Playwright Training

Control Statements

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The Golden Circle

What

What is Control statement?

The statements that define the flow of the program

Why

Why is Control Statement required?

Provide a logic based flow like chrome based vs firefox based execution

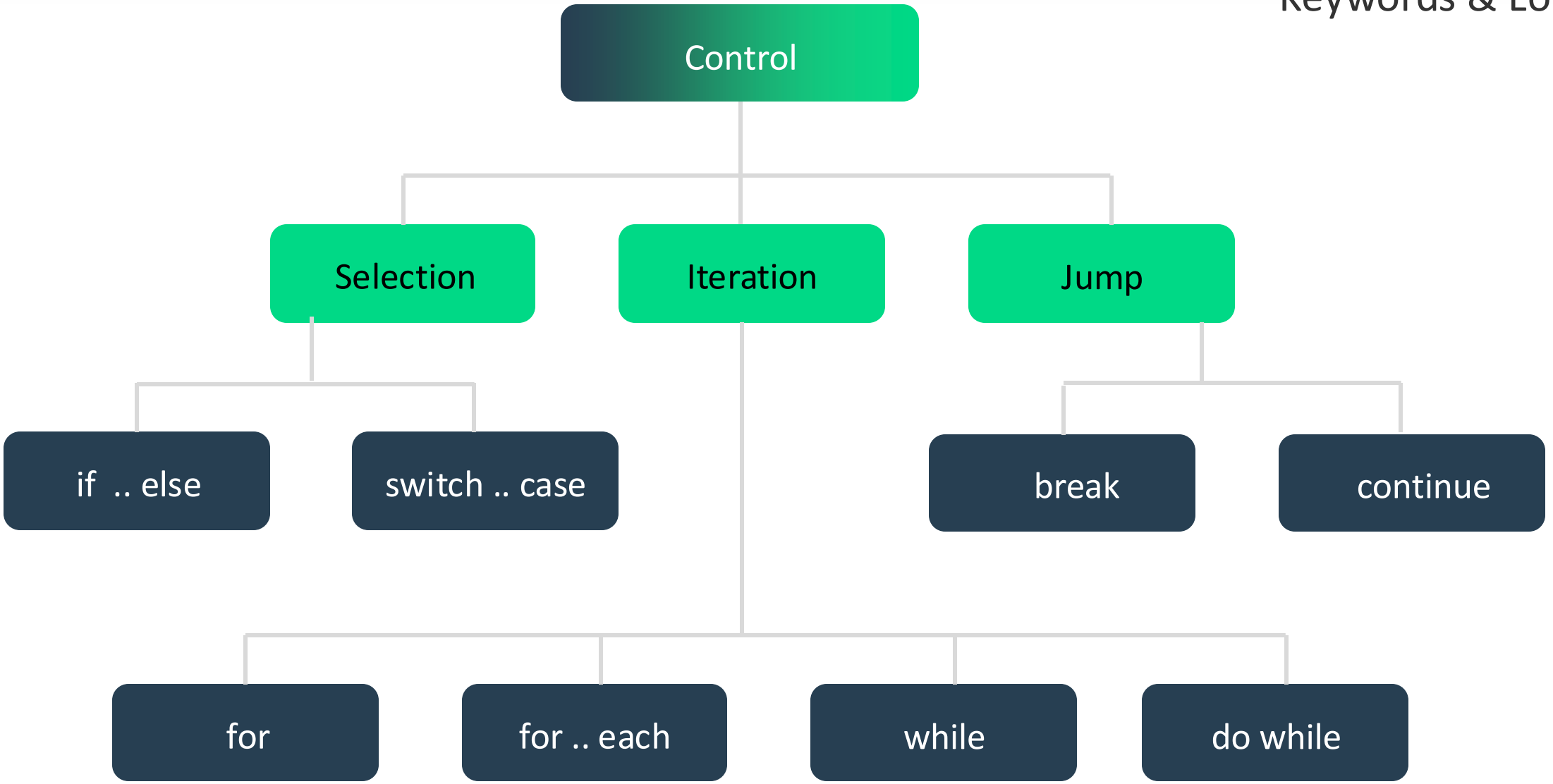
How

How to implement Control Statements?

