TASK :1 Explain what JavaScript is and its role in web development.

SOLUTION:

Java script is a popular programming language that is widely used to build web applications. It is a client side scripting language,which means that it is run by your web browser rather than on your server this makes it a good choice to build a web application that need to be fast and responsive , as the code is run locally on user device rather than having to be sent back and forth between a server and client . javascript is also used to build mobile apps, create interactive documents and build server-side application with the help of runtime environment such as Node.js

javaScript is primarily used to add interactivity and dynamic elements to websites. It allows developers to create responsive user interfaces handle user interactions and update web page content without requiring a full page reload

TASK 2: Explain the key differences between JavaScript and HTML. Provide examples of situations where you would use each?

SOLUTION:

JAVA-SCRIPT

1. JavaScript is a high-level scripting language introduced by Netscape to be run on the client-side of the web browser.

2. JavaScript is an advanced programming language that makes web pages more interactive and dynamic

3.JavaScript simply adds dynamic content to websites to make them look good.

4. It adds interactivity to web pages to make them look good.

HTML

1.HTML is the most basic building block of the Web. It defines the meaning and structure of web content.

2.HTML is a standard markup language that provides the primary structure of a website.

3.HTML work on the look of the website without the interactive effects and all.

4.HTML is rendered from all server-side which is different from client-side scripting.

TASK3: List and describe the five primitive data types in JavaScript.

SOLUTION:

Primitive data type

The predefined data types provided by JavaScript language are known as primitive data types. Primitive data types are also known as in-built data types.

NUMBER:Number data type in javascript can be used to hold decimal values as well as values without decimals.

STRING:The string data type in JavaScript represents a sequence of characters that are surrounded by single or double quotes.

UNDEFINED: The meaning of undefined is ‘value is not assigned’.

BOOLEAN: The boolean data type can accept only two values i.e. true and false.

NULL: This data type can hold only one possible value that is null.

TASK4:What is the purpose of declaring variables in JavaScript, and how do you declare them using the 'let' keyword?

SOLUTION:

You declare a variable to specify its name and characteristics. The declaration statement for variables is the Dim Statement. Its location and contents determine the variable's characteristics. For variable naming rules and considerations, see Declared Element Names.

Declaration

Ex : Let variablename ;

Let : This keyword indicates that you are declaring a variable

Variablename: Replace: this with the name you want to give to your variables It should follow JavaScript's variable naming rules, such as starting with a letter, using letters, numbers, or underscores, and being case- sensitive.

TASK:5 Explain the importance of comments in JavaScript and provide examples of single-line and multi-line comments.

SOLUTION:

We can use // or /\*…\*/ to change the JavaScript code execution using comments. JavaScript Comments are used to prevent code execution and are considered suitable for testing the code.

1.Debugging: Comments can be used to temporarily disable or "comment out" code during debugging, helping you isolate issues without deleting code.

2.Communication: Comments allow developers to communicate with each other, explaining why certain decisions were made or describing how specific code segments work.

3. Organization: Comments can be used to divide code into logical sections, making it easier to navigate and maintain larger codebases

Single-line-comments

Use double slashes (//) to create single-line comments. Anything after // on the same line is considered a comment and is not executed by the JavaScript interpreter.

// This is a single-line comment

Multi-line-comments

Use /\* to begin a multi-line comment and \*/ to end it. Everything between these symbols is treated as a comment, allowing you to write comments spanning multiple lines.

/\* This is a multi-line comment.

It can provide detailed explanations for code blocks. \*/

TASK6: Explain the importance of choosing meaningful and descriptive variable names in JavaScript. Provide an example where using a clear identifier improves code readability.

SOLUTION:

1.Readability: Descriptive variable names make your code easier to read and understand. Developers (including yourself) can quickly grasp the purpose of a variable without needing to analyze the code in detail

2.Maintainability:Well-named variables reduce the chances of introducing bugs when modifying or

extending code. You're less likely to misunderstand the variable's role and make incorrect changes.

3.Documentation: Descriptive variable names serve as a form of self-documentation. They convey the intent and context of the variable, reducing the need for additional comments.

4.Error-prevention:Meaningful variable names help prevent errors caused by using the wrong variable or making incorrect assumptions about variable values.

Example:

Example:1

// Less Descriptive Variable Names let a = 10;

// Price of the product let b = 5;

// Quantity of the product let total = a \* b;

// Calculate total cost

Example:2

// More Descriptive Variable Names let productPrice = 10;

// Price of the product let productQuantity = 5;

// Quantity of the product let totalPrice = productPrice \* productQuantity;

// Calculate total cost