

Day 2: Operators & Conditionals

اپریٹرز اور شرائط

Quote of the Day: "Code is like humor. When you have to explain it, it's bad." - Cory House
"اچھا کوڈ خود بولتا ہے، برا کوڈ وضاحت مانگتا ہے۔"

Today's Learning Goals (اج کے اہداف)

By the end of today, you will:

- Master comparison operators (==, !=, >, <, >=, <=)
- Write if-else statements to make decisions in code
- Use logical operators (&&, ||, !) to combine conditions
- Understand truthy and falsy values
- Build a Biryani Quality Checker with multiple conditions

Time Breakdown (کل وقت: 150 منٹ)

-  7:00-7:05 PM (5min): Standup - Share yesterday's Personal Info Card
 -  7:05-8:05 PM (60min): Understanding operators & conditionals (3× Pomodoro)
 -  8:05-8:50 PM (45min): Practice with real scenarios
 -  8:50-9:25 PM (35min): Biryani Quality Checker project
 -  9:25-9:30 PM (5min): Quiz & reflection
-

What We're Building Today

Today you'll create a **Biryani Quality Checker** - a program that evaluates biryani based on multiple factors (rice type, spice level, and the controversial aloo question!) and gives a rating.

Why This Matters for Your Career: Every app makes decisions based on conditions:

- Daraz: "Is this customer eligible for free delivery?" (order > Rs. 999)
- Careem: "Is this driver available?" (status === "online" && hasRides === true)
- JazzCash: "Can this person send money?" (balance >= amount && pin === correct)

Today you're learning how programs make these decisions!

سمجھنا (Understanding): Making Decisions in Code

The Real-World Analogy

Scenario: Crossing Liberty Roundabout in Lahore

You're driving and approaching the signal:

```
IF traffic light is GREEN
    THEN drive through
ELSE IF traffic light is YELLOW
    THEN slow down
ELSE (light is RED)
    THEN STOP
```

This is exactly how code makes decisions!

Every day you make hundreds of conditional decisions:

- **IF** it's raining **THEN** take umbrella **ELSE** don't take it
- **IF** temperature $> 40^{\circ}\text{C}$ **THEN** turn on AC **ELSE** use fan
- **IF** score ≥ 50 **THEN** you passed **ELSE** you failed

Why Does This Matter?

Without conditions, programs can only follow one path. But real apps need to:

- Show different content to different users
- Validate form inputs before submission
- Calculate prices based on discounts
- Handle errors gracefully
- Make intelligent decisions

Example from daily life:

```
javascript
```

```
// Deciding what to eat for breakfast  
if (time < 10) {  
    console.log("Have paratha with chai");  
} else if (time < 2) {  
    console.log("Too late for breakfast, have lunch!");  
} else {  
    console.log("Have evening chai and samosa");  
}
```

The Mental Model

Think of conditional statements like a **road with multiple turns**:

Start → Check Condition → True? → Do This
→ False? → Do That

Your code flows down one path based on whether conditions are true or false!

Building Block #1: Comparison Operators (موازنہ کے نشان)

What are Comparison Operators? (کیا ہیں؟)

Urdu Analogy: Think of comparison operators like a **judge** (جی) comparing two things.

At a cricket match:

- Is Babar's score EQUAL to Rizwan's? (==)
 - Is Pakistan's score GREATER than India's? (>)
 - Is the temperature LESS than 20°C? (<)

Comparison operators **ask questions** and return **true** or **false**.

The Comparison Family

Operator	Meaning	Urdu	Example	Result
<code>==</code>	Exactly equal	بالکل برابر	<code>5 == 5</code>	true
<code>!=</code>	Not equal	برابر نہیں	<code>5 != 3</code>	true
<code>></code>	Greater than	سے بڑا	<code>10 > 5</code>	true

Operator	Meaning	Urdu	Example	Result
<	Less than	سے جوٹا	3 < 10	true
>=	Greater or equal	سے بڑا یا برابر	5 >= 5	true
<=	Less or equal	سے جوٹا یا برابر	3 <= 5	true

How It Works - Step by Step

javascript

```
// THINKING: Comparing ages to check voting eligibility

const myAge = 20;
const votingAge = 18;

// Is my age greater than or equal to voting age?
const canVote = myAge >= votingAge;

console.log(canVote); // true (20 >= 18 is true)
console.log(myAge >= votingAge); // true (same thing!)
```

The === vs == Confusion (اجتناب!)

