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3rd Year Section B (B1)

Practical 4 Final Task (JavaScript)

```
1  <html>
2  <head>
3      <title>Smart Library Management</title>
4      <style>
5          body { font-family: Arial; padding: 20px; background: #f9f9f9; }
6          h1 { text-align: center; font-size: 22px; }
7          .menu { text-align: center; margin: 15px; }
8          select, button, input { margin: 5px; padding: 6px; }
9      </style>
10 </head>
11 <body>
12     <h1>Smart Library Management System</h1>
13
14     <div class="menu">
15         <label>Select an option:</label>
16         <select id="menu" onchange="showInput()">
17             <option value="0">--Select--</option>
18             <option value="1">Compare two books</option>
19             <option value="2">Generate ticket ID (factorial)</option>
20             <option value="3">Check note contains 'Library'</option>
21             <option value="4">Store / retrieve rare note</option>
22             <option value="5">Reverse ISBN & check palindrome</option>
23             <option value="6">Check book title palindrome</option>
24             <option value="7">Square root of pages read</option>
25             <option value="8">Check prime shelf number</option>
26         </select>
27     </div>
28
29     <div id="inputBox"></div>
30     <div id="result">Result will appear here.</div>
```

```

32 <script>
33     function rareNoteManager() {
34         let note = "";
35         return { store: n => note = n, retrieve: () => note };
36     }
37     const rareNote = rareNoteManager();
38
39     function factorial(n) {
40         if (n < 0) throw new Error("Negative number not allowed.");
41         let r = 1;
42         for (let i = 2; i <= n; i++) r *= i;
43         return r;
44     }
45
46     function showInput() {
47         const choice = document.getElementById("menu").value;
48         const box = document.getElementById("inputBox");
49         const result = document.getElementById("result");
50         box.innerHTML = "";
51         result.innerHTML = "Result will appear here.";
52
53         switch (choice) {
54             case "1":
55                 box.innerHTML = `
56                     <input id="title1" placeholder="Book 1 Title">
57                     <input id="pages1" placeholder="Pages 1">
58                     <input id="title2" placeholder="Book 2 Title">
59                     <input id="pages2" placeholder="Pages 2">
60                     <button onclick="compareBooks()">Submit</button>`;
61                 break;
62             case "2":
63                 box.innerHTML = `<input id="num" placeholder="Enter number"><button onclick="ticketId()">Generate</button>`;
64                 break;
65             case "3":
66                 box.innerHTML = `<input id="note" placeholder="Enter note"><button onclick="checkNote()">Check</button>`;
67                 break;
68             case "4":
69                 box.innerHTML = `<input id="rare" placeholder="Enter rare note"><button onclick="storeNote()">Store</button><button onclick=
70                 break;
71             case "5":
72                 box.innerHTML = `<input id="isbn" placeholder="Enter ISBN"><button onclick="checkISBN()">Check</button>`;
73                 break;
74             case "6":
75                 box.innerHTML = `<input id="title" placeholder="Enter book title"><button onclick="checkTitle()">Check</button>`;
76                 break;
77             case "7":
78                 box.innerHTML = `<input id="pages" placeholder="Pages read"><button onclick="calcSqrt()">Calculate</button>`;
79                 break;
80             case "8":
81                 box.innerHTML = `<input id="shelf" placeholder="Shelf number"><button onclick="checkShelf()">Check</button>`;
82                 break;
83         }
84     }
85
86     function compareBooks() {
87         try {
88             let t1 = document.getElementById("title1").value;
89             let p1 = parseInt(document.getElementById("pages1").value);
90             let t2 = document.getElementById("title2").value;
91             let p2 = parseInt(document.getElementById("pages2").value);
92             if (isNaN(p1) || isNaN(p2)) throw new Error("Pages must be numbers.");
93             document.getElementById("result").innerHTML = (p1 > p2 ? t1 : t2) + " has more pages.";
94         } catch (e) { document.getElementById("result").innerHTML = "Error: " + e.message; }
95     }

