Course Name : Web Technologies

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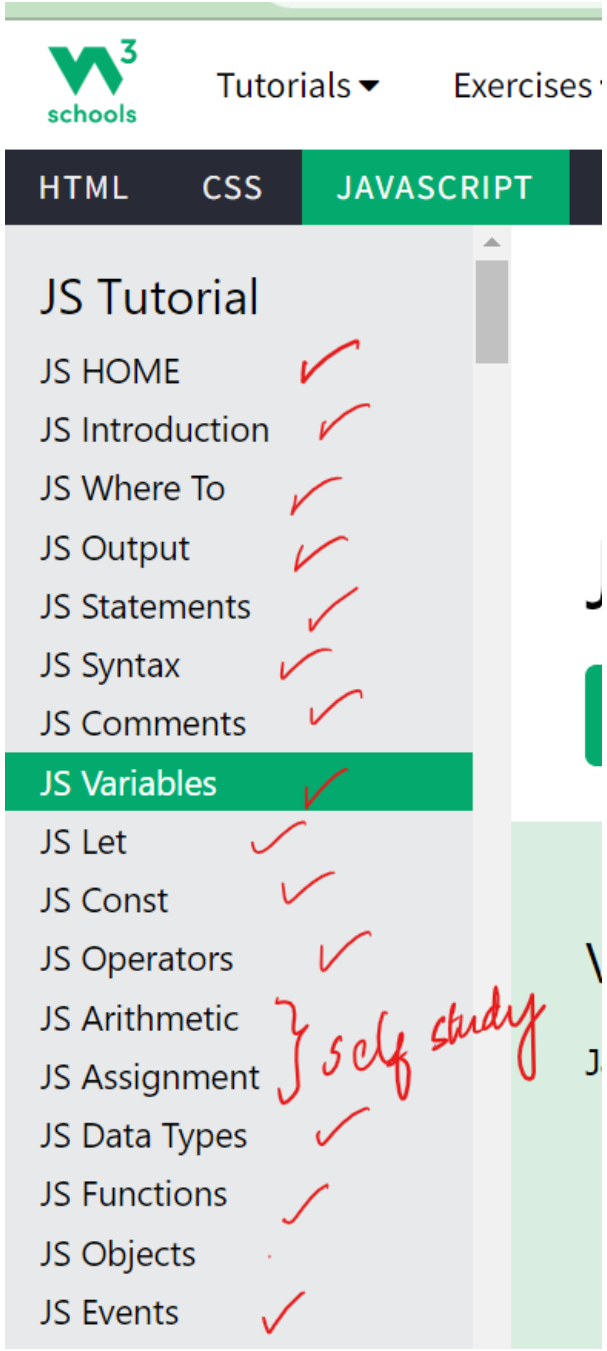
schools
Tutorials
Exercises
HTML
CSS
JAVASCRIPT
JS Tutorial
JS HOME
JS Introduction
JS Where To
JS Output
JS Statements
JS Syntax
JS Comments
JS Variables
JS Let
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JS Data Types
JS Functions
JS Objects
JS Events
self study


hoot
our
learning
objectives

Lecture #6

JavaScript Control Structures

Course Instructor

Dhiviya Rose J . Asst. Prof. Selection Grade

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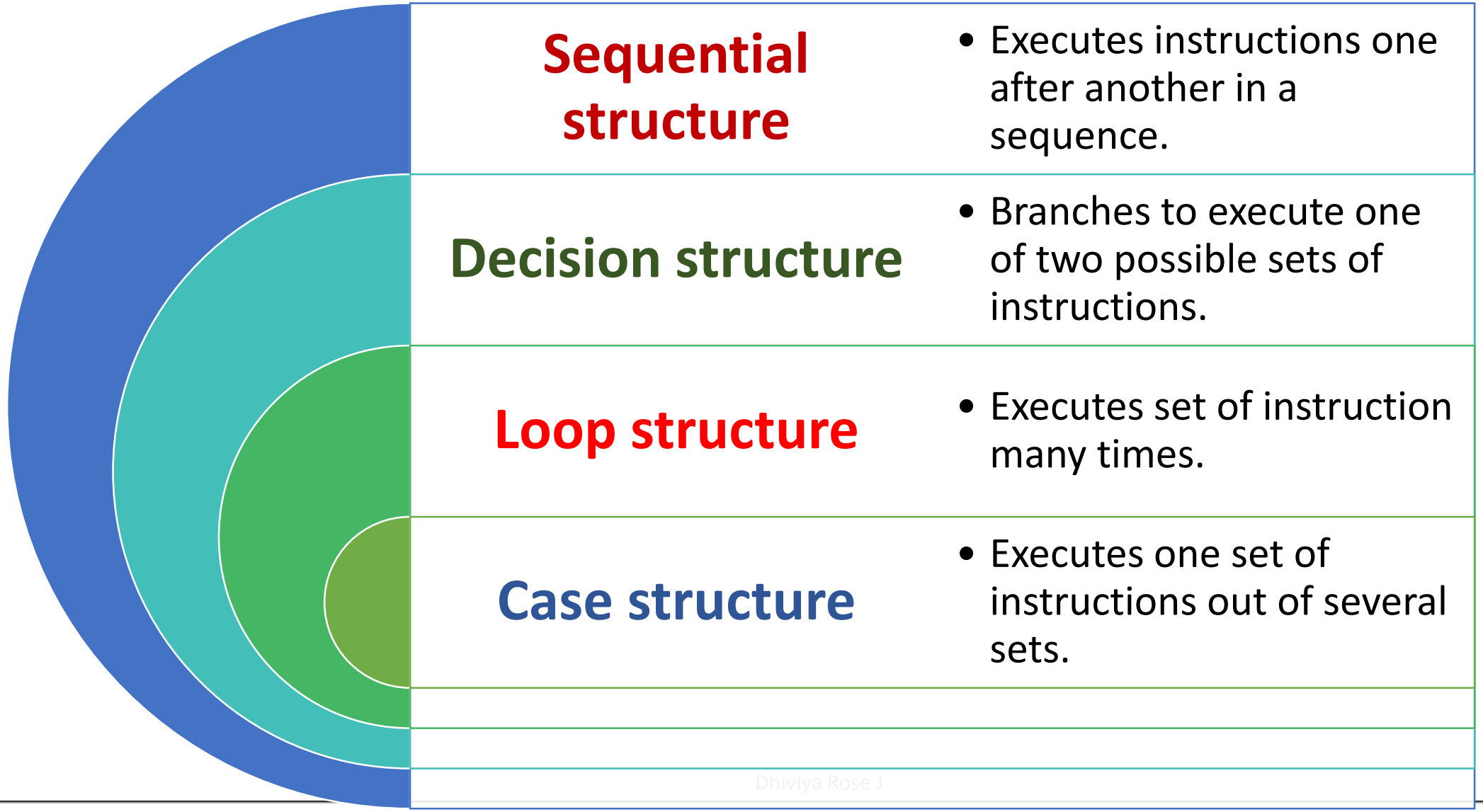
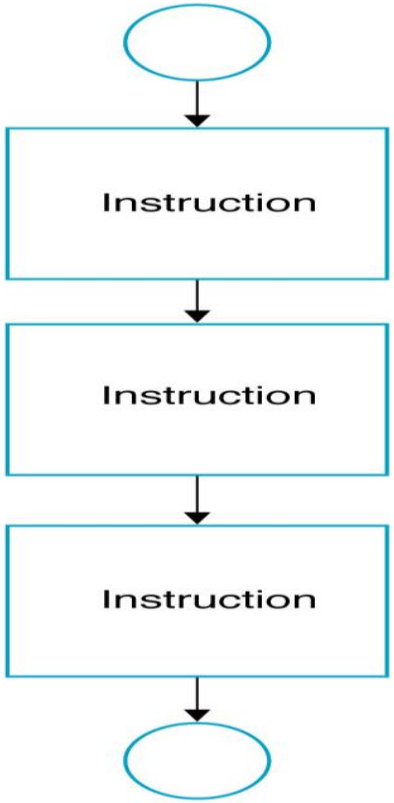
Structuring a Program – 4 Structures

