

Unit VI : Menus , Navigation and Web Page Protection

(Weightage-12marks)

Unit –VI Menus, navigation and web page protection	6a. Develop JavaScript to manage the given status bar. 6b. Develop JavaScript to create the given banner. 6c. Develop JavaScript to create the given slide show. 6d. Develop JavaScript to create the given Menu. 6e. Write JavaScript to protect a webpage in the specified manner.	6.1 Status bar- builds a static message, changing the message using rollover, moving the message along the status bar 6.2 Banner –loading and displaying banner advertisement. Linking a banner advertisement to url 6.3 Slide Show – creating a slide show 6.4 Menus- creating a pulldown menu, dynamically changing a menu, validating menu selection, Floating menu, chain select menu, tab menu, pop-up menu, sliding menu, highlighted menu, folding a tree menu, context menu, scrollable menu, side bar menu. 6.5 Protecting web page – hiding your code, disabling the right mouse button, JavaScript, concealing email address. 6.6 Frameworks of javascript and its application
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Question 1 : Describe frameworks of JavaScript & its application.(4M/6M)

What are JavaScript Frameworks?

JavaScript frameworks are pre-written libraries that provide developers with a structure and tools to build applications efficiently.

Why Use JavaScript Frameworks?

They simplify web development by offering reusable components, reducing coding effort, and speeding up the development process.

1. React.js

- **Description:** React is a JavaScript library created by Facebook. It helps build user interfaces using reusable components, like buttons or menus, which can pass data using "props."
- **Applications:** Used for making Single Page Applications (SPAs). ☑ Dynamic websites (e.g., Instagram, Airbnb). Mobile apps (via React Native).
- **Examples:** Instagram, Facebook, Netflix.

2. Angular

- **Description:** Angular is a framework by Google for creating Single Page Applications (SPAs). It combines JavaScript with HTML and CSS and supports features like two-way data binding and dependency injection.

- **Applications:** Used for SPAs and large enterprise apps. Enterprise-grade web applications (e.g., Google Workspace apps) ,Progressive Web Apps (PWAs). Applications requiring robust state management
- Examples: Gmail, Microsoft Office, PayPal, Samsung.

3. Vue.js

- **Description:** Vue is a lightweight and flexible JavaScript framework for building user interfaces. It is easy to integrate into projects.
- **Applications:** Used for web interfaces, SPAs, mobile, and desktop apps , SPAs and PWAs ,Dashboards and real-time applications , Smaller projects or components in larger frameworks.
- **Examples:** Alibaba, Xiaomi, GitLab

4. jQuery

- **Description:** jQuery is a lightweight library that simplifies HTML manipulation, event handling, and animations.
- **Applications:** Used for Ajax-based apps, DOM manipulation, and adding animations.
- **Examples:** Trello, Twitter, Slack.

5. Node.js

- **Description:** Node.js is a server-side runtime environment built on Chrome's V8 engine. It is asynchronous and non-blocking, making it ideal for scalable applications.
- **Applications:** Used for backend development, real-time apps (e.g., chat servers), streaming services, and APIs , REST APIs , Real-time applications (e.g., chat apps, collaborative tools) , Streaming services (e.g., Netflix)..
- **Examples:** PayPal, LinkedIn, Netflix, Uber, Yahoo, eBay

Question 1 : List ways of protecting your webpage and describe any one of them.(4M-FIXED QUESTION)

Ways of protecting Web Page:

- 1)Hiding your source code
- 2)Disabling the right MouseButton
- 3) Hiding JavaScript
- 4) Concealing E-mail address.

1)Hiding your source code

- ❑ Web pages, including JavaScript, are stored in the browser's cache.
- ❑ Disabling right-click can stop casual users from viewing the source.
- ❑ Store JavaScript on the server, not in the HTML.
- ❑ Obfuscate JavaScript to make it harder to read.
- ❑ Keep important logic on the server, not in the browser.
- ❑ Browsers have tools that allow users to inspect source code.
- ❑ Minify JavaScript to make it harder to understand.
- ❑ Use CSP headers to control what scripts can run on your site.

