

# 5. JAVASCRIPT - CLIENT-SIDE PROGRAMMING

## What is JavaScript?

JavaScript makes websites interactive. It runs in your browser and responds to user actions.

Without JavaScript, websites are just static text and images.

## Why is it Important?

- Makes websites interactive and responsive
- No page reload needed (smooth experience)
- Validates form data before sending
- Creates animations and effects
- Powers modern web applications

## JavaScript Basics We Used:

### 1. VARIABLES

```
let landArea = 10;
```

```
let yieldPerAcre = 250;
```

- Stores information in memory
- Can be used later

### 2. DOCUMENT MANIPULATION

```
document.getElementById('jsTotal')
```

- Finds elements in the HTML
- Allows us to change them

### 3. EVENT LISTENERS

```
oninput="calculateYield()"
```

- Triggers when user types in a field
- Calls the function immediately

### 4. CALCULATIONS

```
totalYield = landArea * yieldPerAcre;
```

- Does math based on user input
- Updates result in real-time

### 5. UPDATING DOM

```
element.innerText = totalYield;
```

- Changes text on the page
- No page refresh needed

## Our Example: Crop Yield Estimator

### How It Works:

1. User enters land area (e.g., 10 acres)
2. User enters yield per acre (e.g., 250 kg)
3. User selects crop type (e.g., rice)

### JavaScript then:

1. Grabs the values from input fields
2. Multiplies them:  $10 * 250 = 2500$
3. Updates the result on the page instantly

## Code Breakdown:

```
``javascript
function calculateYield() {
  // Get values from input fields
  let landArea = parseFloat(document.getElementById('jsLandArea').value);
  let yieldPerAcre = parseFloat(document.getElementById('jsYieldPerAcre').value);

  // Calculate total yield
  let totalYield = landArea * yieldPerAcre;

  // Update the page
  document.getElementById('jsTotal').innerText = totalYield.toFixed(0);
}
```