Using Selection, Iteration and Jump Statements

Control Statements

Keywords & Lower case



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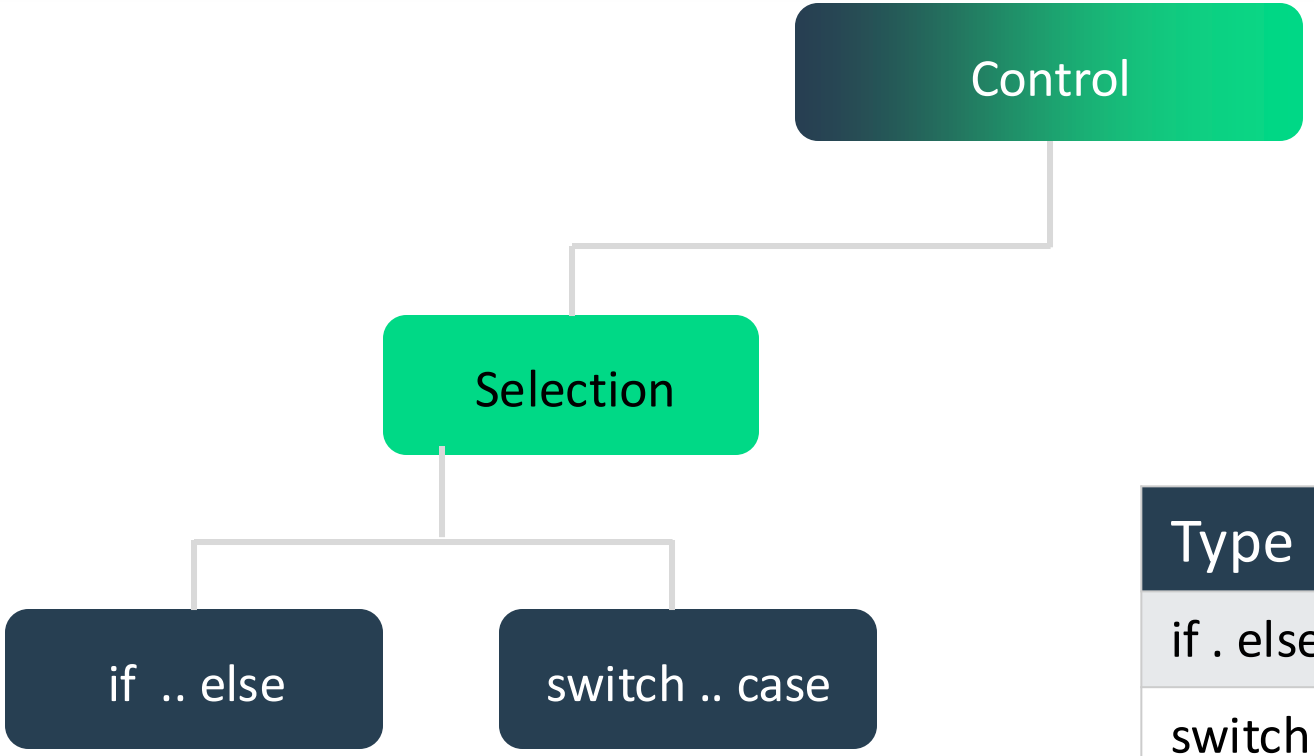
Selection Statements : When to use what?

