from the program. Once the program throws an error it will stop processing the next steps. It will jump to catch {} block.

Catch {} block will be executed once the throw is called. The program will execute out from the catch block safely

Finally `}` block will execute every time irrespective of error or not. It is good place to close all open connections. Handle clean exit

Document Object Model or DOM

In short is nothing but the hierarchy representation of all the HTML elements like a tree. DOM is created by the browser for the HTML page so that it can easily navigate and make changes to the elements.

We can read any element from the DOM using JavaScript functions:

1. `getElementById(idName)`
2. `getElementsByTagName(tagName)`
3. `getElementByName(name)`
4. `getElementByClassName(className)`

Access the Form Elements

We can access all the form elements using the DOM.

This is very helpful when you want to check what user has entered the data before sending the data to server to save it.

It is called as Client-Side Validation.

Usage Browser History Snippet

This snippet of code will help us to navigate the page front or back based on the page history.

We can make the page go back and front from the JavaScript.

jQuery

jQuery is a JavaScript library designed to simplify HTML DOM tree traversal and manipulation, as well as event handling, CSS animation, and Ajax. It is free, open-source software using the permissive MIT License. As of May 2019, jQuery is used by 73% of the 10 million most popular websites. Web analysis indicates that it is the most widely deployed JavaScript library by a large margin, having at least 3 to 4 times more usage than any other JavaScript library.

jQuery's syntax is designed to make it easier to navigate a document, select DOM elements, create animations, handle events, and develop Ajax applications. jQuery also provides capabilities for developers to create plug-ins on top of the JavaScript library. This enables developers to create abstractions for low-level interaction and animation, advanced effects and high-level, theme able widgets. The modular approach to the jQuery library allows the creation of powerful dynamic web pages and Web applications.

The set of jQuery core features—DOM element selections, traversal and manipulation—enabled by its selector engine (named "Sizzle" from v1.3), created a new "programming style", fusing algorithms and DOM data structures. This style influenced the architecture of other JavaScript frameworks like YUI v3 and Dojo, later stimulating the creation of the standard Selectors API. Later, this style has been enhanced with a deeper algorithm-data fusion in an heir of jQuery, the D3.js framework.

Microsoft and Nokia bundle jQuery on their platforms. Microsoft includes it with Visual Studio for use within Microsoft's ASP.NET AJAX and ASP.NET MVC frameworks while Nokia has integrated it into the Web Run-Time widget development platform.

jQuery, at its core, is a Document Object Model (DOM) manipulation library. The DOM is a tree-structure representation of all the elements of a Web page. jQuery simplifies the syntax for finding, selecting, and manipulating these DOM elements. For example, jQuery can be used for finding an element in the document with a certain property (e.g. all elements with an h1

tag), changing one or more of its attributes (e.g., color, visibility), or making it respond to an event (e.g., a mouse click).

jQuery also provides a paradigm for event handling that goes beyond basic DOM element selection and manipulation. The event assignment and the event call-back function definition are done in a single step in a single location in the code. jQuery also aims to incorporate other highly used JavaScript functionality (e.g., fade ins and fade outs when hiding elements, animations by manipulating CSS properties).

The principles of developing with jQuery are:

- Separation of JavaScript and HTML: The jQuery library provides simple syntax for adding event handlers to the DOM using JavaScript, rather than adding HTML event attributes to call JavaScript functions. Thus, it encourages developers to completely separate JavaScript code from HTML markup.
- Brevity and clarity: jQuery promote brevity and clarity with features like "chainable" functions and shorthand function names.
- Elimination of cross-browser incompatibilities: The JavaScript engines of different browsers differ slightly so JavaScript code that works for one browser may not work for another. Like other JavaScript toolkits, jQuery handles all these cross-browser inconsistencies and provides a consistent interface that works across different browsers.
- Extensibility: New events, elements, and methods can be easily added and then reused as a plugin.

jQuery includes the following features:

- DOM element selections using the multi-browser open-source selector engine Sizzle, a spin-off of the jQuery project.
- DOM manipulation based on CSS selectors that uses elements' names and attributes, such as id and class, as criteria to select nodes in the DOM
- Events
- Effects and animations

- Ajax
- Deferred and Promise objects to control asynchronous processing
- JSON parsing
- Extensibility through plug-ins
- Utilities, such as feature detection
- Compatibility methods that are natively available in modern browsers, but need fallbacks for older browsers, such as `jQuery.inArray()` and `jQuery.each()`.
- Cross-browser support.

Bootstrap

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components.

Bootstrap is an HTML, CSS & JS Library that focuses on simplifying the development of informative web pages (as opposed to web apps). The primary purpose of adding it to a web project is to apply Bootstrap's choices of color, size, font and layout to that project. As such, the primary factor is whether the developers in charge find those choices to their liking. Once added to a project, Bootstrap provides basic style definitions for all HTML elements. The result is a uniform appearance for prose, tables and form elements across web browsers. In addition, developers can take advantage of CSS classes defined in Bootstrap to further customize the appearance of their contents. For example, Bootstrap has provisioned for light- and dark-colored tables, page headings, more prominent pull quotes, and text with a highlight.