ALWAYS use === (three equals), NEVER use == (two equals)

javascript

```
// THINKING: Why === is important

const age = 18;      // Number
const ageString = "18"; // String (text)

// Using == (WRONG - don't use this!)
console.log(age == ageString); // true (converts types - DANGEROUS!)

// Using === (CORRECT - always use this!)
console.log(age === ageString); // false (different types!)
```

💡 Why?

- `==` converts types and can give unexpected results
- `====` checks BOTH value AND type (safer!)

- Professional developers ALWAYS use `====`

Your First Example

javascript

```
// THINKING: Checking if a student passed

const obtainedMarks = 85;
const passingMarks = 50;

// Did the student pass?
const hasPassed = obtainedMarks >= passingMarks;
console.log("Passed:", hasPassed); // true

// TODO: Check if marks are exactly 100 (perfect score)
const isPerfect = obtainedMarks === 100;
console.log("Perfect:", isPerfect);

// TODO: Check if marks are less than 33 (failed)
const hasFailed = obtainedMarks < 33;
console.log("Failed:", hasFailed);
```

Common Mistakes

Wrong:

javascript

```
const age = 18;
if (age = 18) { // Single = is ASSIGNMENT, not comparison!
  console.log("Age is 18");
}
```

Right:

javascript

```
const age = 18;
if (age === 18) { // Triple = is COMPARISON
  console.log("Age is 18");
}
```

 **Why:** Single `=` assigns a value, `====` compares values!

Wrong:

javascript

```
const score = "50"; // String!
if(score > 40) { // Comparing string with number
    console.log("Passed");
}
```

Right:

javascript

```
const score = 50; // Number (no quotes!)
if(score > 40) {
    console.log("Passed");
}
```

Check Your Understanding

- What does `==` check?
- Why should you avoid `==`?
- What does a comparison operator return?
- Can you give 3 real-life examples of comparisons?

Quick Test:

javascript

```
const price = 500;
const budget = 1000;

// What will these return?
console.log(price < budget); // Your answer: _____
console.log(price === budget); // Your answer: _____
console.log(price !== 100); // Your answer: _____
```

Building Block #2: if-else Statements (فیصلے کرنا)

What is if-else? (کیا ہے؟)

Urdu Analogy: Think of if-else like asking "اگر... تو... ورنہ" (agar... to... warna)

Daily life example:

پارش بو رہی ہے (IF) اگر
چہتری لے لو (THEN) تو
چہتری کی ضرورت نہیں (ELSE) ورنہ

In JavaScript:

```
javascript

if (isRaining === true) {
    console.log("چہتری لے لو - Take umbrella");
} else {
    console.log("چہتری کی ضرورت نہیں - No umbrella needed");
}
```

How It Works - Step by Step

Basic if statement:

```
javascript

// THINKING: Check if someone can drive

const age = 20;

// Step 1: Check condition
// Step 2: If true, run code inside {}
if (age >= 18) {
    console.log("You can get a driving license!");
    console.log("Visit your nearest license office.");
}

// Step 3: If false, skip the code block
console.log("This runs regardless!");
```

if-else statement:

```
javascript
```

```
// THINKING: Pass or fail decision

const marks = 45;

if (marks >= 50) {
    console.log("Congratulations! You passed!");
} else {
    console.log("Sorry, you failed. Study harder!");
}
```

if-else if-else (multiple conditions):

```
javascript

// THINKING: Grade system

const percentage = 85;

if (percentage >= 80) {
    console.log("Grade: A - Excellent!");
} else if (percentage >= 70) {
    console.log("Grade: B - Very Good!");
} else if (percentage >= 60) {
    console.log("Grade: C - Good!");
} else if (percentage >= 50) {
    console.log("Grade: D - Pass!");
} else {
    console.log("Grade: F - Failed");
}
```