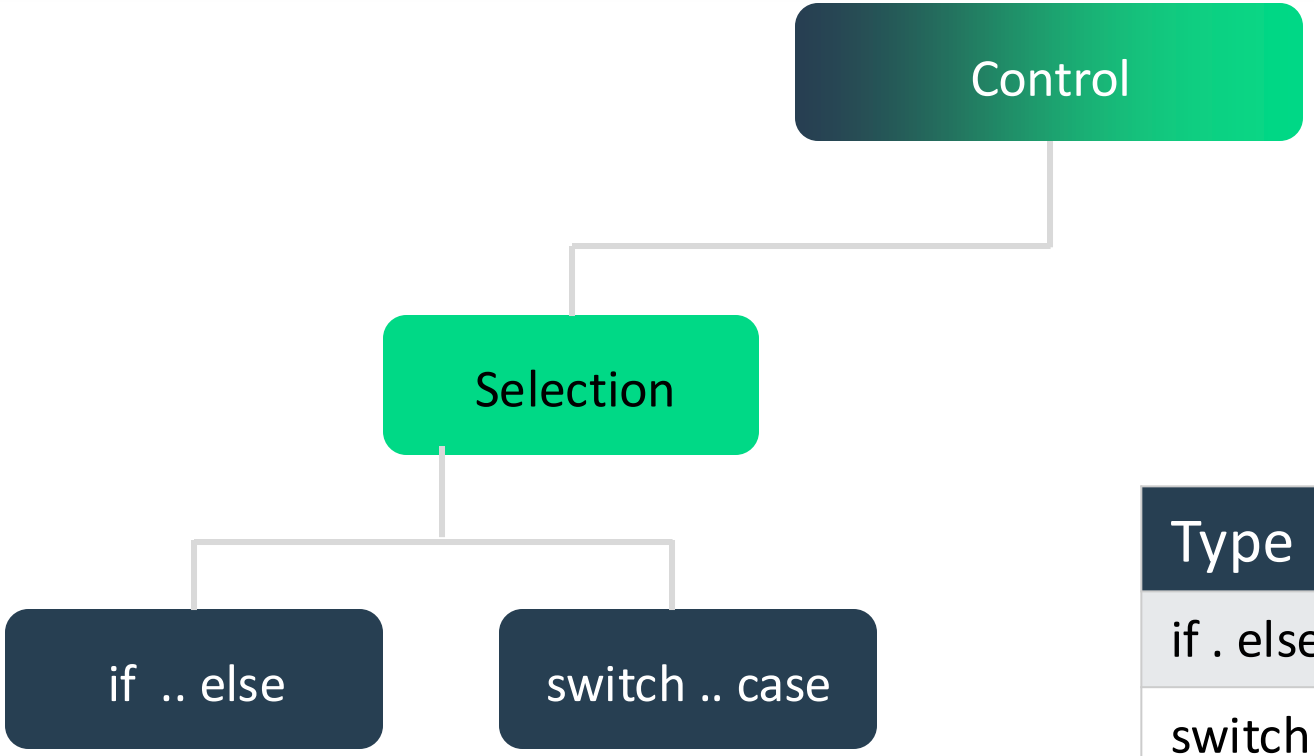
Keywords & Lower case



Type	When
if . else	When you have few conditions
switch . case	When you have multiple conditions

Selection Statements : Examples

Keywords & Lower case



Type	Example
if . else	Report pass or fail
switch . case	Launch based on browser types

if syntax

if Statement (Single Condition)

- The if statement **executes code only if the condition is true**.

Example: Check if a number is positive

```
let num = 10;

if (num > 0) {
  console.log("The number is positive.");
}


// Output: The number is positive.
```

✅ **Use if when you need to check a single condition.**

if..else syntax

if...else Statement (Two Conditions)

- The else block runs **if the if condition is false**.

Example: Check if a person can vote

```
let age = 17;

if (age >= 18) {
  console.log("You can vote.");
} else {
  console.log("You cannot vote.");
}

// Output: You cannot vote.
```

✅ **Use if...else when there are two possible outcomes.**

if..else syntax

if...else if...else (Multiple Conditions)

- Use else if to **check multiple conditions**.
- The first true condition executes, and the rest are skipped.

Example: Grade System

```
let score = 85;

if (score >= 90) {
  console.log("Grade: A");
} else if (score >= 80) {
  console.log("Grade: B");
} else if (score >= 70) {
  console.log("Grade: C");
} else {
  console.log("Grade: F");
}
// Output: Grade: B
```

switch Statement syntax

switch Statement (Multiple Fixed Choices)

- switch is useful when you have **multiple cases to compare** with a single variable.
- The break statement **prevents execution from continuing to the next case**.

