**Practical 7: JavaScript Objects and Regular Expression**

**Aim:** To demonstrate JavaScript Object using DOM and Regular Expression in JavaScript

**Questions:**

Q1. Demonstrate the JavaScript Objects like Date, Math, Navigator and Location.

Q2. Write a JavaScript program to demonstrate Regular Expression.

* Write a JavaScript program to validate Aadhaar card number.
  + 12 digits
  + Only Numbers
  + Cannot start with 0 or 1
* Write a JavaScript program to validate Email expression.

**Concepts:**

|  |  |  |
| --- | --- | --- |
| Object / Feature | Property / Method | Purpose / Usage |
| Date | getDate(), getFullYear(), getDay(), getTime() | Gets current date info, year, weekday, and timestamp |
|  | setDate() | Sets the date value and reflects changes |
| Math | PI, sqrt(), pow(), floor(), ceil() | Performs mathematical calculations using constants and functions |
| Navigator | appName, appVersion, userAgent, language | Provides browser-specific information |
| Location | href, protocol, hostname, pathname | Displays the current URL and its components |
|  | assign(), reload() | Used to redirect to a new page or reload the current one |
| document.write() | — | Used to dynamically write object data to the web page |

**Code:**

date.html

<!DOCTYPE html>

<html lang="en">

  <head>

    <meta charset="UTF-8" />

    <meta name="viewport" content="width=device-width, initial-scale=1.0" />

    <title>Date Object</title>

  </head>

  <body>

    <p id="time"></p>

    <p id="year"></p>

    <p id="day"></p>

    <p id="setday"></p>

    <p id="date"></p>

    <script>

      var d = new Date();

      document.getElementById("time").innerHTML = "The time is: " + d.getTime();

      document.getElementById("year").innerHTML =

        "The Year is: " + d.getFullYear();

      document.getElementById("day").innerHTML = "The Day is: " + d.getDay();

      document.getElementById("setday").innerHTML =

        "The time is: " + d.setDate(d.getDate() + 50);

      document.getElementById("date").innerHTML = "The Date is: " + d;

    </script>

  </body>

</html>

math.html

<!DOCTYPE html>

<html lang="en">

  <head>

    <meta charset="UTF-8" />

    <meta name="viewport" content="width=device-width, initial-scale=1.0" />

    <title>Math Object</title>

  </head>

  <body>

    <p id="pi"></p>

    <p id="sqrt2"></p>

    <p id="ln2"></p>

    <p id="ln10"></p>

    <p id="pow"></p>

    <p id="sqrt"></p>

    <p id="ceil"></p>

    <p id="floor"></p>

    <script>

      document.getElementById("pi").innerHTML = "Math.PI = " + Math.PI;

      document.getElementById("sqrt2").innerHTML = "Math.SQRT2 = " + Math.SQRT2;

      document.getElementById("ln2").innerHTML = "Math.LN2 = " + Math.LN2;

      document.getElementById("ln10").innerHTML = "Math.LN10 = " + Math.LN10;

      document.getElementById("pow").innerHTML =

        "Math.pow(8,2) = " + Math.pow(8, 2);

      document.getElementById("sqrt").innerHTML =

        "Math.sqrt(36) = " + Math.sqrt(36);

      document.getElementById("ceil").innerHTML =

        "Math.ceil(4.1) = " + Math.ceil(4.1);

      document.getElementById("floor").innerHTML =

        "Math.floor(5.9) = " + Math.floor(5.9);