Bootstrap also comes with several JavaScript components in the form of jQuery plugins. They provide additional user interface elements such as dialog boxes, tooltips, and carousels. Each Bootstrap component consists of an HTML structure, CSS declarations, and in some cases accompanying JavaScript code. They also extend the functionality of some existing interface elements, including for example an auto-complete function for input fields.

The most prominent components of Bootstrap are its layout components, as they affect an entire web page. The basic layout component is called "Container", as every other element in the page is placed in it. Developers can choose between a fixed-width container and a fluid-width container. While the latter always fills the width of the web page, the former uses one of the five predefined fixed widths, depending on the size of the screen showing the page:

- Smaller than 576 pixels
- 576–768 pixels

- 768–992 pixels
- 992–1200 pixels
- Larger than 1200 pixels
-

Bootstrap 5 was officially released on May 5, 2021.

Major changes include:

- New off canvas menu component
- Removing dependence on jQuery in favour of vanilla JavaScript
- Rewriting the grid to support columns placed outside of rows and responsive gutters
- Migrating the documentation from Jekyll to Hugo
- Dropping support for IE10 and IE11[17]
- Moving testing infrastructure from QUnit to Jasmine
- Adding custom set of SVG icons
- Adding CSS custom properties
- Improved API
- Enhanced grid system
- Improved customizing docs
- Updated forms
- RTL support

WordPress

WordPress is a Software that is used to build website. WordPress was developed to save our time in building the website.

WordPress is a Content Management System (CMS)

We will hear this word CMS repeatedly when we are reading about WordPress or talking to your friends about WordPress or in any training videos. So, before we move on let's understand this word CMS.

WordPress.org

WordPress.org is the place where you find the WordPress software and all the free stuff to build website with WordPress. All the things at WordPress.org is FREE to use because it is community where people share things, they developed using WordPress. WordPress.org is the official site for WordPress Software. WordPress news, new updates, add-on features can be found here along with plenty of third-party software for WordPress. It is a place where you find WordPress Software and get to know about WordPress.

WordPress.com provides space with some built in options to back up your code, security and other various website options.

5 things we can do with WordPress.

- Build a Blogging Site and Publish Contents.
- Sell things on your Website and Collect payments.
- Create Online Training Website and start collecting money from subscribers.
- Create One Page website for any Person, Shop or Company.

We can even create a Forum Site and build a community for a specific group.

WordPress is a Content Management System (CMS) that helps to manage your digital contents and publish it to WEB. With WordPress, you will be doing more of customization and less of coding. So, you need to learn WordPress software and how to use it. With WordPress you can build personal blogging site, news site, Forum Site and Company profile. Many famous companies have used WordPress to build a solid website. WordPress is Open Source and it is FREE to use.

PHP

When user types the filename.php path in the browser url: Browser will go to server where HTTP servers are running.

Web Server will listen to the request. It will execute the PHP code on the server.

We need a Web Server to run PHP code. Server executes php on the server and returns the output of the code.

We won't be able to see PHP code on the browser. Browser pass the user data from browser to server and fetch the data back from server.

Inserting into Database, Sending Email, Checking the login credentials is all done by php program at the server.

php file name should end with “.php” extension

We should write the php code with in this starting and ending symbols.

<?Php– server will stop interpreting the code.

//php code

?>

echo

echo is a function to print the data on the browser. There is no parenthesis () required to call the method and pass data to the method.

echo “some text to print”;

echo ‘some text to print’;

We can use single quote or double quotes and statement should end with semi colon “;”. We can even use print function

Print “some text to print”;

Comments

We can use the special notation to comment the code inside the php. Comments helps to document about the code with a single or multiple line. Comments are ignored by the Web

Server and it is not displayed and not sent to the browser. We will not see php comments in the final HTML output.

There are two types of Comments in PHP:

Single Line Comments

Multi Line Comments

// – This is Single Line Comments. Use to comment one line

– This is Single Line Comments. Use to comment one line.

/* – is used to indicate the comments are starting.

*/ – is used to indicate the comments are ended.

Anything between /* and */ will not be executed by the server.

Browser will never see php comments because it is ignored by the server.

Functions

Functions is a block of statements that performs an action. You can pass parameters to functions and it can return a value from the function using “return” keyword.

Syntax of Function Declaration:

```
function nameOfFunction(Parameters){ return someValue; }
```

Variables

Variables are used to store information which are used inside the program. Variables in php are defined with dollar (\$) sign in front of it

String

Strings in PHP can be enclosed with Single Quote or Double Quotes. You can use Single quotes inside the double quotes and vice-versa. . – DOT Symbol is used to concatenate two strings together. Variable when used inside the Double Quote then it will resolve into the variable value. This is called as Interpolation

. Interpolation of Variables only happens with Double Quotes and it does not work with Single Quotes.