Example: Check day of the week

```
let day = “Sunday";

switch (day) {
  case "Monday":
    console.log("Start of the workweek!");
    break;
  case "Friday":
    console.log("Weekend is near!");
    break;
  case "Sunday":
    console.log(“Playwright Training, it's Sunday!");
    break;
  default:
    console.log("It's just another day.");
}
// Output: Playwright Training, it's Sunday!
```

✅ **Use switch when a variable has multiple possible values (like different browser options).**

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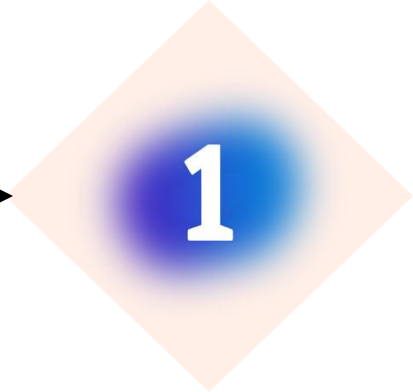
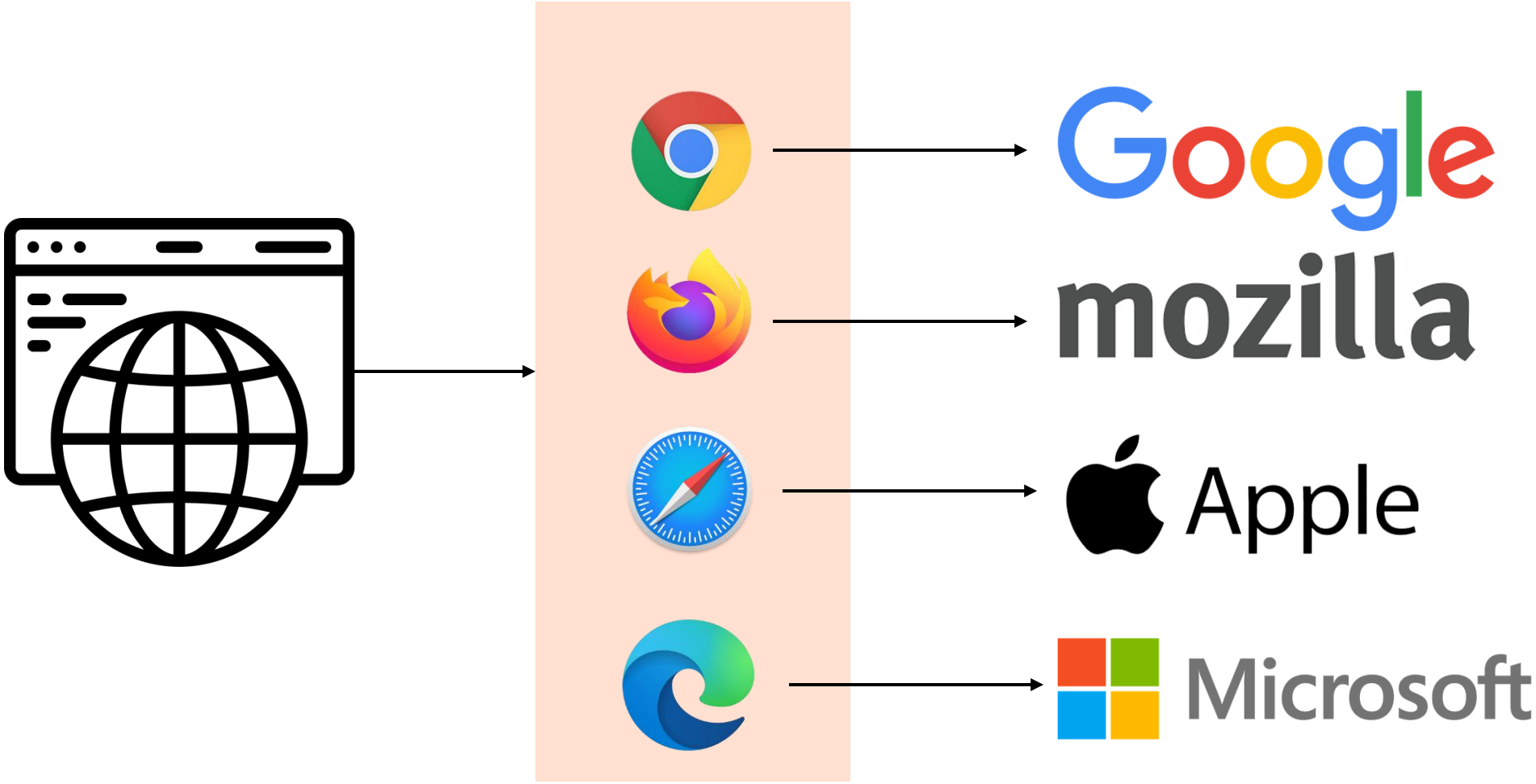
Lets write a sample code (positive number)