The Syntax Pattern

```
javascript
```

```

if(condition is true) {
    // This code runs
}

if(condition is true) {
    // This code runs
} else {
    // This code runs if condition is false
}

if(condition1 is true) {
    // This runs
} else if(condition2 is true) {
    // This runs
} else {
    // This runs if all conditions are false
}

```

Your First Example

```

javascript

// THINKING: Temperature-based advice

const temperature = 42;

// TODO: Complete the conditions
if(temperature _____ 40) {
    console.log("اہت گرمی ہے AC چلاو");
    console.log("Very hot! Turn on AC");
} else if(temperature _____ 30) {
    console.log("پنکھا چلاو!");
    console.log("Hot! Use fan");
} else {
    console.log("موسم اچھا ہے!");
    console.log("Weather is nice!");
}

```

Common Mistakes

Wrong:

```

javascript

```

```
const age = 20;  
if age >= 18 { // Missing parentheses!  
    console.log("Adult");  
}
```

 **Right:**

```
javascript  
  
const age = 20;  
if (age >= 18) { // Condition in parentheses  
    console.log("Adult");  
}
```

 **Wrong:**

```
javascript  
  
if (age >= 18)  
    console.log("Line 1");  
    console.log("Line 2"); // Not in the if block!
```

 **Right:**

```
javascript  
  
if (age >= 18) {  
    console.log("Line 1");  
    console.log("Line 2"); // Both in curly braces  
}
```

 **Why:** Always use curly braces `({})` to group multiple statements!

 **Wrong:**

```
javascript
```

```

const score = 85;
if (score > 80) {
    console.log("Excellent!");
} else if (score > 90) { // This will NEVER run!
    console.log("Perfect!");
}

```

Right:

javascript

```

const score = 85;
if (score > 90) { // Check highest condition first!
    console.log("Perfect!");
} else if (score > 80) {
    console.log("Excellent!");
}

```

 **Why:** Order matters! Check from highest to lowest condition.

Check Your Understanding

- What goes inside the parentheses `()`?
 - What goes inside the curly braces `{ }`?
 - When does the `else` block run?
 - Can you have `if` without `else`?
-

Building Block #3: Logical Operators (منطقی اپریٹرز)

What are Logical Operators? (کیا ہیں؟)

Urdu Analogy: Think of logical operators like combining multiple questions:

Real-life scenario - Can you watch a movie?

آپ فلم دیکھ سکتے ہیں اگر:
 آپ کے پاس وقت ہے -
 آپ کے پاس پسی ہیں -
 سینما کھلا ہے -

(You need ALL three things!)

The Three Logical Operators

Operator	Name	Urdu	Meaning	Example
&&	AND	اور	Both must be true	true && true → true
'	'	'	OR	'
!	NOT	نہیں	Flips true/false	!true → false

1. AND Operator (&&) - اور

Both conditions must be true

javascript

```
// THINKING: Can you enter the exam hall?  
  
const hasAdmitCard = true;  
const isOnTime = true;  
  
// You need BOTH admit card AND to be on time  
if (hasAdmitCard && isOnTime) {  
    console.log("آپ اندر آ سکتے ہیں" - You can enter");  
} else {  
    console.log("معذرت" - Sorry, cannot enter);  
}  
  
// Truth table for AND:  
console.log(true && true); // true  
console.log(true && false); // false  
console.log(false && true); // false  
console.log(false && false); // false
```

Real example:

javascript

```

const age = 20;
const hasLicense = true;

// Can drive if: age >= 18 AND has license
if (age >= 18 && hasLicense) {
    console.log("You can drive!");
}

```

2. OR Operator (||) - ↴

At least one condition must be true

```

javascript

// THINKING: Can you get student discount?

const isStudent = true;
const isSenior = false;

// You get discount if: student OR senior citizen
if (isStudent || isSenior) {
    console.log("مبارک ہو! آپ کو رعایت ملے گی");
    console.log("You get a discount!");
} else {
    console.log("Full price");
}

// Truth table for OR:
console.log(true || true); // true
console.log(true || false); // true
console.log(false || true); // true
console.log(false || false); // false