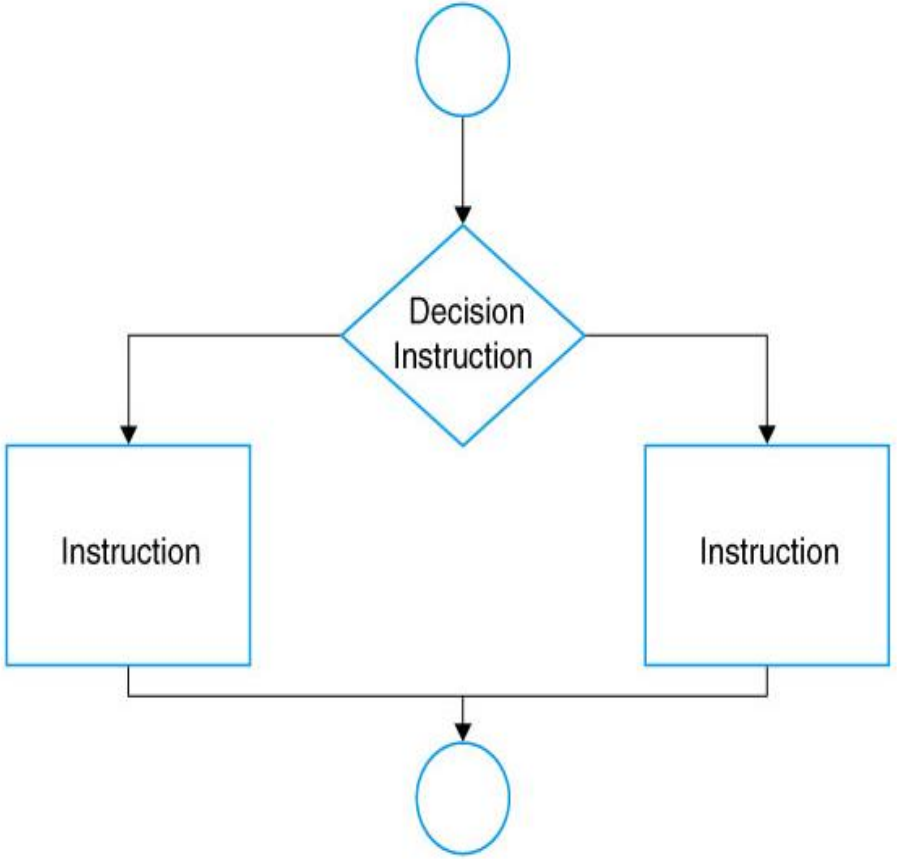


Sequential structure	• Executes instructions one after another in a sequence.
Decision structure	• Branches to execute one of two possible sets of instructions.
Loop structure	• Executes set of instruction many times.
Case structure	• Executes one set of instructions out of several sets.

Sequential Logic Structure



Decision Logic Structure



Conditional Structures

```
<script>
var a=20;
if(a>10){
document.write("value of a is greater than 10");
}
</script>
```