    </script>

  </body>

</html>

navigator.html

<!DOCTYPE html>

<html lang="en">

  <head>

    <meta charset="UTF-8" />

    <meta name="viewport" content="width=device-width, initial-scale=1.0" />

    <title>Navigator Object</title>

  </head>

  <body>

    <p id="cookie"></p>

    <p id="appname"></p>

    <p id="appcodename"></p>

    <p id="product"></p>

    <p id="appversion"></p>

    <p id="useragent"></p>

    <script>

      document.getElementById("cookie").innerHTML =

        "navigator.cookieEnabled = " + navigator.cookieEnabled;

      document.getElementById("appname").innerHTML =

        "navigator.appName = " + navigator.appName;

      document.getElementById("appcodename").innerHTML =

        "navigator.appCodeName = " + navigator.appCodeName;

      document.getElementById("product").innerHTML =

        "navigator.product = " + navigator.product;

      document.getElementById("appversion").innerHTML =

        "navigator.appVersion = " + navigator.appVersion;

      document.getElementById("useragent").innerHTML =

        "navigator.userAgent = " + navigator.userAgent;

      document.writeln(

        "navigator.hardwareConcurrency = " + navigator.hardwareConcurrency

      );

    </script>

  </body>

</html>

location.html

<!DOCTYPE html>

<html lang="en">

  <head>

    <meta charset="UTF-8" />

    <meta name="viewport" content="width=device-width, initial-scale=1.0" />

    <title>Location Object</title>

  </head>

  <body>

    <p id="href"></p>

    <p id="hostname"></p>

    <p id="pathname"></p>

    <p id="protocol"></p>

    <p id="port"></p>

    <button onclick="redirect()">Surprise!</button>

    <button onclick="reloadPage()">Reload Page</button>

    <script>

      document.getElementById("href").innerHTML = "Full URL: " + location.href;

      document.getElementById("hostname").innerHTML =

        "Hostname: " + location.hostname;

      document.getElementById("pathname").innerHTML =

        "Pathname: " + location.pathname;

      document.getElementById("protocol").innerHTML =

        "Protocol: " + location.protocol;

      document.getElementById("port").innerHTML = "Port: " + location.port;

      function redirect() {

        location.assign("https://www.youtube.com/watch?v=xvFZjo5PgG0");

      }

      function reloadPage() {

        location.reload();

      }

    </script>

  </body>

</html>

regex.html

<!DOCTYPE html>

<html lang="en">

  <head>

    <meta charset="UTF-8" />

    <meta name="viewport" content="width=device-width, initial-scale=1.0" />

    <title>RegEx</title>

    <script>

      document.writeln(

        "<b>----------------------| Aadhaar | ----------------------------</b><br>"

      );

      var aadhaar = prompt("Enter your 12-digit Aadhaar number:");

      document.writeln("<b> You entered: " + aadhaar + "<br>");

      var aadhaarPattern = /^[2-9]{1}[0-9]{11}$/;

      var isValid = aadhaarPattern.test(aadhaar);

      if (isValid) {

        document.writeln("<b style='color:green'> Valid Aadhaar Number </b>");

      } else {

        document.writeln("<b style='color:red'> Invalid Aadhaar Number </b>");

      }

      document.writeln(

        "<br><b>----------------------| Email | ----------------------------</b><br>"

      );

      var email = prompt("Enter your email address:");

      document.writeln("<b> You entered: " + email + "<br>");

      var emailPattern = /^[a-z0-0.\_%+-]+@[a-z0-9.-]+**\.**[a-z]{2,}$/i;

      var isEmailValid = emailPattern.test(email);

      if (isEmailValid) {

        document.writeln("<b style='color:green'>Valid Email</b>");

      } else {

        document.writeln("<b style='color:red'> Invalid Email</b>");

      }

    </script>

  </head>

  <body></body>

</html>

**Output:**

A black screen with white text

AI-generated content may be incorrect.

A black background with white text

AI-generated content may be incorrect.

A computer screen with white text

AI-generated content may be incorrect.

A computer screen with white text

AI-generated content may be incorrect.

A black screen with white text

AI-generated content may be incorrect.

**Conclusion:**

Through this practical, I explored core built-in JavaScript objects like Date, Math, Navigator, and Location. I used various properties and methods to retrieve system, browser, and webpage-related information, and displayed it dynamically using document.write(). This hands-on helped me understand how JavaScript interacts with the browser environment and system to access and manipulate real-time data.