```

Real example:

```

javascript

```

```

const day = "Sunday";
const isHoliday = false;

// Weekend if: Sunday OR holiday
if(day === "Sunday" || isHoliday) {
    console.log("!ہفتہ! - It's a day off!");
}

```

3. NOT Operator (!) - نہیں

Flips the value

```

javascript

// THINKING: Opposite of conditions

const isRaining = false;

// If it's NOT raining
if(!isRaining) {
    console.log("!بہر جا سکتے ہیں - Can go outside");
}

// Flipping values:
console.log(!true); // false
console.log(!false); // true

const hasInternet = true;
console.log(!hasInternet); // false

```

Combining Multiple Operators

javascript

// THINKING: Complex decision - Can you order from Foodpanda?

```
const hasApp = true;
const hasInternet = true;
const hasMoney = false;
const hasPromoCode = true;

// You can order if:
// (has app AND has internet) AND (has money OR has promo code)
if ((hasApp && hasInternet) && (hasMoney || hasPromoCode)) {
    console.log("Order kar sakte hain! 🍕");
} else {
    console.log("Cannot order 😞");
}
```

Your First Example

javascript

// THINKING: Cricket match attendance

```
const hasTicket = true;
const knowsVenue = true;
const hasTransport = false;
const friendHasCar = true;
```

// TODO: Can go to match if:

```
// - Has ticket AND knows venue AND (has transport OR friend has car)
if (_____ && _____ && (_____ || _____)) {
    console.log("اچھو میچ دیکھنے چلتے ہیں");
```

```
} else {
    console.log("Ghar pe TV par dekho");
}
```

Common Mistakes

✖ Wrong:

javascript

```
const age = 20;  
if (age >= 18 && <= 60) { // Incomplete second condition!  
    console.log("Working age");  
}
```

 **Right:**

```
javascript  
  
const age = 20;  
if (age >= 18 && age <= 60) { // Complete both conditions  
    console.log("Working age");  
}
```

 **Wrong:**

```
javascript  
  
const city = "Lahore";  
if (city === "Lahore" || "Karachi") { // Wrong syntax!  
    console.log("Major city");  
}
```

 **Right:**

```
javascript  
  
const city = "Lahore";  
if (city === "Lahore" || city === "Karachi") { // Complete both  
    console.log("Major city");  
}
```

Check Your Understanding

- What does `&&` mean?
- What does `||` mean?
- What does `!` do?
- Can you explain the difference between AND and OR in Urdu?

Building Block #4: Truthy and Falsy Values

What are Truthy/Falsy? (سچ/جھوٹ کی قدریں)

Urdu Analogy: Some values in JavaScript are considered "empty" or "nothing" - they act like `false` even though they're not the word false.

Think of it like an empty dabba (container):

- **Empty dabba** = Falsy (acts like `false`)
- **Dabba with something** = Truthy (acts like `true`)

The Falsy Values (Only 6!)

These act like `false` in conditions:

```
javascript

// THINKING: All falsy values

false      // The actual false
0          // Zero
""         // Empty string (empty quotes)
null       // Intentionally empty
undefined   // Not defined yet
NaN        // Not a Number
```

Everything Else is Truthy!

```
javascript

// All truthy values:
true      // Obviously
1, 2, 100 // Any non-zero number
"hello"   // Any non-empty string
"0"       // String with zero (not empty!)
"false"   // String with false (not empty!)
[]        // Empty array (still truthy!)
{}        // Empty object (still truthy!)
```

How It Works

```
javascript
```

```

// THINKING: Testing truthy/falsy

let name = ""; // Empty string = falsy

if(name) {
    console.log("نام موجود - Name exists");
} else {
    console.log("نام نبی - No name"); // This runs!
}

name = "Hassan"; // Non-empty = truthy

if(name) {
    console.log("نام موجود - Name exists"); // This runs!
}

```

Practical Example

```

javascript

// THINKING: Form validation

const username = "";
const password = "12345";

if (!username) { // If username is falsy (empty)
    console.log("Error: Username is required!");
}

if (!password) { // If password is falsy (empty)
    console.log("Error: Password is required!");
} else if (password.length < 8) {
    console.log("Error: Password too short!");
}