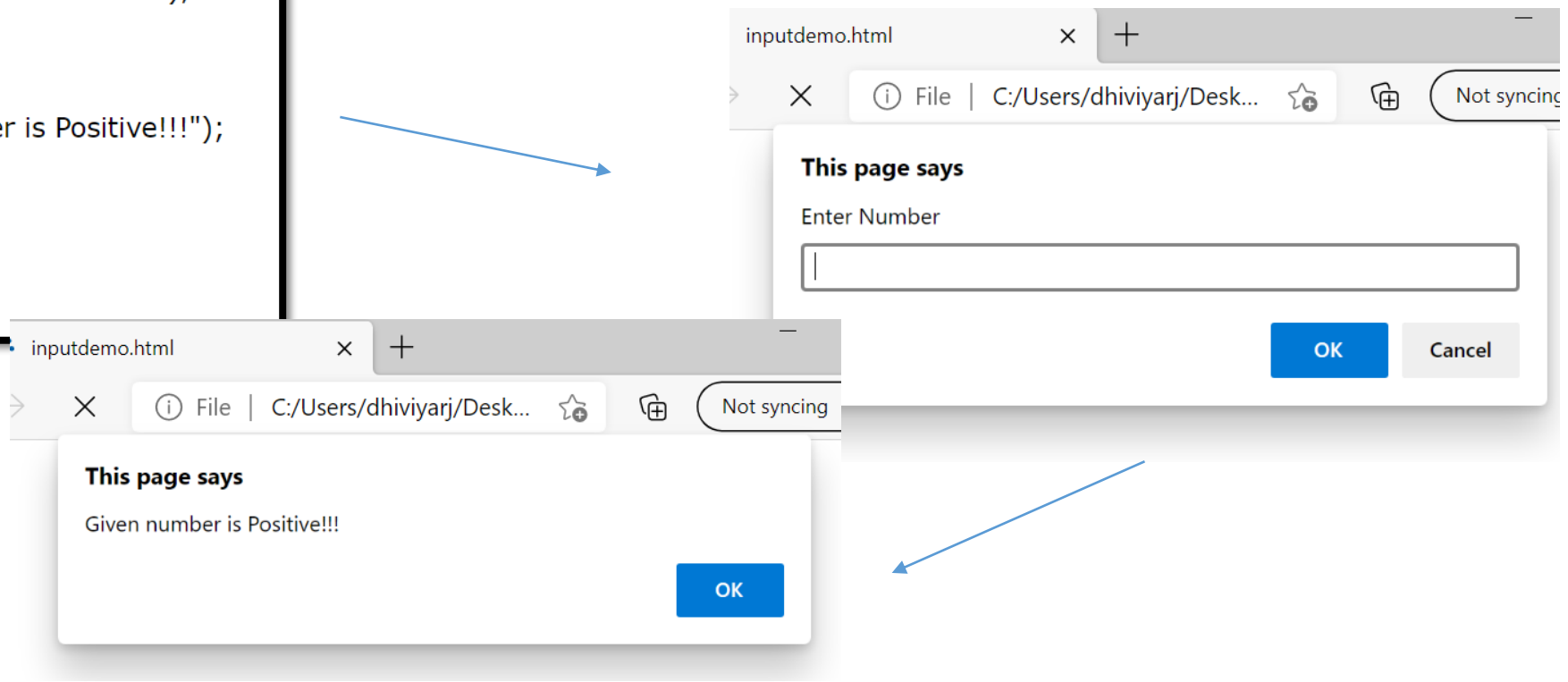
```
<script>
var a=20;
if(a%2==0){
document.write("a is even number");
}
else{
document.write("a is odd number");
}
</script>
```

```
<script>
var a=20;
if(a==10){
document.write("a is equal to 10");
}
else if(a==15){
document.write("a is equal to 15");
}
else if(a==20){
document.write("a is equal to 20");
}
else{
document.write("a is not equal to 10, 15 or 20");
}
</script>
```

IF statement

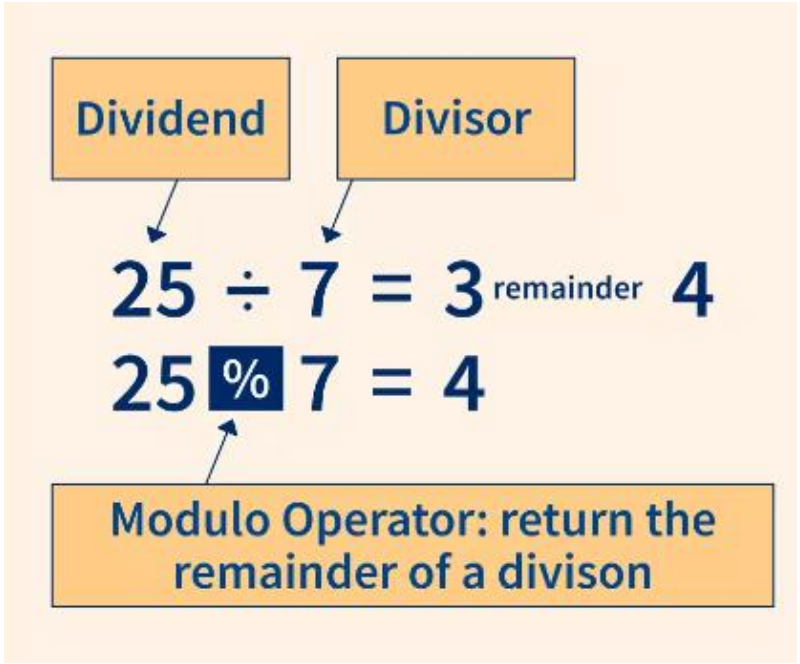
```
<html>
    <body>
    <script type="text/javascript">
        var num = prompt("Enter Number");
        if (num > 0)
        {
            alert("Given number is Positive!!!");
        }
    </script>
    </body>
</html>
```

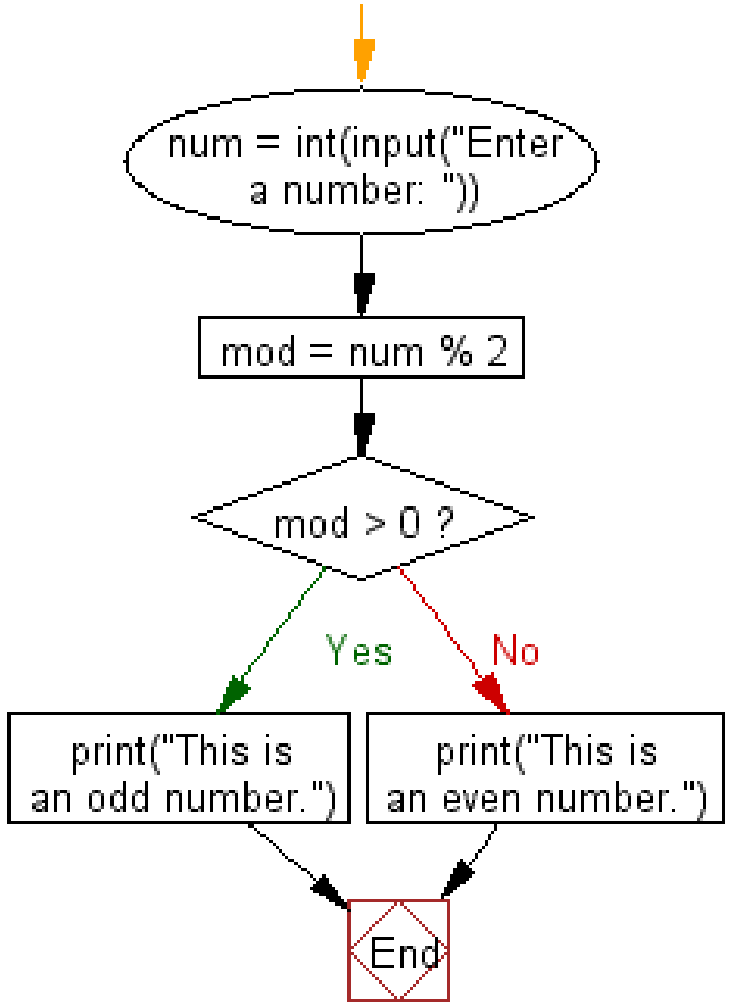
prompt("Text") - displays a dialog box that prompts the visitor for input.