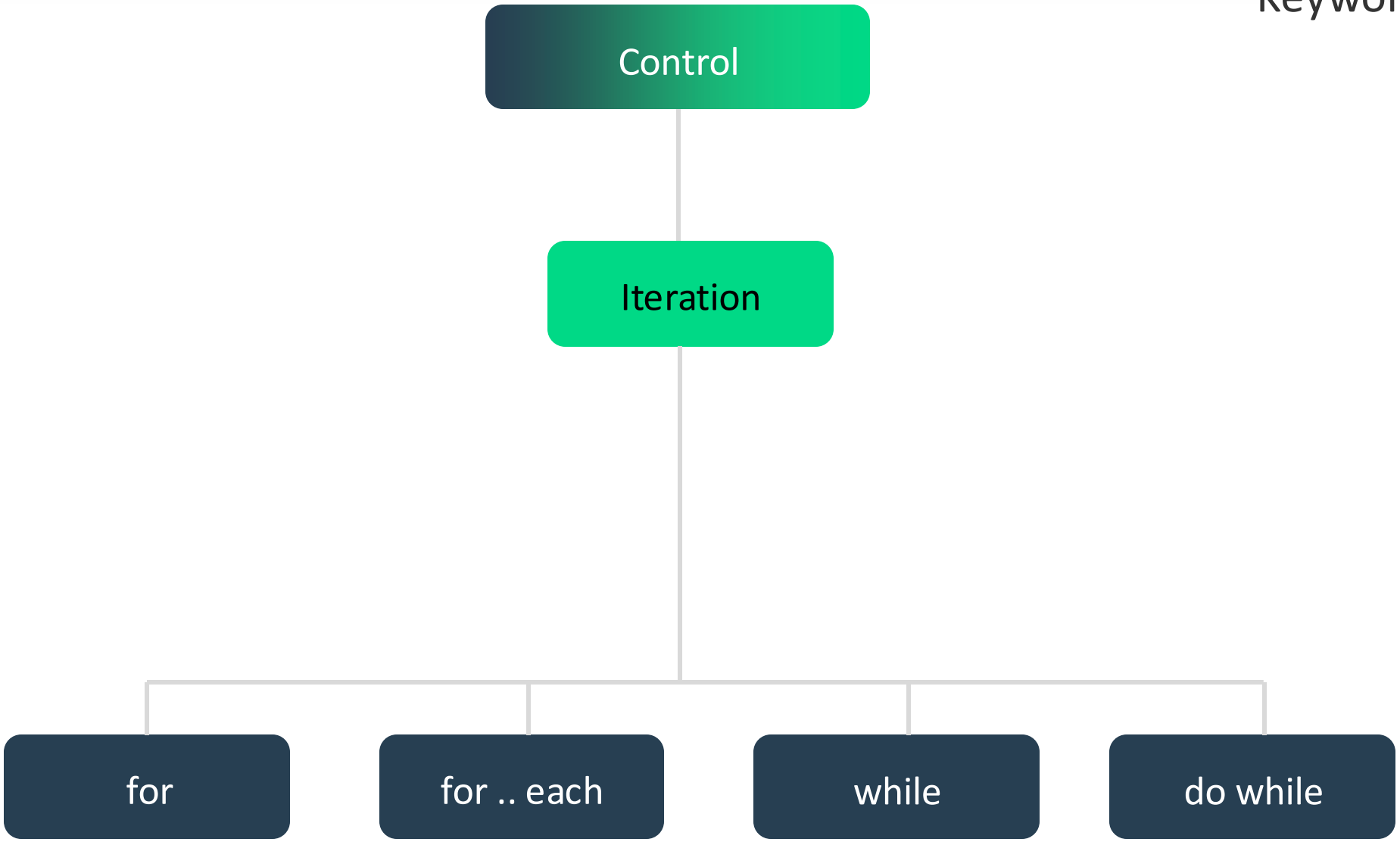


Lets write a sample code (browser vendor)