That's why we must always use Single Quotes and only use Double Double quotes when you need interpolation feature.

Numbers

Numbers can also be called as Integers. Integers are positive or negative numbers. Floating number is represented with number separated with "." as decimals.

So, there are two types of numbers in PHP:

Integers 100 -200

Floating Point 10.34

Numbers are not wrapped with quotes or they do not include ",", we can append the – (minus) symbol in front of the number to indicate it is negative number. Most common methods used with Integer:

round() – This will round the decimals

intval() – This will convert string integer to integer.

Arrays

Arrays is a data type that holds one or more items called as elements. Each element could be combination of data types. length is used to indicate the number of elements in the array.

Every element of the array can be accessed with an index number. First element of Array starts with 0 index.

Classes and Objects

Class is a collection of Variables and Functions together. Object is an instance of a Class used to store values in the class variables and access them via the functions. Instead of defining methods and variables separately we can create a class and store them. You need to create an instance of class to access it. -> symbol is used to access the variable or methods in the object. \$this is a special object that will help to access the existing object of a class.

Class Syntax:

```
class Student{ private $id, $name, $age;
```

Constant

Constant are like variables but once we define the constant with a fixed value you cannot change it later. Constant variables values are fixed and cannot be changed later. `define()` is a method used to define a constant. constant does not need \$ dollar because it is not like a variable.

Usage of Boolean

Boolean Variables helps to make decisions or store a decision based on an expression. Boolean values can be true or false. We can use boolean variable as a condition to check if the value is true or false

Date and Time

`date()` is a class library available to access the date. We need to pass the format of the date to get the system date.

```
$today = date('Y-m-d');
```

```
//2018-01-01 $today = date('l, F, d, Y'); //
```

Thursday, Jun 21, 2018

By default, `$today` will have user system date.

Assignment Expressions

Operators are used to perform some operation on the variables and they are represented with some symbols. Expressions are evaluated into a result value or final value or single value.

Comparison Expressions

Expressions are evaluated into a result value or final value or single value.

Logical Expressions

Expressions are evaluated into a result value or final value or single value.

Try Catch Blocks

There are 3 types of error you can find in PHP:

Syntax Errors

Runtime Errors

Logic Errors

Syntax errors is where you forgot to follow the rules of PHP. It will cause error when you execute the program.

Runtime Errors could be when it is running the program the PHP interpreter could not understand how to proceed and throws an error.

Logic Errors are logically error that are caused because the program instructions are not logically correct. Exceptions in programming are referred to as Runtime Errors.

When Runtime Errors happen there is a way to catch those errors and pass it to the application and make a clean exit from the program.

This is called as Exception Handling. The process of making sure the code will not break and if it does it knows the reason for it and makes a clean exit. To handle Runtime errors in the PHP we have try-catch blocks. Using this we can catch the errors and decide what to do next.

try {} block will have all the statements

throw is a keyword to throw an error from the program. Once the program throws an error it will stop processing the next steps. It will jump to catch {} block.

catch {} block will be executed once the throw is called. The program will execute out from the catch block safely.

finally {} block will execute every time irrespective of error or not. It is a good place to close all open connections. Handle clean exit.

include and require

PHP allows to break the code into small pieces of file and then include them in the main page. These are statements that can be used:

include

include_once

require

require once include and require both help to include the file into another file. If the included file is not available then include statement will ignore and continue to execute the other part of the code. if the included file is not available then require statement will stop the execution of the program.

require once or include once will not import if the file is already included.

Libraries

We can create a library file and put all the functions that you commonly use in this library file. This is the common practice for any web development where you break the main program into smaller chunks of code and then include them in the main program. You can use include statement to import this functions file in your page so that you can access those functions.

Form GET Method

GET is type of method used by the form to pass the form data to the page that is mentioned in the action of the form. GET method will send the data in the url.

action attribute – This define to which file this form data has to be sent to.

method attribute is of two types –

GET and POST. GET means data is visible in the URL bar.

POST means data is hidden.

POST is type of method used by the form to pass the form data to the page that is mentioned in the action of the form. POST method will send the data as an attachment. It is not visible in the URL.

Cookies

Cookies are information that you can store at client's browser. Cookies are stored in a file at the client system in name=value pair forma. Cookies helps to track what user is doing on the web page and send that information to server so that server knows what client did on the web page. For every request, browser sends the cookies to server and if there are any changes to

cookies then that information is also sent to the server. Cookies help to store information and capture the user actions on the web page inside it. This information is then sent to server. Cookies last until the browser is closed. We can also manually set the expiration time for any cookie. Some of the browser disable cookies in that case cookies will not work and also user can choose to change browser setting to not store cookies. Cookies can help to change the view of the page based on the user actions.

f Sessions

Sessions is an array that is stored at the server based on the session id. session id is generated when the user first time visit the site and this session id are stored in the cookie. So, every time user make request to the server, this cookie is passed to the server with the sessionid and based this session id server is able to maintain an active session of the user. If a session is already created for that specific user, then PHP will not create a duplicate session. By default, PHP uses a cookie to store a session ID in each browser. Then, the browser passes the cookie to the server with each request.