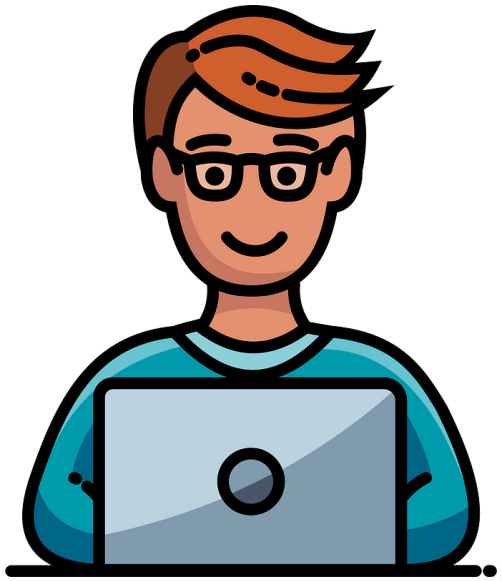


Activity Time

To check if the entered number is ODD/EVEN



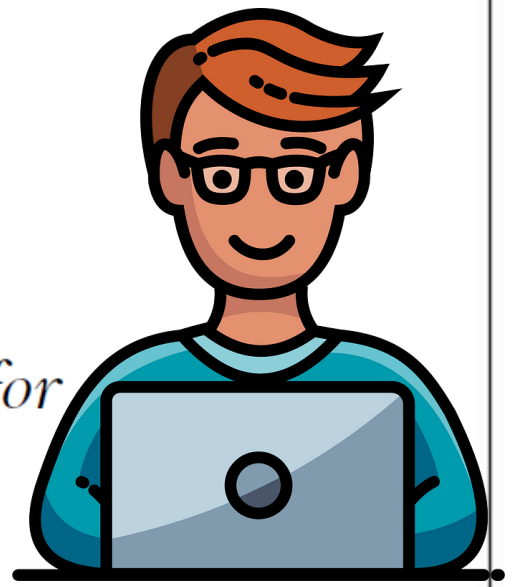




- JavaScript Program to Swap Two Variables

```
//JavaScript program to swap two variables

//take input from the users
let a = prompt('Enter the first variable: ');
let b = prompt('Enter the second variable: ');

//create a temporary variable
let temp;

//swap variables
temp = a;
a = b;
b = temp;

console.log(`The value of a after swapping: ${a}`);
console.log(`The value of b after swapping: ${b}`);
```