```

Common Mistake

 Wrong:

```

javascript

```

```
const score = 0; // Zero is falsy!

if(score) {
  console.log("You scored!");
} else {
  console.log("No score"); // This runs even though 0 is valid!
}
```

Right:

javascript

```
const score = 0;

if(score >= 0) { // Explicit comparison
  console.log("You scored:", score);
}
```

 **Why:** Zero is falsy, so check explicitly for numbers!

Check Your Understanding

- Name 3 falsy values
 - Is an empty string truthy or falsy?
 - Is the number 1 truthy or falsy?
 - Why does `if("")` skip the code inside?
-

Practice Session: Making Decisions

Practice Goal

By the end of this section, you'll confidently write if-else statements with multiple conditions!

Exercise 1: Guided Practice (بم ساتھ کریں)

Scenario: Checking if a number is even or odd (جفت یا طلق)

Starter Code:

javascript

```

// TODO Step 1: Store a number
const number = 7;

// THINKING: Even numbers divide by 2 with no remainder
// Odd numbers have remainder 1

// TODO Step 2: Check if even using % (modulo operator)
// HINT: number % 2 gives remainder when dividing by 2
// If remainder is 0 → even
// If remainder is 1 → odd

if (number % 2 === 0) {
    console.log(number, "is EVEN (جفت)");
} else {
    console.log(number, "is ODD (طاقت)");
}

// TODO Step 3: Test with different numbers
// Try: 10, 15, 22, 33

```

Test Your Code:

Expected outputs:

7 → ODD

10 → EVEN

15 → ODD

Exercise 2: Voting Eligibility (اُبادی)

Problem: Check if someone can vote in Pakistan

Requirements:

- Must be 18 or older
- Must be Pakistani citizen
- Display appropriate message for each case

Thinking Framework:

1. What data do I need? (age, citizenship)
2. What conditions must be checked? (age >= 18 AND isPakistani)
3. What messages for different cases?

Starter Code:

```
javascript

// TODO: Store person's information
const age = _____;
const isPakistaniCitizen = _____;

// TODO: Check voting eligibility
// HINT: Need BOTH conditions to be true

if(_____ && _____) {
    console.log("آپ ووٹ ڈال سکتے ہیں!");
    console.log("You can vote!");
} else if (age < 18) {
    console.log("عمر کم ہے - Too young to vote");
    console.log("Wait", 18 - age, "more years");
} else {
    console.log("Only Pakistani citizens can vote");
}
```

Don't Look Below Until You Try! 

Hints (if stuck):

```
<details> <summary>Stuck on the condition?</summary> ````javascript if (age >= 18 &&
isPakistaniCitizen === true) { // Can vote } // OR shorter: if (age >= 18 && isPakistaniCitizen) { // Can
vote (true is implied!) } ```` </details> <details> <summary>Complete solution to check:</summary>
````javascript const age = 20; const isPakistaniCitizen = true;

if (age >= 18 && isPakistaniCitizen) {
 console.log("✅ You can vote!");
} else if (age < 18) {
 console.log("❌ Too young. Wait", 18 - age, "years");
} else {
 console.log("❌ Must be Pakistani citizen");
}
```

```
</details>
```

```

```

#### ### Exercise 3: Grade Calculator

\*\*Scenario:\*\* Calculate grade based on percentage

\*\*Grade System:\*\*

- A: 80-100%
- B: 70-79%
- C: 60-69%
- D: 50-59%
- F: Below 50%

```javascript

```
const percentage = 75;
```

// TODO: Write if-else if chain

// HINT: Start from highest (80) and go down

```
if (percentage >= _____) {  
    console.log("Grade: A - Excellent!");  
} else if (_____) {  
    console.log("Grade: B - Very Good!");  
} else if (_____) {  
    console.log("Grade: C - Good!");  
} else if (_____) {  
    console.log("Grade: D - Pass!");  
} else {  
    console.log("Grade: F - Failed");  
}
```

Exercise 4: Mobile Package Validator

Scenario: Check if a Jazz phone number is valid

Pakistan mobile rules:

- Must start with 03
- Must be exactly 11 digits
- Format: 03XX-XXXXXXX

javascript

```
const phoneNumber = "03001234567";

// TODO: Check validations
// HINT: Use .length for length
// HINT: Use .startsWith("03") to check start

const isLength11 = phoneNumber.length _____ 11;
const startsWith03 = phoneNumber.startsWith(_____);

if (isLength11 && startsWith03) {
    console.log("✅ Valid Pakistani mobile number");
} else if (!isLength11) {
    console.log("❌ Must be 11 digits");
} else {
    console.log("❌ Must start with 03");
}
```

Exercise 5: Weekend Checker

Problem: Check if it's weekend in Pakistan (Saturday-Sunday)

javascript

```
const day = "Saturday";

// TODO: Check if weekend
// HINT: Weekend if day is Saturday OR Sunday

if (day _____ "Saturday" _____ day _____ "Sunday") {
    console.log("🎉 جوکی! Weekend!");
    console.log("Enjoy your day off!");
} else {
    console.log("🕒 کام کا دن - Working day");
    console.log("Back to work/studies!");
}
```

اج کا چیلنچ (Today's Challenge)

Project: Biryani Quality Checker

بریانی کوالٹی چکر

The Problem: You're a biryani critic! You need to rate biryani based on multiple factors. Every Pakistani has strong opinions about biryani - today you'll turn those opinions into code!

What You're Building: A program that checks:

- Rice type (must be basmati!)
- Spice level (1-10 scale)
- The controversial aloo question Then gives a rating: Excellent, Good, Average, or Poor

Success Criteria:

- Checks all three factors correctly
 - Uses nested if-else statements
 - Uses logical operators (&&, ||)
 - Gives appropriate rating
 - Shows different messages for different scenarios
 - No console errors
-

Phase 1: Planning (سوچیں چلے)

Before coding, answer:

1. What information do I need to check?

- Rice type (String) → "basmati" or other
- Spice level (Number) → 1 to 10
- Has aloo (Boolean) → true or false

2. What makes biryani excellent?

- Basmati rice
- Spice level 7-9 (perfect!)
- Your opinion on aloo 😊

3. What makes biryani poor?

- Not basmati
- Too mild (< 4) or too spicy (> 9)

4. How do I rate it?

- Start with best case
- Check each factor
- Combine conditions

Planning Checkpoint:

- I know what data to store
 I understand the rating criteria
 I know which operators to use (==, >=, &&, ||)
 I have a rough idea of the if-else structure
-

Phase 2: Foundation (بنیاد)

Starter Code:

```
html
```

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Biryani Quality Checker</title>
</head>
<body>
  <h1>● Biryani Quality Checker</h1>
  <h2>Press F12 to see the rating!</h2>

  <script>
    // =====
    // BIRYANI QUALITY CHECKER
    // By: [Your Name]
    // Date: [Today's Date]
    // =====

    console.log("● بُریانی کو الٹی چکر");
    console.log("=====");

    // TODO Step 1: Store biryani details
    // Test with different values!

    const riceType = "basmati"; // Try: "basmati" or "regular"
    const spiceLevel = 8;      // Try: 1-10
    const hasAloo = false;     // Try: true or false

    console.log("\n📋 Biryani Details:");
    console.log("Rice Type:", riceType);
    console.log("Spice Level:", spiceLevel, "/ 10");
    console.log("Has Aloo:", hasAloo);
    console.log("---");

    // TODO Step 2: Check if rice is basmati (MUST HAVE!)
    const isBasmati = riceType === "basmati";

    // TODO Step 3: Check if spice level is perfect (7-9)
    const isPerfectSpice = spiceLevel === 7 || spiceLevel === 9;

    // TODO Step 4: Check if spice is too mild (< 4)
    const isTooMild = spiceLevel === 4;

```

```

// TODO Step 5: Check if spice is too hot (> 9)
const isTooHot = spiceLevel _____ 9;

// TODO Step 6: Rate the biryani
console.log("\n⭐ RATING:");

// EXCELLENT: Basmati + perfect spice
if (_____ && _____) {
    console.log("⭐⭐⭐ EXCELLENT BIRYANI!");
    console.log("زیبادست! This is perfect biryani!");