Control Statements

Keywords & Lower case



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for Loop

for Loop (Fixed Iterations)

- The for loop runs **a specific number of times**.
- It has **three parts**:

1. **Initialization** → let i = 0 (Starting point)
2. **Condition** → i < 5 (Loop runs while i is less than 5)
3. **Increment/Update** → i++ (Increase i by 1 each time)

Example: Print numbers from 1 to 5

```
for (let i = 1; i <= 5; i++) {
  console.log(i);
}

// Output: 1 2 3 4 5
```

✅ **Use for when you know exactly how many times you want to loop.**

forEach Loop

forEach Loop (Array Looping)

- forEach() is used for **iterating over arrays**.
- It executes a function for each **element** in the array.

Example: Print each fruit in an array

```
let automationTools = [“Playwright”, “Selenium", “Puppeteer"];

automationTools.forEach(function (automation) {
  console.log(automation);
});

// Output:
// Playwright
// Selenium
// Puppeteer
```

✅ **Use forEach for looping through arrays.**

while Loop

while Loop (Condition-Based)

- Runs **as long as** the condition is true.
- **Useful when we don't know how many times the loop should run.**

Example: Count from 1 to 5

```
let count = 1;
while (count <= 5) {
  console.log(count);
  count++;  // Increment count
}

// Output: 1 2 3 4 5
```

✅ **Use while when the number of iterations is unknown.**

do..while Loop

do...while Loop (Runs at least once)

- Runs **at least once**, even if the condition is false.
- The **condition is checked after** the loop executes.

Example: Run once even if condition is false

```
let num = 10;
do {
  console.log(num);
  num++;

} while (num <= 5); // Condition is false (10 is not ≤ 5)
```

Output: 10

✅ **Use do...while when you want the loop to run at least once.**

Lets write a sample code (print numbers 1 … 10)

Operators

1. Arithmetic Operators.
2. Assignment Operators.
3. Comparison Operators.
4. Equality Operators.
5. Logical Operators.
6. Ternary (Conditional) Operator (?:).
7. Optional Chaining Operator (?.) .

Arithmetic Operators

Operator	Name	Example	Result
+	Addition	10 + 5	15
-	Subtraction	10 - 5	5
*	Multiplication	10 * 5	50
/	Division	10 / 5	2
%	Modulus	10 % 5	0
**	Exponentiation	2 ** 3	8
++	Increment	let x = 5; x++	6
--	Decrement	let y = 5; y--	4

Assignment Operators

Operator	Name	Example	Equivalent To
=	Assign	x = 10	x = 10
+=	Add and assign	x += 5	x = x + 5
-=	Subtract and assign	x -= 3	x = x - 3
*=	Multiply and assign	x *= 2	x = x * 2
/=	Divide and assign	x /= 2	x = x / 2
%=	Modulus and assign	x %= 2	x = x % 2
**=	Exponentiation and assign	x **= 3	x = x ** 3

Comparison Operators

Operator	Name	Example		Result
==	Equal to (loose equality)	5 == '5'		true
===	Strict equal (type + value)	5 === '5'		false
!=	Not equal	5 != '5'		false
!==	Strict not equal	5 !== '5'		true
>	Greater than	10 > 5		true
<	Less than	10 < 5		false
>=	Greater than or equal to	10 >= 10		true
<=	Less than or equal to	10 <= 5		false

Equality Operator

== (Equality Operator - Loose Comparison)

- **Checks only values, not data types**.
- Converts (coerces) values to the **same type** before comparing.

Example:

console.log(5 == "5"); // Output: true

Why?

- "5" (string) is automatically converted to 5 (number).v
- Since 5 == 5, the result is true.