Activity Time

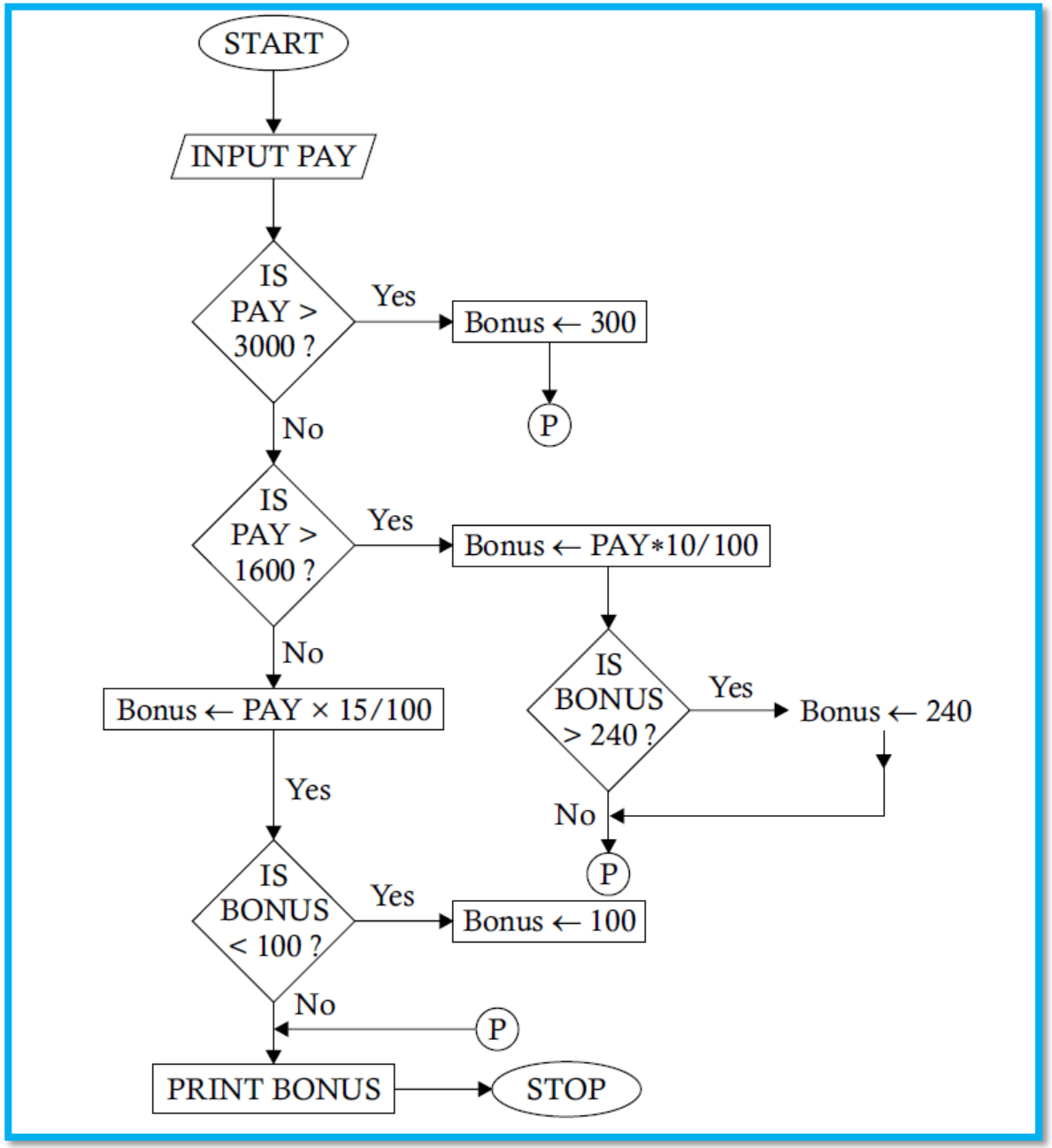


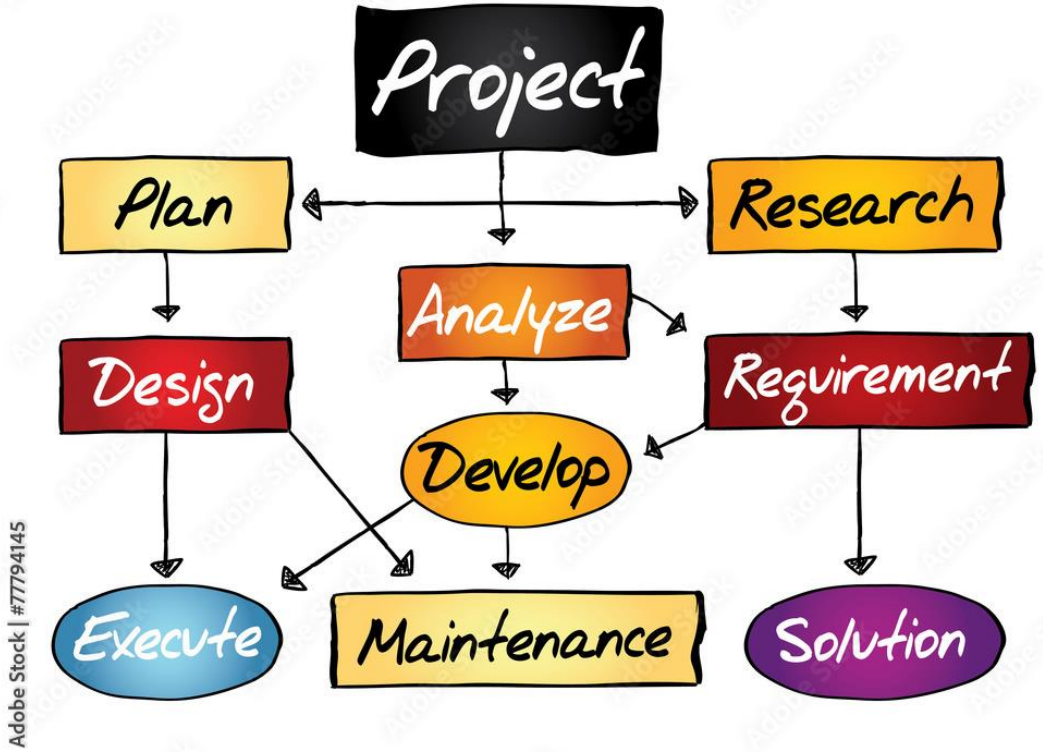
Problem 2.8. *The following rules are used to calculate the bonus for employees of an organization.*

(i) *If the pay is more than $3,000, the bonus amount is fixed, and it is equal to $300.*

(ii) *If the pay is more than $1,600, but less than or equal to $3,000, the bonus will be 10% of the pay subject to a maximum of $240.*

(iii) *If the pay is less than or equal to $1,600, the bonus is 15% of pay, subject to a minimum of $100.*


START
INPUT PAY
IS PAY > 3000 ?
Yes
Bonus ← 300
P
No
IS PAY > 1600 ?
Yes
Bonus ← PAY*10/100
No
Bonus ← PAY × 15/100
IS BONUS > 240 ?
Yes
Bonus ← 240
No
P
Yes
IS BONUS < 100 ?
Yes
Bonus ← 100
No
P
PRINT BONUS
STOP


Project
Plan
Research
Analyze
Design
Requirement
Develop
Execute
Maintenance
Solution
Adobe Stock | #77794145