    // Special message about aloo
    if (hasAloo) {
        console.log("(But... it has aloo 😊)");
    } else {
        console.log("(And no aloo - traditional style ✅)");
    }
}

// GOOD: Basmati + decent spice (4-6 or slight variations)
else if (isBasmati && !isTooMild && !isTooHot) {
    console.log("⭐⭐ GOOD BIRYANI");
    console.log("جیا! Decent biryani");
}

// AVERAGE: Basmati but spice issues
else if (isBasmati) {
    console.log("⭐ AVERAGE BIRYANI");

    if (isTooMild) {
        console.log("مسالہ کم - Too bland!");
    } else if (isTooHot) {
        console.log("ہٹ نیز - Too spicy!");
    }
}

// POOR: Not basmati (unacceptable!)
else {
    console.log("✖ POOR BIRYANI");
    console.log("نہیں کاکا! Not even basmati rice!");
    console.log("This is not real biryani!");
}

console.log("=====");

// TODO BONUS: Add nutrition concerns
// Hint: If spice > 8, mention "May cause heartburn!"

```

```
</script>
</body>
</html>
```

Phase 3: Milestones (سنگ میل)

Milestone 1: Basic Checks Work ✓

- Variables store correctly
- Can check if rice is basmati
- Can check spice range

Test: Change riceType to "regular" - does it work?

Milestone 2: Rating Logic Works ✓

- Excellent rating shows for perfect biryani
- Poor rating shows for non-basmati

Test: Try different spice levels (3, 7, 10)

Milestone 3: Aloo Logic Added ✓

- Special message when hasAloo is true
- Different message when hasAloo is false

Test: Toggle hasAloo between true and false

Milestone 4: All Cases Handled ✓

- Works with all combinations
- Appropriate messages for each case

Test: Try at least 5 different combinations

Debugging Guide (اگر پھنس جائیں)

Problem: Rating always shows same result

- Check: Are comparison operators correct?
- Check: Is spiceLevel a number (not string)?
- Add console.logs to see values:

```
javascript
```

```
console.log("isBasmati:", isBasmati);
console.log("isPerfectSpice:", isPerfectSpice);
```

Problem: Aloo message doesn't show

- Check: Is hasAloo boolean (true/false)?
- Check: Is the if statement inside the EXCELLENT block?
- Check: Did you use `if (hasAloo)` not `if (hasAloo === "true")`

Problem: Logic seems backwards

- Check: Are you using `&&` where you need `||`?
- Check: Did you flip the conditions?
- Read the logic out loud in Urdu!

Common Logic Issues:

javascript

```
// X WRONG: This is ALWAYS false!
if (spiceLevel > 7 && spiceLevel < 6) {
    // Can't be both!
}

// ✓ RIGHT: This checks range correctly
if (spiceLevel >= 6 && spiceLevel <= 7) {
    // Can be 6, 6.5, or 7
}
```

Extension Challenges (بonus چیلنج)

If you finish early:

Level 1: Add More Details

javascript

```

// Check garnish
const hasFriedOnions = true;
const hasBoondiRaita = true;

// Bonus points for presentation!
if (isExcellent && hasFriedOnions && hasBoondiRaita) {
    console.log("⭐ BONUS: Perfect presentation!");
}

```

⭐⭐ Level 2: Price Checker

```

javascript

const price = 350; // per kg

// Check if price is reasonable
if (isExcellent && price <= 400) {
    console.log("💰 Great value for money!");
} else if (price > 500) {
    console.log("😢 Too expensive!");
}

```

⭐⭐⭐ Level 3: Multiple Biryani Comparison

```

javascript

// Create 3 different biryani profiles
// Compare them and declare a winner!

const biryani1 = {
    rice: "basmati",
    spice: 8,
    aloo: false,
    price: 350
};

// Rate all three and pick the best one!

```

📝 Daily Quiz (5 منٹ کا ٹیسٹ)

Instructions: Answer WITHOUT looking at notes!

1. What does `==` check?

- A) Only the value
- B) Only the type
- C) Both value AND type
- D) Neither

<details> <summary>See Answer (Try first!)</summary>

Answer: C - `==` checks BOTH value AND type. That's why `5 == "5"` is `false` (number vs string). Always use `==` instead of `=` for safe comparisons!

</details>

2. What will this code output?

javascript