Regex

Regular Expression are special searching pattern that is very powerful to search for matching patten in text strings. To start using the Regular expression we need to get the data between forward slash and then use the method `preg_match()` on the data and this pattern to search.

We can create a pattern and then use method `preg_match()` to match on the data. `preg_match()` method will return true or false.

MySQL

A Database is a structured ways of storing the data on your computer so that it can be easy searched, managed and updated. Data stored in a file are not easy to search because it is not properly organized this is solved by using Database Software. Database software helps to store the data in such a way that it can retrieved faster. Even Database software has capacity to hold large amount of data.

Data in the database are stored in one or more tables. Each table will have data organized in row and column format.

SQL

SQL Stands for “Structured Query Language” it is a language used to access the data in the database. SQL is pronounced as ‘S-Q-L’ or ‘sequel’. SQL Language is predefined with keywords that you can use to do the following things:

Create a Table, delete a Table, Search Table with Conditions, Insert Rows, Update Rows, Delete Rows,

SQL language can be used to perform such actions on the database.

Instead of storing the data in files and access them. All the data are stored in the Database.

MySQL

MySQL is an open-source relational database management system which is free to use. Open source means you can even download its source code and change it for your needs.

Once you install the MySQL database there are three ways to access the database:

- Command Line Client
- Graphical Dashboard called as phpMyAdmin.
- PHP Program

phpMyAdmin

phpMyAdmin is a web-based client using which we can access the MySQL Database and Tables. We can perform the database operations like:

- Creating Users

- Creating Database, Tables
- Inserting, Updating and Deleting the Data

This is a Web based client using which we can perform the database operation on the MySQL. MySQL is the Database and phpMyAdmin is the web Client to access the database

Statements in MySQL

Create command is used to create a table

INSERT is a keyword to INSERT the data in the table.

Dropping a table means deleting a table. DROP is a keyword to delete the table.

SELECT is a keyword to select the data from the tables.

WHERE and LIMIT are called as Clause which are used along with SQL statement to apply the condition.

NULL, LIKE and ORDER BY are called as operators that you can apply on the condition to check and sort the records.

NULL will check if the field is NULL or NOT.

ORDER BY will order / sort the records based on the field.

LIKE has two wild characters:

- % – The percent sign represents zero, one, or multiple characters
- _ – The underscore represents a single character

UPDATE statement is used to update an existing row in the table based on a condition specified with WHERE clause.

DELETE statement is used to delete an existing row in the table based on a condition specified with WHERE clause.

PDO

PDO stands for PHP Data Objects it is a library that can be used to connect to MySQL from PHP code. PDO gives an object-oriented database function to perform the database operations on MySQL. The biggest advantage of using PDO is that you can change database any time from MySQL to Oracle or Microsoft SQL and the underlying PDO code will not change.

MySQLi

mysqli is a library that can be used to connect to MySQL from PHP code. mysqli is the just the extension of the mysql library (i stands for improved). mysqli is has more features and function to work with mysql and it very specific to mysql. The disadvantage of using mysqli is that you cannot change database once your code written with this library.

APIs

API stands for application programming interface, which is a set of definitions and protocols for building and integrating application software.

APIs let your product or service communicate with other products and services without having to know how they're implemented. This can simplify app development, saving time and money. When you're designing new tools and products—or managing existing ones—APIs give you flexibility; simplify design, administration, and use; and provide opportunities for innovation.

APIs are sometimes thought of as contracts, with documentation that represents an agreement between parties: If party 1 sends a remote request structured a particular way, this is how party 2's software will respond.

Because APIs simplify how developers integrate new application components into an existing architecture, they help business and IT teams collaborate. Business needs often change quickly in response to ever shifting digital markets, where new competitors can change a whole industry with a new app. In order to stay competitive, it's important to support the rapid development and deployment of innovative services. Cloud-native application development is an identifiable way to increase development speed, and it relies on connecting a microservices application architecture through APIs.

APIs are a simplified way to connect your own infrastructure through cloud-native app development, but they also allow you to share your data with customers and other external users. Public APIs represent unique business value because they can simplify and expand how you connect with your partners, as well as potentially monetize your data (the Google Maps API is a popular example).

Innovating with APIs

Exposing your APIs to partners or the public can:

- Create new revenue channels or extend existing ones.
- Expand the reach of your brand.
- Facilitate open innovation or improved efficiency through external development and collaboration.