ACTIVITY TIME

GeniusIOBT.com- Currency Convertor

Enter value: 1

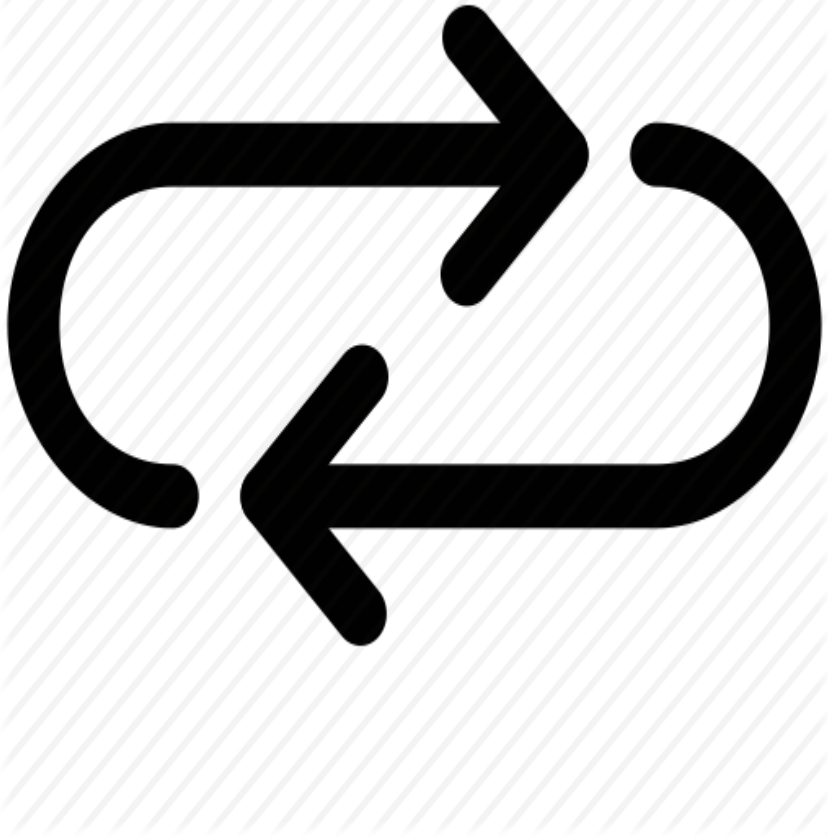
Convert from: American Dollar

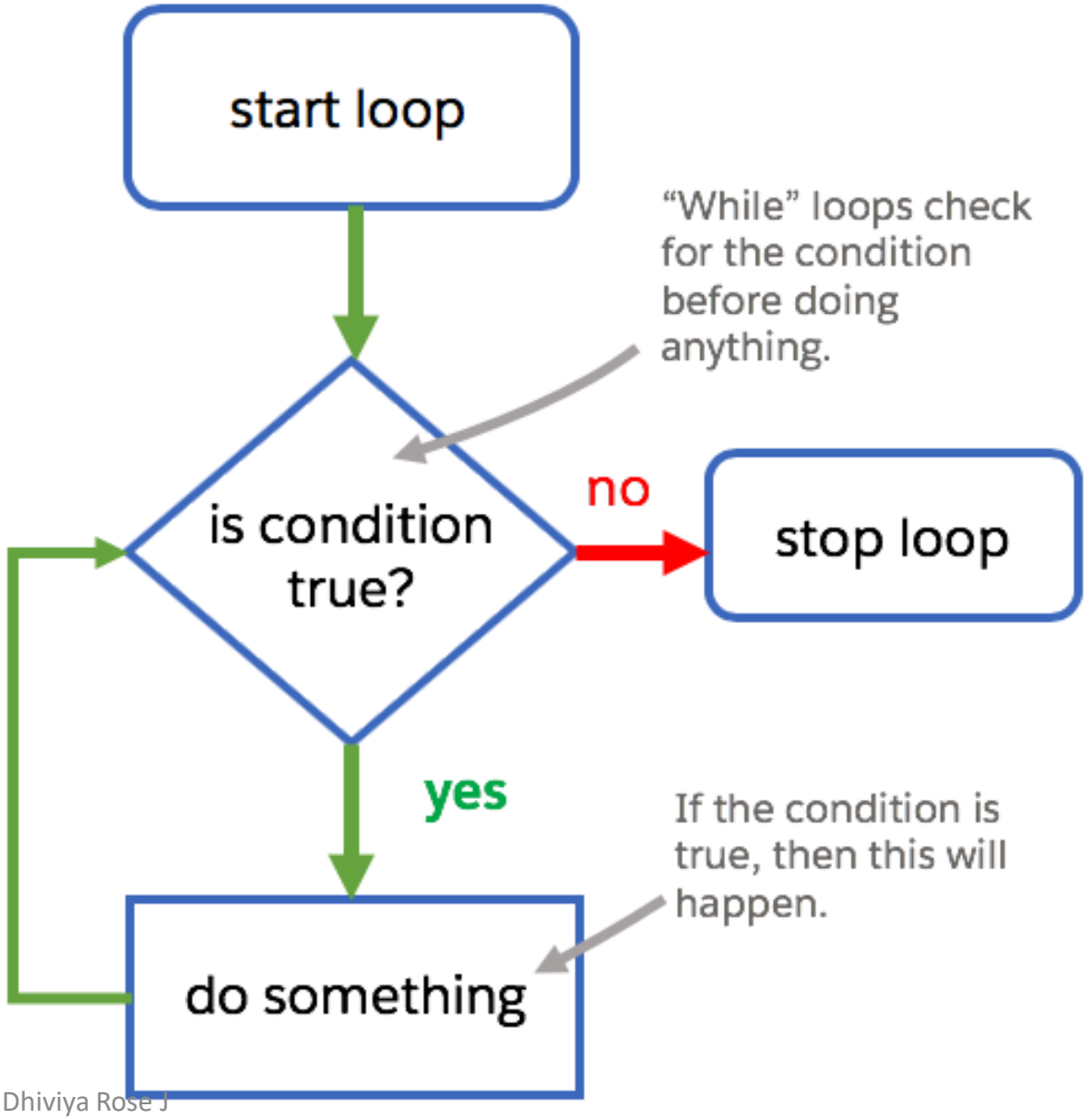
Convert to: American Dollar

Convert

Converted Value:

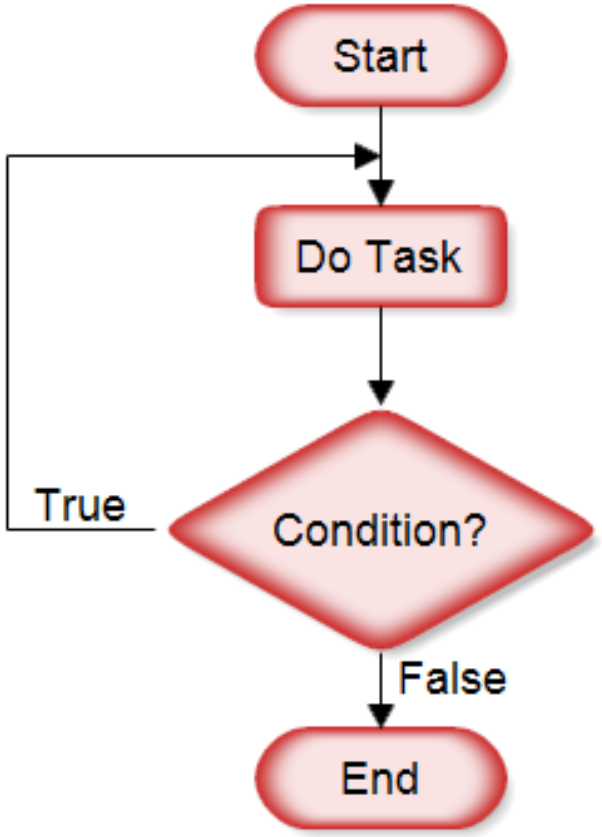
LOOPS



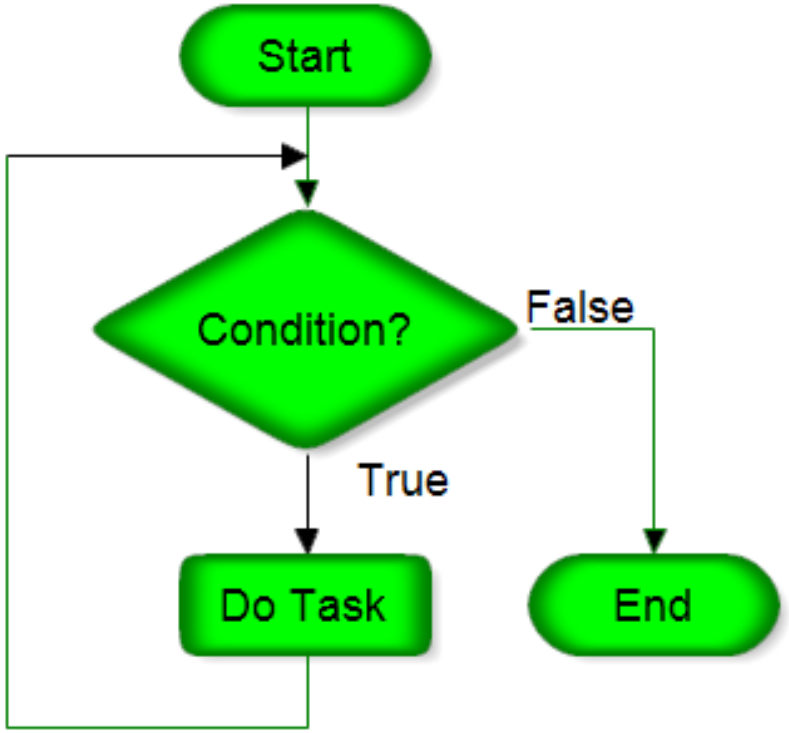

start loop
"While" loops check for the condition before doing anything.
is condition true?
no
stop loop
yes
If the condition is true, then this will happen.
do something

