

Questions on SDL topics

1. Create a JavaScript object named employee with properties: id, name, and salary.
Write a function to calculate a 10% increment in salary and display the updated salary in the console.
2. Create an array of objects representing books (title, author, status).
Write JavaScript code to display only the books available for issue.
3. Create an object student with properties marks (array of numbers).
Add a method calculateAverage() inside the object to return the student's average marks.
4. Design an XML document named library.xml to represent the structure of a Library Management System.
The XML file should be linked to an external DTD named library.dtd for validation.

Detailed Requirements

- The root element must be <library>.
- It should contain two main sections:
 - <books> — for storing information about books.
 - <members> — for storing information about library members.
- The <books> element should contain multiple <book> elements (at least two).
- Each <book> element must include:

Nested child elements:

- <title> — title of the book
- <author> — author's full name
- <price> — numeric value representing the book's price
- <year> — the year of publication

Attributes: id — a unique book identifier (data type ID)

- The <members> element should contain multiple <member> elements (at least two).
- Each <member> element must include:
 - <name> — full name of the member
 - <email> — email address of the member
- Attributes:
 - memberId — a unique member identifier (data type ID)
 - memberType — type of member (e.g., *Student*, *Faculty*, *Staff*) (data type CDATA)

5. Why must XML have exactly one root element?
Give an example of a valid and invalid XML document to justify your answer.

Instructions to Students

You may call the function using any valid JavaScript event or approach.

For example, you can:

1. Call the function on page load
2. Call it through a button click
3. Call it using a link
4. Call it directly from your script
5. Use modern event handling with `addEventListener()`
6. Students are required to complete their assignments and submit them on or before 21/10/2025.
7. All assignments must be neatly handwritten on ruled sheets, using clear and legible handwriting. The assignment must be uploaded in the LMS.
8. The first page should include the student's name, registration number, subject, branch, class/section, and submission date.
9. Each answer should be written in the student's own words.
10. Assignments should be arranged in proper order and bound securely.
11. Students must follow the given instructions carefully, as incomplete or late submissions may lead to mark deduction.