APIs emerged in the early days of computing, well before the personal computer. At the time, an API was typically used as a library for operating systems. The API was almost always local to the systems on which it operated, although it sometimes passed messages between mainframes. After nearly 30 years, APIs broke out of their local environments. By the early 2000s, they were becoming an important technology for the remote integration of data.

Remote APIs

Remote APIs are designed to interact through a communications network. By remote, we mean that the resources being manipulated by the API are somewhere outside the computer making the request. Because the most widely used communications network is the internet, most APIs are designed based on web standards. Not all remote APIs are web APIs, but it's fair to assume that web APIs are remote.

Web APIs typically use HTTP for request messages and provide a definition of the structure of response messages. These response messages usually take the form of an XML or JSON file. Both XML and JSON are preferred formats because they present data in a way that's easy for other apps to manipulate.

Python

Python is an interpreted high-level general-purpose programming language. Its design philosophy emphasizes code readability with its use of significant indentation. Its language constructs as well as its object-oriented approach aim to help programmers write clear, logical code for small and large-scale projects.

Python is dynamically-typed and garbage-collected. It supports multiple programming paradigms, including structured (particularly, procedural), object-oriented and functional programming. It is often described as a "batteries included" language due to its comprehensive standard library.

Guido van Rossum began working on Python in the late 1980s, as a successor to the ABC programming language, and first released it in 1991 as Python 0.9.0. Python 2.0 was released in 2000 and introduced new features, such as list comprehensions and a garbage collection system using reference counting. Python 3.0 was released in 2008 and was a major revision of the language that is not completely backward-compatible. Python 2 was discontinued with version 2.7.18 in 2020.

Python is a multi-paradigm programming language. Object-oriented programming and structured programming are fully supported, and many of its features support functional programming and aspect-oriented programming (including by metaprogramming and metaobjects (magic methods)). Many other paradigms are supported via extensions, including design by contract and logic programming.

Python uses dynamic typing and a combination of reference counting and a cycle-detecting garbage collector for memory management. It also features dynamic name resolution (late binding), which binds method and variable names during program execution.

Python's design offers some support for functional programming in the Lisp tradition. It has filter, mapandreduce functions; list comprehensions, dictionaries, sets, and generator expressions. The standard library has two modules (itertools and functools) that implement functional tools borrowed from Haskell and Standard ML.

The language's core philosophy is summarized in the document The Zen of Python (PEP 20), which includes aphorisms such as:

- Beautiful is better than ugly.
- Explicit is better than implicit.
- Simple is better than complex.
- Complex is better than complicated.
- Readability counts.

Rather than having all of its functionality built into its core, Python was designed to be highly extensible (with modules). This compact modularity has made it particularly popular as a means of adding programmable interfaces to existing applications. Van Rossum's vision of a small core language with a large standard library and easily extensible interpreter stemmed from his frustrations with ABC, which espoused the opposite approach.

Python strives for a simpler, less-cluttered syntax and grammar while giving developers a choice in their coding methodology. In contrast to Perl's "there is more than one way to do it" motto, Python embraces a "there should be one— and preferably only one —obvious way to do it" design philosophy. Alex Martelli, a Fellow at the Python Software Foundation and Python book author, writes that "To describe something as 'clever' is not considered a compliment in the Python culture."

Python's developers strive to avoid premature optimization, and reject patches to non-critical parts of the CPython reference implementation that would offer marginal increases in speed at