2)Disabling the right MouseButton

Disabling the Right Mouse Button

To prevent users from right-clicking and accessing the context menu (like "View Source"), you can disable the right mouse button with JavaScript. Below is an explanation of how the JavaScript works:

1. Define the BreakInDetected() function:
This function is triggered when the user clicks the right mouse button. It shows a message (like "Security Violation") and blocks further action.
2. Handle the right mouse button click event:
The JavaScript checks if the user has clicked the right mouse button and calls the BreakInDetected() function.
3. Prevent the default context menu from appearing by returning false in the event handle

```
<script>
function preventRightClick() {
    alert("Right-click is disabled.");
    return false;
}
document.oncontextmenu = preventRightClick;
</script>
```

3) Hiding JavaScript

Question 3 : State the use of hiding the JavaScript. Explain the steps needed to accomplish it and describe the process.

📌 **External JavaScript File:** Instead of embedding JavaScript code directly in the HTML, you store it in a separate .js file. The HTML page will then reference this external file using the <script> tag.

📌 **Why Use It:** This method helps hide the actual JavaScript code from the page's source, but the visitor can still see the reference to the external file. However, they won't see the actual code within the .js file unless they access the file directly

Index.html

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8">

  <title>Using External JavaScript</title>

  <!-- Reference to the external JavaScript file -->

  <script src="myJavaScript.js" type="text/javascript"></script>

</head>

<body>

  <h2>Hover over the links below:</h2>

  <a onmouseover="OpenNewWindow(1)" onmouseout="MyWindow.close()">Rose</a><br>

  <a onmouseover="OpenNewWindow(2)" onmouseout="MyWindow.close()">Sunflower</a><br>

  <a onmouseover="OpenNewWindow(3)" onmouseout="MyWindow.close()">Jasmine</a>

</body>

</html>
```

```
myJavascript.js

// Function to open a new window based on the "book" value

function OpenNewWindow(book) {

  if (book == 1) {

    document.cover.src = 'rose.jpg'; // Change the image

    MyWindow = window.open("", 'myAdWin', 'width=150,height=50,left=500,top=400');
```

```

if (book == 2) {
    document.cover.src = 'sunflower.jpeg'; // Change the image

    MyWindow = window.open("", 'myAdWin', 'width=150,height=50,left=500,top=500');

    MyWindow.document.write('Sunflower Flower');
}

if (book == 3) {
    document.cover.src = 'jasmine.gif'; // Change the image

    MyWindow = window.open("", 'myAdWin', 'width=150,height=50,left=500,top=600');

    MyWindow.document.write('Jasmine Flower');
}
}

```

Benefits:

- **Hides JavaScript:** The code is stored externally, so it's less visible to the user compared to being embedded in the HTML.
- **Separation of Concerns:** Keeps the JavaScript separate from HTML for cleaner and more maintainable code.
- **Reduced Clutter:** The HTML page is simpler and easier to manage because it doesn't contain the actual JavaScript code

This approach is used to protect email addresses on a webpage from being harvested by spam bots. The key idea is to use JavaScript to dynamically generate the email address, which makes it harder for bots to recognize. Let's break down the theory and code.

4) Concealing E-mail address

Theory:

- **Spam Bots:** Bots search websites for email addresses, typically by looking for the mailto: attribute or the @ symbol in the source code.
- **Solution:** Conceal the email address by breaking it into parts and using JavaScript to assemble it dynamically on the page. This makes it difficult for bots to easily detect the email address.

- **Additional Concealment:** We also use symbols like &, *, and _ in the email address to confuse bots. When the JavaScript runs, these symbols are replaced with the correct ones (@, ., and removing underscores), and the email address is displayed.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Conceal Email</title>
  <script>
    function sendEmail() {
      window.location = "mailto:manish@example.com?subject=Customer Inquiry";
    }
  </script>
</head>
<body>
  <button onclick="sendEmail()">Contact Us</button>
</body>
</html>
```

Q4. Define Slideshow – How to create slide show. (2marks)

A slideshow is a sequential display of multiple still images, often used for presentations, photo galleries, or showcasing visual content. The images change automatically after a fixed time interval or can be manually changed using controls like buttons or arrows.