```

```

97 function ticketId() {
98   try {
99     let n = parseInt(document.getElementById("num").value);
100     if (isNaN(n)) throw new Error("Invalid input.");
101     document.getElementById("result").innerHTML = "Ticket ID: " + factorial(n);
102   } catch (e) { document.getElementById("result").innerHTML = "Error: " + e.message; }
103 }
104
105 function checkNote() {
106   let note = document.getElementById("note").value.toLowerCase();
107   document.getElementById("result").innerHTML = note.includes("library") ? "Note contains 'Library'." : "Note does not contain 'Libra";
108 }
109
110 function storeNote() {
111   let n = document.getElementById("rare").value;
112   rareNote.store(n);
113   document.getElementById("result").innerHTML = "Rare note stored.";
114 }
115
116 function getNote() {
117   let n = rareNote.retrieve();
118   document.getElementById("result").innerHTML = n ? "Stored note: " + n : "No note stored.";
119 }
120
121 function checkISBN() {
122   try {
123     let isbn = document.getElementById("isbn").value;
124     if (!/^\d+$/g.test(isbn)) throw new Error("ISBN must be numeric.");
125     let rev = isbn.split("").reverse().join("");
126     let pal = isbn === rev;
127     document.getElementById("result").innerHTML = "Reversed: " + rev + "<br>" + (pal ? "Palindrome ISBN." : "Not a palindrome.");
128   } catch (e) { document.getElementById("result").innerHTML = "Error: " + e.message; }
129 }
130
131 function checkTitle() {
132   let t = document.getElementById("title").value;
133   let cleaned = t.toLowerCase().replace(/[^a-z0-9]/g, "");
134   let rev = cleaned.split("").reverse().join("");
135   document.getElementById("result").innerHTML = (cleaned === rev) ? "Title is palindrome." : "Title is not palindrome.";
136 }
137
138 function calcSqrt() {
139   try {
140     let p = parseInt(document.getElementById("pages").value);
141     if (isNaN(p)) throw new Error("Pages must be numeric.");
142     if (p < 0) throw new Error("Pages cannot be negative.");
143     document.getElementById("result").innerHTML = "Square root: " + Math.sqrt(p).toFixed(2);
144   } catch (e) { document.getElementById("result").innerHTML = "Error: " + e.message; }
145 }
146
147 function checkShelf() {
148   try {
149     let s = parseInt(document.getElementById("shelf").value);
150     if (isNaN(s)) throw new Error("Shelf must be numeric.");
151     if (s < 2) { document.getElementById("result").innerHTML = "Not prime."; return; }
152     let prime = true;
153     for (let i = 2; i <= Math.sqrt(s); i++) if (s % i === 0) prime = false;
154     document.getElementById("result").innerHTML = prime ? "Prime shelf number." : "Not prime.";
155   } catch (e) { document.getElementById("result").innerHTML = "Error: " + e.message; }
156 }
157 </script>
158 </body>
159 </html>
160

```

Smart Library Management System

Select an option:

Compare two books

Science

50

Maths

70

Submit

Maths has more pages.

Smart Library Management System

Select an option:

Generate ticket ID (factorial)

5

Generate

Ticket ID: 120

Smart Library Management System

Select an option:

Check note contains 'Library'

The book stored in Library

Check

Note contains 'Library'.

Smart Library Management System

Select an option: Store / retrieve rare note

Store Retrieve

Rare note stored.

Smart Library Management System

Select an option: Store / retrieve rare note

Store Retrieve

Stored note: 24

Smart Library Management System

Select an option: Reverse ISBN & check palindrome

Check

Reversed: 121
Palindrome ISBN.

Smart Library Management System

Select an option: Check book title palindrome

Check

Title is palindrome.

Smart Library Management System

Select an option: Square root of pages read ▾

Square root: 4.90

Smart Library Management System

Select an option: Check prime shelf number ▾

Prime shelf number.

Smart Library Management System

Select an option: Check prime shelf number ▾

Prime shelf number.