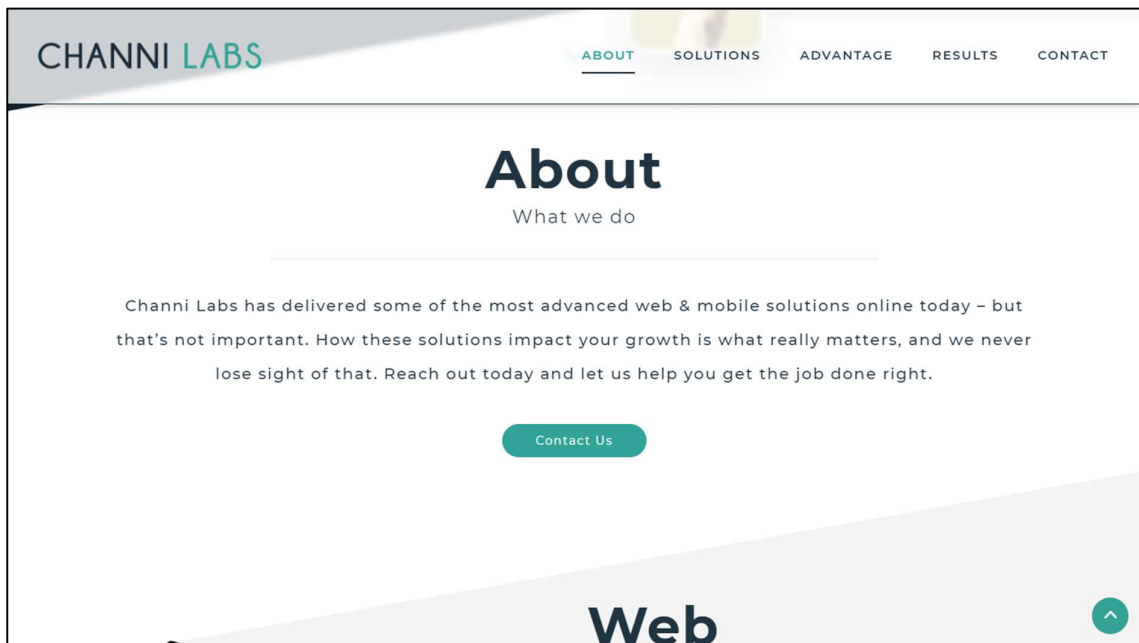
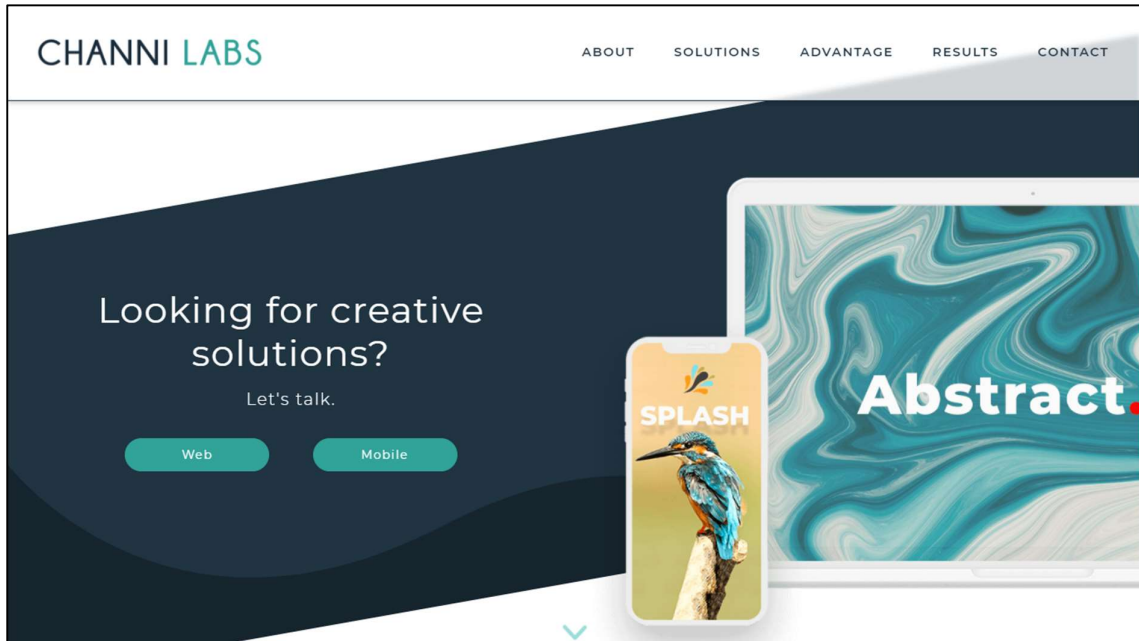
the cost of clarity. When speed is important, a Python programmer can move time-critical functions to extension modules written in languages such as C, or use PyPy, a just-in-time compiler. Cython is also available, which translates a Python script into C and makes direct C-level API calls into the Python interpreter.