Step 1: Set Up the HTML Structure

Step 2: Write the JavaScript Code

Step 3: Implement Image Transition

Step 4: Optional Enhancements

Program : Create a slideshow with the group of three images, also simulate next and previous transition between slides in your Java script.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Simple Slideshow</title>
  <script>
    // Array of image file names
    var pics = ['1.jpg', '2.jpg', '3.jpg'];
    var count = 0; // To keep track of the current image

    // Function to change the image
    function slideshow(status) {
      if (document.images) {
        count = count + status; // Change the index based on the status (Next or Back)

        // Loop through images: if count is out of bounds, restart or go back
        if (count > (pics.length - 1)) {
          count = 0;
        }
        if (count < 0) {
          count = pics.length - 1;
        }

        // Change the image source
        document.images['img1'].src = pics[count];
      }
    }
  </script>
</head>
<body>
  <!-- Display the current image -->
  
  <br>
  <!-- Next and Back buttons -->
  <input type="button" value="Next" onclick="slideshow(1)">
  <input type="button" value="Back" onclick="slideshow(-1)">
</body>
</html>
```

Definition of a Banner in JavaScript:

A **banner** in JavaScript is not a specific JavaScript object or class, but rather a visual component that is controlled and manipulated using HTML (for structure), CSS (for styling), and JavaScript (for behavior). JavaScript controls the logic for rotating images, changing content, handling user interactions, and other dynamic actions related to the banner.

Question 5 : Explain how to use banners for displaying advertisement. (4m)

- 1) Create banner advertisement using a graphics tool such as PhototShop, Paint, etc.
- 2) Create an element in web page with height and width to display banner advertisement.
- 3) Build JavaScript that loads and display banner advertisements.

```
<html>

<head>

<title>Banner Advertisements</title>

</head>

<body bgcolor="#EEEEEE">

<a href="https://www.youtube.com/">

<imgsrc="ad.jpg"/>

</a>

</body>

</html>
```

Question 6 : Explain and Write a javascript program to link banner advertisements to different URLs. (4M)

Linking Banner Advertisements to URLs with JavaScript (4 Marks)

A banner advertisement is often used on commercial web pages to capture the visitor's attention. It is typically placed near the top of the page, and its main purpose is to direct the visitor to another webpage when clicked. By using JavaScript, you can dynamically link these banner ads to different URLs based on the current banner being displayed.

Explanation:

In this scenario, when a user clicks on a banner, they will be redirected to a URL associated with that specific banner. You can achieve this by embedding a hyperlink in the banner, which is controlled by JavaScript to load the appropriate URL.


```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Simple Banner Ads</title>
  <script>
    // Array of banner images and their respective URLs
    var banners = ['1.jpg', '2.jpg', '3.jpg'];
    var links = ['http://www.google.com', 'http://www.vpt.edu.in',
'http://www.msbtte.org.in'];
    var currentBanner = 0; // To track the current banner index

    // Function to change the banner image
    function changeBanner() {
      currentBanner = (currentBanner + 1) % banners.length; // Cycle through the
banners
      document.getElementById("bannerImage").src = banners[currentBanner]; // Change
image source
    }

    // Function to open the corresponding URL when the banner is clicked
    function linkBanner() {
      window.location.href = links[currentBanner]; // Redirect to the associated URL
    }

    // Change banner every 3 seconds
    setInterval(changeBanner, 3000);
  </script>
</head>
<body>

  <center>
    <!-- Banner image that will change every 3 seconds -->
    <a href="javascript:void(0);" onclick="linkBanner()">
      
    </a>
  </center>

</body>
</html>

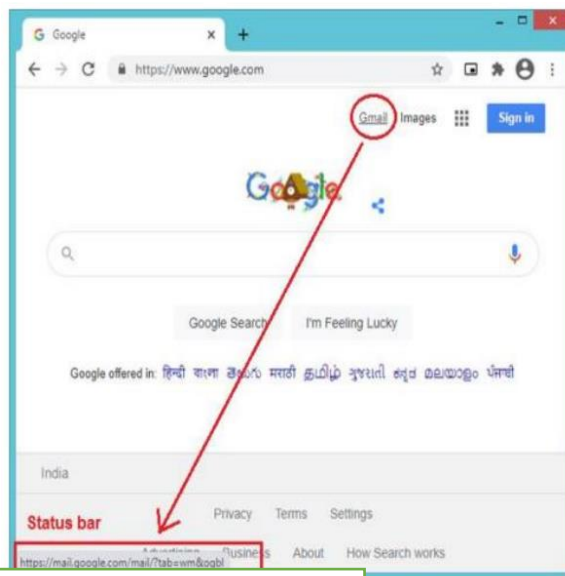
```

Question 7 : Define Status Bar (2m)

- The status bar is a horizontal bar, typically at the bottom of a window, displaying information about a document or program.
- It can be modified using JavaScript to display messages, such as link details when the mouse hovers over a link.

- **Modern Browser Changes:**

1. Static status bars have been removed in modern browsers.
 2. Status messages now appear briefly in dynamic pop-ups or tooltips and disappear.
 3. Static messages no longer work because they don't stay on the screen.
- Developers use various methods to convey messages, such as banners, slideshows, and dynamic displays.
 - The status bar was used to display short messages, like URLs, when hovering over HTML links.



explain process to create a status bar

6.1.1 Build a static message

- JavaScript gives the ability to modify the status bar.
- For example it can be useful
 - to display information about a link, when the user moves his mouse over it
 - To display a small amount of information about the page the user is on in the status bar.
- To display messages in the status bar, you will need to use `window.status` property.

Example

Set the text in the status bar:

```
window.status = "Some text in the status bar!!";
```

6.1.2 Changing the message using rollovers

- We can use rollovers to signal the browser when a different message should be displayed.

- An **onmouseover** event is generated whenever the visitor moves the mouse cursor over an object on the web page.

- An **onmouseout** event is generated whenever the visitor moves the mouse cursor out of an object on the web page.

Program-Write a Java script to modify the status bar using onmouseover and onmouseout with links. When the user moves his mouse over the link, it will display "MSBTE" in the status bar. When the user moves his mouse away from the link the status bar will display nothing.

```
<!DOCTYPE html>
<html>
<head>
  <title>JavaScript Status Bar</title>
</head>
<body>
  <a href="https://msbte.org.in/"
    onmouseover="window.status='MSBTE'; return true;"
    onmouseout="window.status=''; return true;">
    MSBTE
  </a>
</body>
</html>
```

Question 8 : What is Status bar and how to display moving message on the status line of a window using JavaScript ? (4M)

What is a Status Bar?

The **status bar** is a graphical element located at the bottom of a browser window (or an application window). It is typically used to display

informational messages such as the progress of loading, hints for hyperlinks, or other status updates.

In modern browsers, the status bar has limited functionality, as many browsers restrict its direct manipulation for security reasons.

How to Display a Moving Message on the Status Line Using JavaScript

A moving message can be displayed on the status bar by continually updating its content using JavaScript's setInterval method.

“

```
<!DOCTYPE html>
<html>
<head>
  <title>Moving Message</title>
  <script>
    let message = "Welcome to MSBTE! ";
    let position = 0;

    function scrollMessage() {
      position++;
      document.getElementById("scrollText").innerText =
message.substring(position) + message.substring(0, position);
      if (position >= message.length) position = 0; // Reset position
after one full cycle
    }

    window.onload = function() {
      setInterval(scrollMessage, 200);
    };
  </script>
</head>
<body>
  <h1 id="scrollText">Welcome to MSBTE!</h1>
</body>
</html>
```

Program -Write a JavaScript that sets a crawling status bar message to the webpage. Message is "Welcome to the Mystic World of JavaScript". The message must start crawling when the webpage gets loaded. (6marks)

```
<!DOCTYPE html>
<html>
<head>
  <title>Scrolling Text</title>
  <script>
    function scrollText() {
      let message = "Welcome to the Mystic World of JavaScript ";
      let position = 0;