```
const age = 16;
if (age >= 18) {
    console.log("Adult");
} else {
    console.log("Minor");
}
```

- A) Adult
- B) Minor
- C) Nothing
- D) Error

<details> <summary>See Answer (Try first!)</summary>

Answer: B - Minor. Since 16 is NOT ≥ 18 , the condition is false, so the else block runs.

</details>

3. What does `&&` mean?

- A) At least one must be true
- B) Both must be true

- C) Neither can be true
- D) Exactly one must be true

<details> <summary>See Answer (Try first!)</summary>

Answer: B - Both must be true. Think "AND" (and) - you need BOTH conditions. Like needing admit card AND being on time to enter exam hall.

</details>

4. Which of these is falsy?

- A) "0"
- B) 1
- C) ""
- D) "false"

<details> <summary>See Answer (Try first!)</summary>

Answer: C - Empty string `""` is falsy. The others are all truthy! Remember: "0" and "false" are strings (not empty), so they're truthy!

</details>

5. What will this output?

```
javascript

const score = 0;
if(score) {
    console.log("You scored!");
} else {
    console.log("No score");
}
```

- A) You scored!
- B) No score
- C) 0
- D) Error

<details> <summary>See Answer (Try first!)</summary>

Answer: B - "No score". Zero (0) is falsy! Even though 0 is a valid score, `if(score)` treats it as false. That's why you should use `if(score >= 0)` for numbers!

</details>

Scoring:

- **5/5:** 🎉 Amazing! You're a conditional wizard!
 - **4/5:** 🍩 Excellent! Just review the one you missed
 - **3/5:** 👍 Good! Read through the concepts again
 - **<3/5:** 🤷 Practice more! Review all sections
-

🎓 Today's Homework (کام کا گھر)

Required (لازمی):

- Complete the Biryani Quality Checker
- Test with at least 5 different combinations
- Explain the difference between `&&` and `||` to a family member in Urdu

Optional (اختیاری):

- Try the extension challenges
- Create a "Chai Quality Checker" using the same pattern
- Build a "Should I Go Outside?" checker (considering rain, temperature, etc.)

For Tomorrow:

- Think about: "How would I repeat something 100 times?"
 - This will help with tomorrow's topic: Loops!
-

⌚ Daily Reflection (روزانہ کی سوچ)

What I Learned Today: (ایج میں نے کیا سیکھا)

مشکل کیا لگا (What I Found Difficult):

مزید کیا سیکھنا ہے (What I Want to Explore More):

My Confidence Level (1-10): _____

Tomorrow's Preview

Tomorrow we'll learn about **Loops & Iteration** where you'll build a **Cricket Score Counter!**

You'll learn how to:

- Repeat code automatically (for loops)
- Count runs ball by ball
- Calculate strike rates
- Build scoring systems

Get Ready By:

- Making sure your Biryani Checker works
 - Understanding how conditions work
 - Thinking: How would you count from 1 to 100?
-

Resources (اگر مزید پڑھنا ہو)

Free Resources (3G-Friendly):

MDN - if...else

- Link: <https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Statements/if...else>
- Best for: Understanding syntax deeply

JavaScript Conditionals in Urdu

- Search: "JavaScript if else Urdu tutorial"

- Best for: Visual learners

Practice Platform

- Try different conditions on your own
 - Break things to learn!
-

CodeSensei's Tip of the Day:

"Conditions are like traffic signals - they control the flow of your code. Master them, and you control your program. A good developer thinks through all possible cases: What if this is true? What if that's false? What if both? Always test edge cases!"

شرائط ٹریفک سگنلز کی طرح ہیں - یہ آپ کے کوڈ کی رفتار کنٹرول کرتی ہیں۔ ان میں مہارت حاصل کریں، اور آپ اپنے "پروگرام پر قابو پالیں گے۔

Remember: Today you learned how to make your code THINK! Tomorrow you'll learn how to make it REPEAT. You're building a powerful programming foundation!

مبارک بو! Day 2 Complete! 

الله حافظ! See you tomorrow for loops and cricket! 