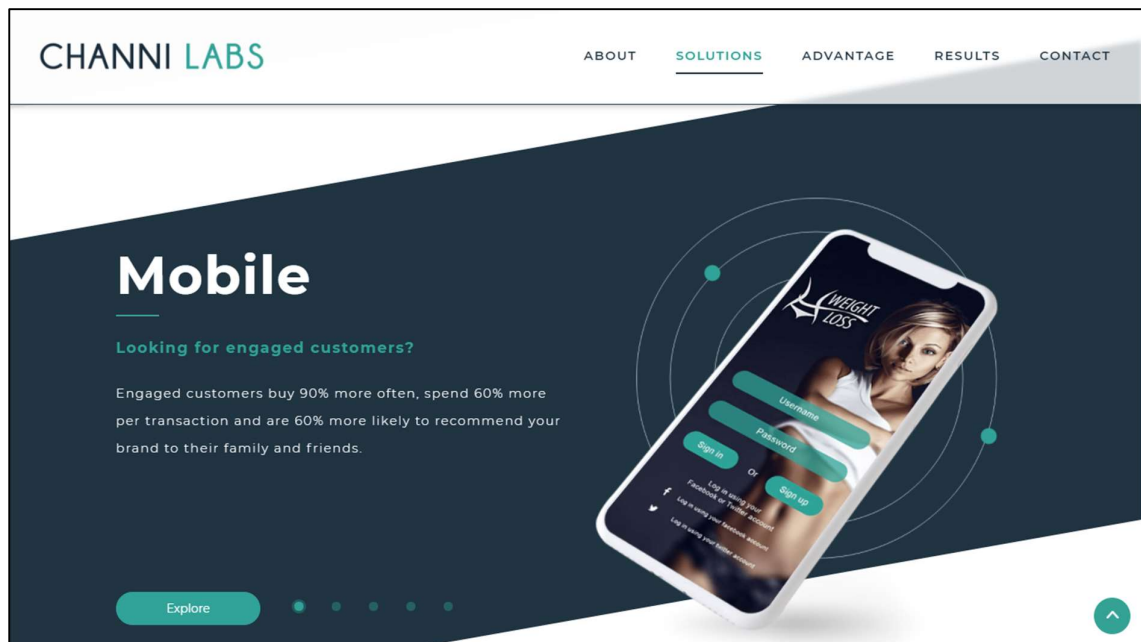
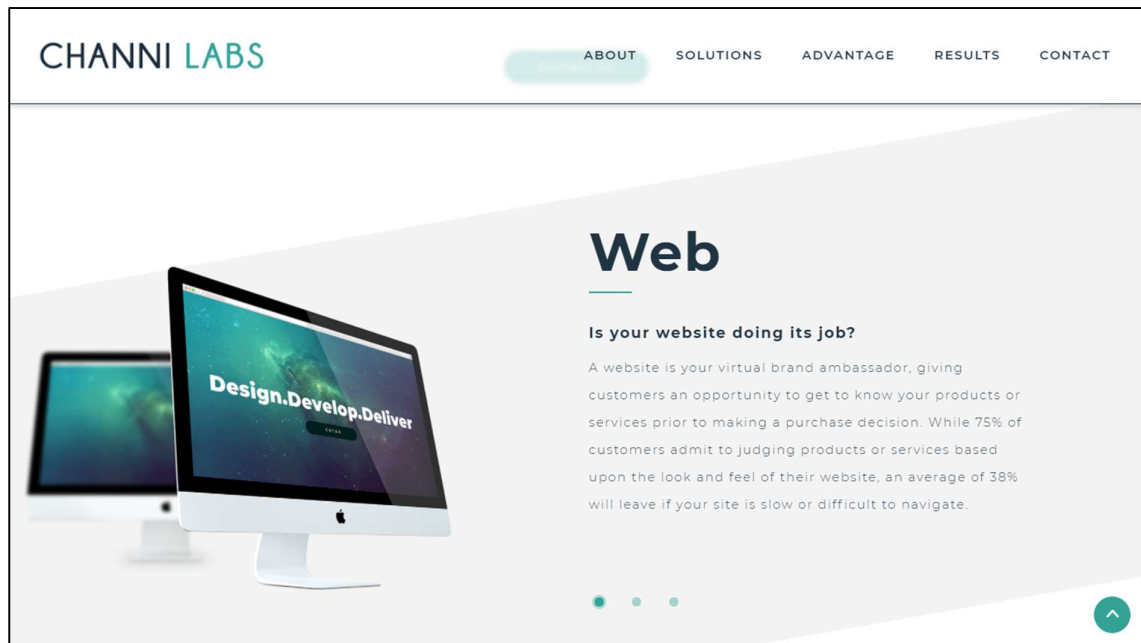
Python's developers aim to keep the language fun to use. This is reflected in its name—a tribute to the British comedy group Monty Python—and in occasionally playful approaches to tutorials and reference materials, such as examples that refer to spam and eggs (a reference to a Monty Python sketch) instead of the standard foo and bar.

A common neologism in the Python community is *pythonic*, which can have a wide range of meanings related to program style. To say that code is *pythonic* is to say that it uses Python idioms well, that it is natural or shows fluency in the language, that it conforms with Python's minimalist philosophy and emphasis on readability. In contrast, code that is difficult to understand or reads like a rough transcription from another programming language is called *unpythonic*.

Implementation

Website Design

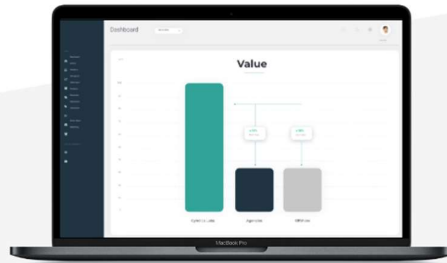




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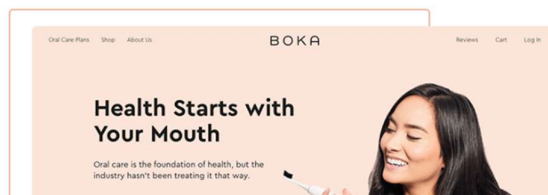