✅ **Use == when you want JavaScript to convert types automatically.**

Operands	What JavaScript Does
Boolean == Any	Convert Boolean to Number (true → 1)
String == Number	Convert String to Number ("5" → 5)

Strict Equality Operators

=== (Strict Equality - Strong Comparison)

- **Checks both values and data types** (No type conversion).
- If the types **don't match**, it returns false immediately.

Example:

```
console.log(5 === "5"); // Output: false
```

Why?

- 5 is a **number**, "5" is a **string**.
- Since the types are **different**, the result is false.

✅ **Use === when you want to compare values without type conversion.**

Inequality Operator

!= (Inequality - Loose Comparison)

- **Checks if values are different** (ignores data type).
- Converts (coerces) values to the **same type** before comparing.

Example:

console.log(5 != "5"); // Output: false

Why?

- "5" (string) is converted to 5 (number).
- Since 5 == 5 is true, 5 != "5" is false.

✅ **Use != when you want to check for inequality but allow type conversion.**

Strict Inequality Operators

!== (Strict Inequality - Strong Comparison)

- **Checks both value and data type** (No type conversion).
- If types are different, returns true immediately.

Example:

```
console.log(5 !== "5"); // Output: true
```

Why?

- 5 (number) is **not** the same type as "5" (string).
- Since types are different, it returns true.

✅ **Use !== when you want to check inequality without type conversion.**

Logical Operators

Operator	Name	Example	Result
&&	Logical AND	true && false	false
||	Logical OR	true || false	true
!	Logical NOT	!true	false

&& - Logical AND

```
let age = 25;
if (age > 18 && age < 60) {
console.log("You are eligible to work.");
}
```

|| - Logical OR

```
let isWeekend = true;
let isHoliday = false;
if (isWeekend || isHoliday) {
console.log("You can relax today!");
}
```

! – Logical NOT

```
let isLoggedIn = false;
if (!isLoggedIn) {
console.log("Please log in to continue.");
}
```

Ternary(Conditional) Operators

Operator	Name	Example	Result
? :	Ternary Operator	10 > 5 ? "Yes" : "No"	"Yes"

What is it?

The **ternary operator** is a shorthand for writing an if-else condition in a single line.
[Refer config file for real time understanding]

Syntax:

condition ? value_if_true : value_if_false;

- If the condition is **true**, it returns value_if_true.
- If the condition is **false**, it returns value_if_false.

Example:

```
let age = 18;
let message = age >= 18 ? "You can vote!" : "You cannot vote.";
console.log(message); // Output: "You can vote!"
```

Equivalent using if-else:

```
let age = 18;
let message;
if (age >= 18) {
    message = "You can vote!";
} else {
    message = "You cannot vote.";
}
console.log(message);
```

✅ **Ternary operator is useful when you want to write simple conditions in a short way.**

Optional Chaining Operator (?.)

Operator	Name	Example	Result
?.	Optional Chaining	obj?.property	undefined (if obj is null)

Optional Chaining Operator (?.)

What is it?

The ?. operator helps **safely access properties of an object** without causing an error if the property doesn't exist. [Refer frames concept for real time understanding.]

Syntax: object?.property;

- If object exists, return object.property.
- If object is null or undefined, return undefined instead of throwing an error.

Example 1: Without Optional Chaining (Error)

```
let user = null;
console.log(user.name); // ❌ TypeError: Cannot read properties of null
```

```
let user = { name: “Ravi"};
console.log(user.name); // Output: “Ravi"
```

Example 2: With Optional Chaining (Safe)

```
let user = null;
console.log(user?.name); // ✅ Output: undefined (No error)
```

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Summary

- 3 types of control statements: Selection, Iteration and Jump
- **Selection**: if – else vs switch – case (performance oriented)
- **Iteration** : for (count based) vs while (condition based)
- **Jump** : break (out of iteration), continue (skip iteration)
- **Operators**: Different operators used in JavaScript.

Classroom Exercise (Breakout)

- Write a program to print only odd numbers between 1 to 20
- Before writing the code – follow the 3 step process:
  - Understand the problem
  - Solve the problem (Using Pseudocode)
  - Write the code