      setInterval(() => {
        window.status = message.slice(position) + message.slice(0,
position);
        position = (position + 1) % message.length;
      }, 300); // Adjust speed here (300ms)
    }
  </script>
</head>
<body onload="scrollText()">
  <p>Check the status bar for a scrolling message!</p>
</body>
</html>
```

Menu

- Menus are list of choices that user can select.
- User can select one at a time or more as per type of menu
- Types
 - -Pulldown menu
 - -context menu
 - -sidebar menu
 - -scrollable menu
 - -highlighted menu
 - -Sliding menu
 - -Pop-up menu
 - -Tab Menu
 - -Floating menu

Pull Down Menu

- Pulldown menus are also known as dropdown menu
- These are changeable menus including multiple options
- Options are defined in option tag and on change function is called.
- This function defined in javascript, which is executed whenever option is changed.

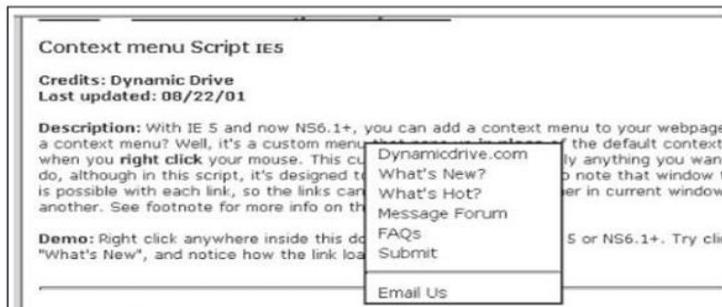
Write a javascript to create a pull-down menu with three options [Google ,MSBTE, Yahoo] once the user will select one of the options then user will be redirected to that site.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <title>Dropdown Redirect</title>
  <script>
    function redirectToSite() {
      const dropdown = document.getElementById("siteSelector");
      const selectedValue = dropdown.value;

      if (selectedValue) {
        // Redirect to the selected website
        window.location.href = selectedValue;
      }
    }
  </script>
</head>
<body>
  <h1>Select a Website to Visit</h1>
  <select id="siteSelector" onchange="redirectToSite()">
    <option value="">-- Select a site --</option>
    <option value="https://www.google.com">Google</option>
    <option value="https://www.yahoo.com">Yahoo</option>
  </select>
</body>
</html>
```

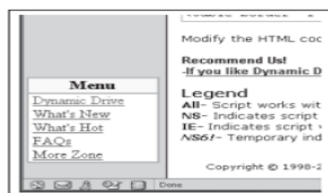
Context menu

- The context menu pops up on the web page when the visitor clicks the right mouse button.
- The location of the context menu on the screen is determined by the position of the mouse cursor.



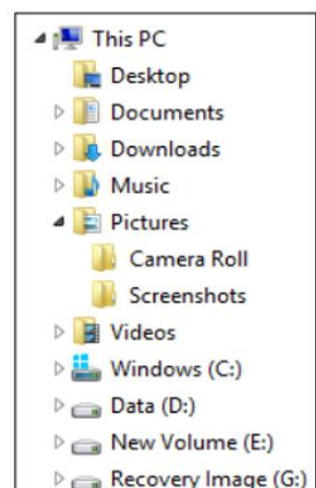
6.4.4 Floating menu

- Roy Whittle developed a boxed menu that looks as though it floats within the web page, because it always appears in relatively the same position as the visitor scrolls up or down the page



3.4.10 – Folding Tree Menu

- The folding tree menu looks like a tree which consists of one or more closed folders, each of these folders further has some menu items.
- Also known as Cascading tree looks like as a classic menu.
- It expands when the visitor clicks on that and closed when visitor again on that.



Write a JavaScript for the folding tree menu

```
<!DOCTYPE html>
<html>
<head>
  <title>Folding Tree Menu</title>
</head>
<body>
  <ul id="treeMenu">
    <li>
      Parent 1
      <ul>
        <li>Child 1.1</li>
        <li>Child 1.2</li>
      </ul>
    </li>
    <li>
      Parent 2
      <ul>
        <li>Child 2.1</li>
        <li>Child 2.2</li>
      </ul>
    </li>
  </ul>

  <script>
    // Get all list items
    let items = document.querySelectorAll("#treeMenu li");
    for (let item of items) {
      let childMenu = item.querySelector("ul"); // Find child <ul>
      if (childMenu) {
        childMenu.style.display = "none"; // Hide initially
        item.onclick = function (e) {
          childMenu.style.display = childMenu.style.display === "none" ? "block" :
"none";
          e.stopPropagation(); // Prevent toggling parent menus
        };
      }
    }
  </script>
</body>
</html>
```


Question : Describe the navigator object in JavaScript. Describe the methods of navigator object which is used to display browser name and version. (4marks)

? What is the Navigator Object?

- The navigator object represents the user's browser.
- It is part of the window object in JavaScript.

? Purpose of the Navigator Object:

- To retrieve information about the browser, such as its name, version, and whether Java is enabled.

? Important Properties:

- **navigator.appName**: Returns the name of the browser.
- **navigator.appVersion**: Returns the version of the browser.

? Important Method:

- **navigator.javaEnabled()**: Checks if Java is enabled in the browser. It returns true or false.

• **Example:-**

```
<html>
<body>
<script>
document.write("Browser name: "+navigator.appName); document.write("Browser
Version: "+navigator.appVersion);
</script>
```

Pa



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- ```
</body>
</html>
```