Results

Let us do the same for you

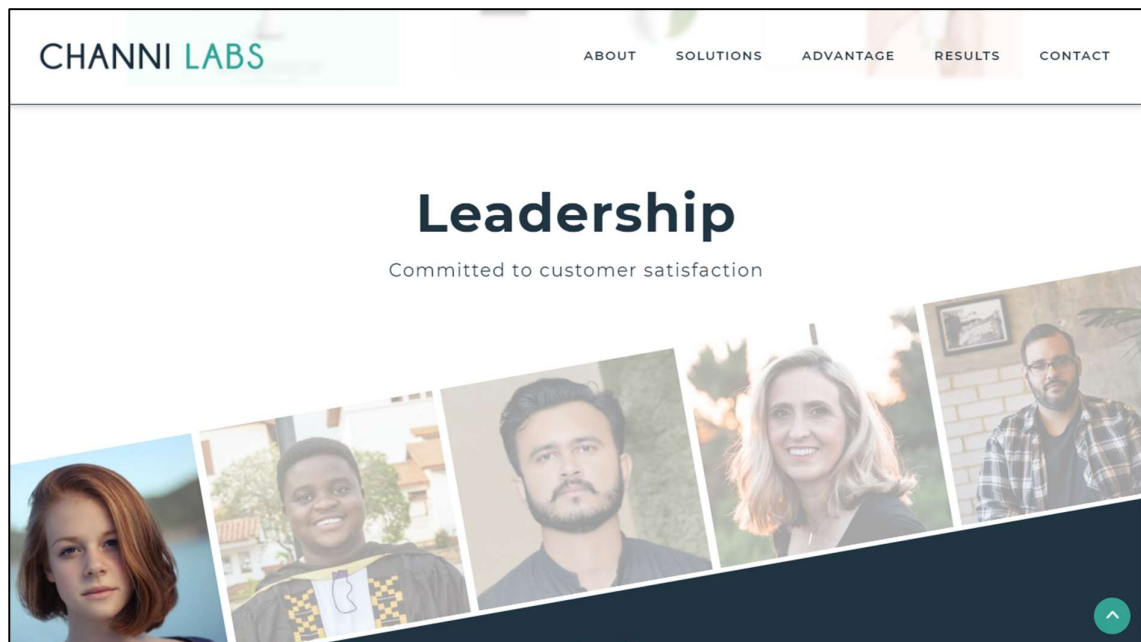
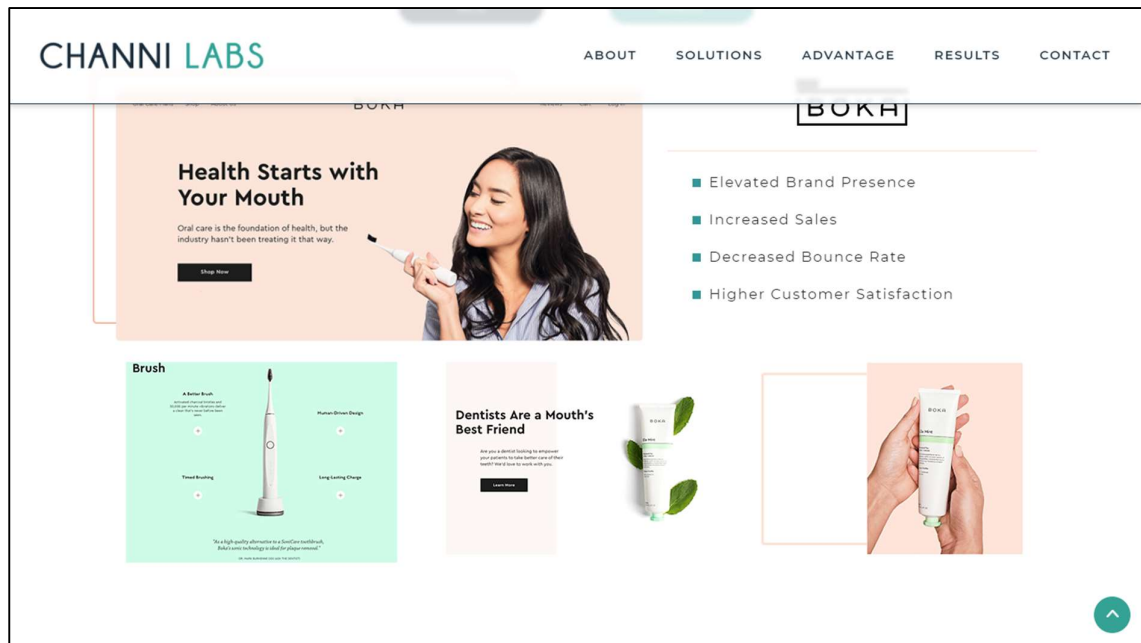


Web



- Elevated Brand Presence
- Increased Sales
- Decreased Bounce Rate





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Sophie Cole

President

Prior to founding Channi Labs, Sophie spent 7 years running the product division at DeskSite, an app developer for NFL, NHL, MLS, & NASCAR teams, which produced the highest number of top ranked best sellers on Amazon by category. She now oversees customer satisfaction as well as the strategic direction of the company.

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