Types of Loop – Pre and Post Condition Check

Do While Loop



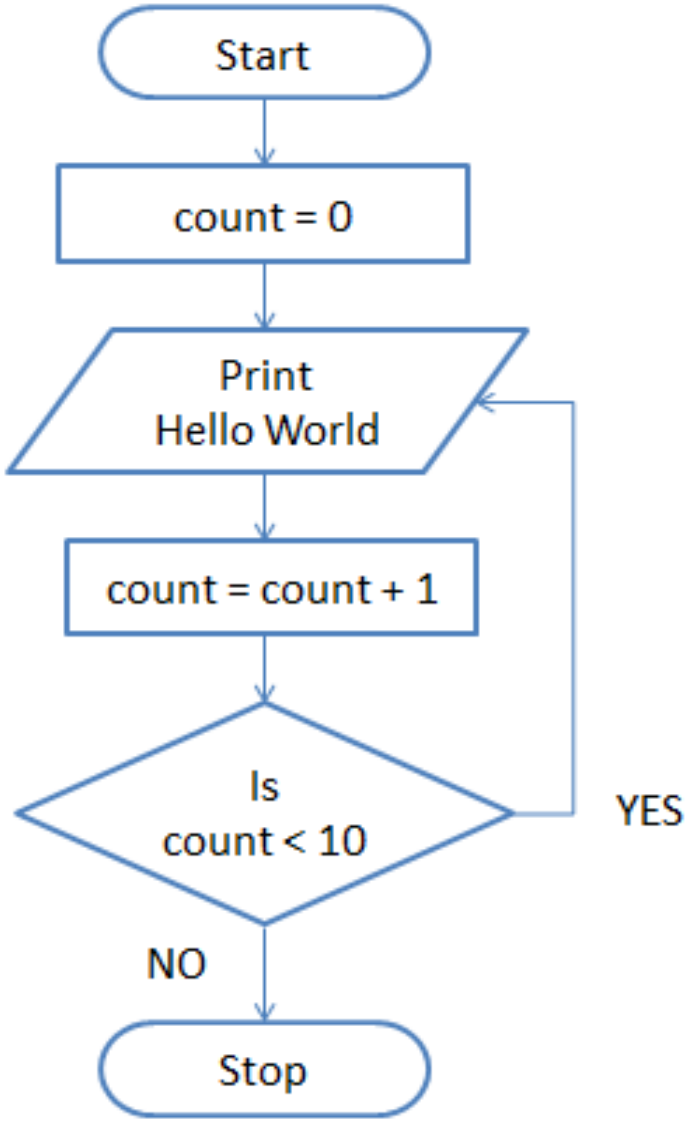
While Loop



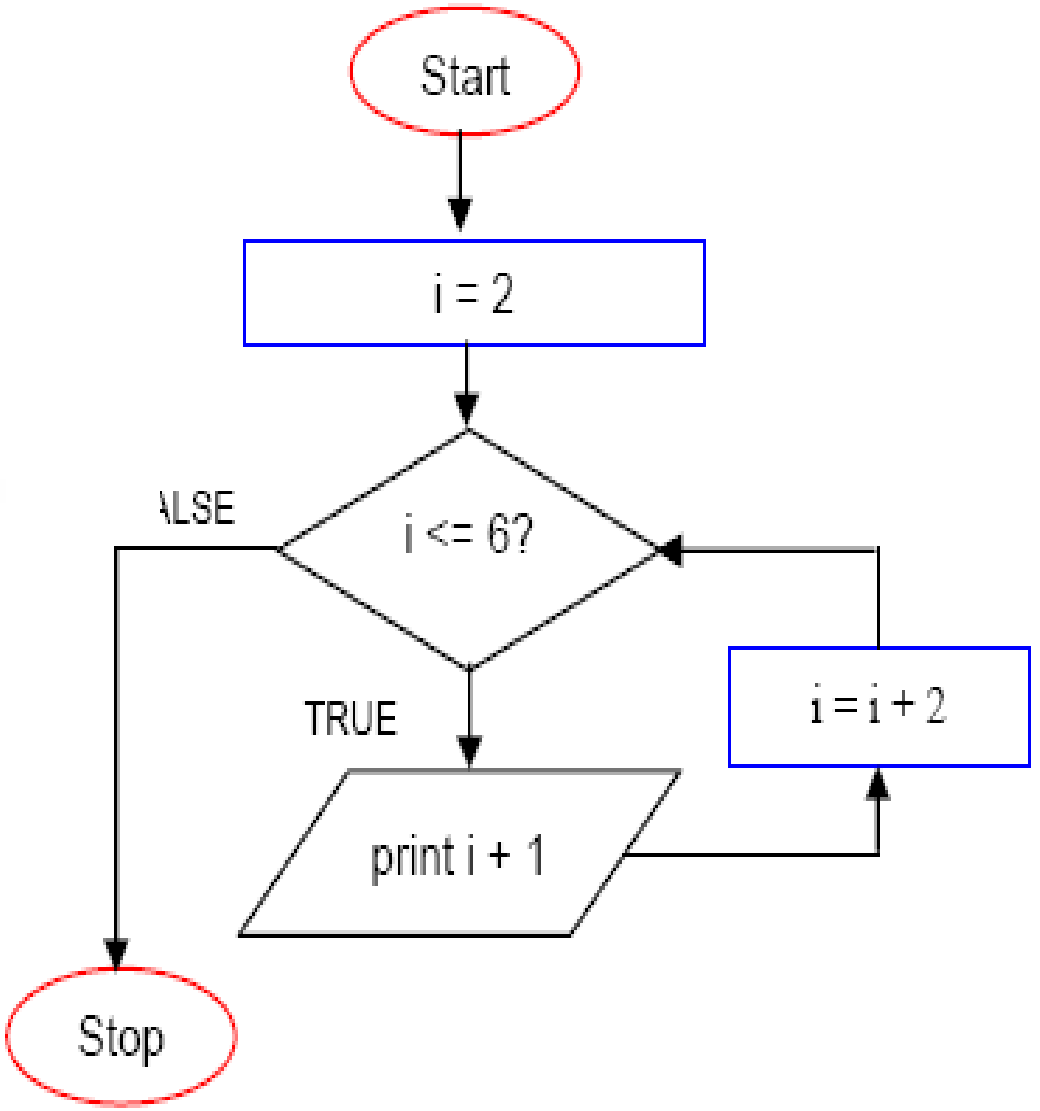
The Loop Logic Structure

- Important Concern – **Counter Management**
  - Counter Initialization (eg. i=0)
  - Counter Increment / Decrement (eg. i++,i--)
  - Counter Condition Check (eg. i<5)

- Types of loop:
  - WHILE loop
  - Do..WHILE loop
  - Automatic-Counter Loop



Continue to Learn



1.Find the counter variable

2. Find the counter increment

3. Find out the counter condition

4.Find the loop statement

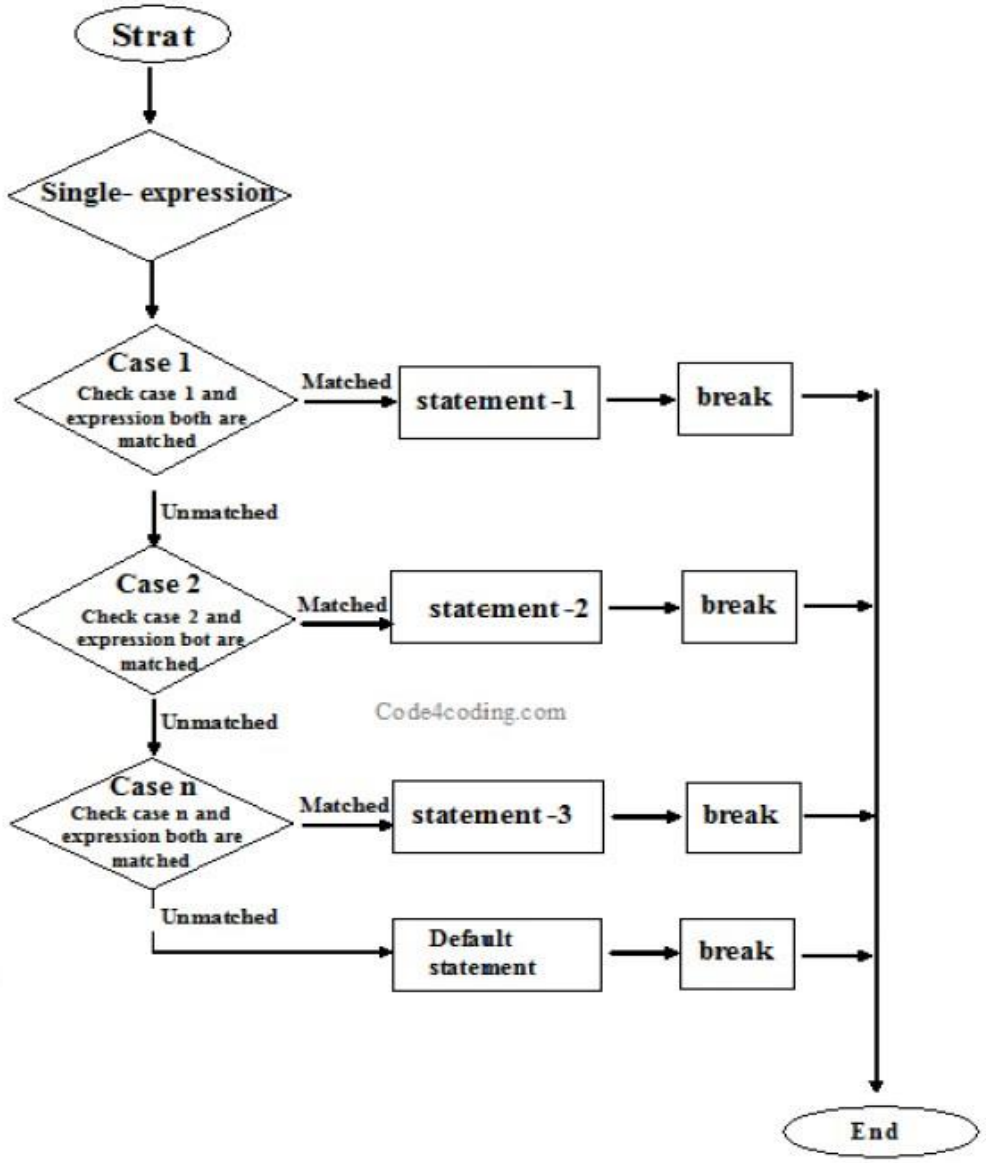
5. Guess the output

Example : Print Hello 5 times

- Case 1: i=0, ????? Increment by2
- Case 2: i=10 ????? Increment by3

The Case Logic Structure

- Made up of several or many sets of instructions, only one of which will be selected by the user and executed by the computer



- **JavaScript Program to Display the Multiplication Table**

```
// program to generate a multiplication table

// take input from the user
const number = parseInt(prompt('Enter an integer: '));

//creating a multiplication table
for(let i = 1; i <= 10; i++) {

    // multiply i with number
    const result = i * number;

    // display the result
    console.log(`${number} * ${i} = ${result}`);
}
```

Operators in JavaScript

Arithmetic Operators

Operator	Description	Example
+	Addition	10+20 = 30
-	Subtraction	20-10 = 10
*	Multiplication	10*20 = 200
/	Division	20/10 = 2
%	Modulus (Remainder)	20%10 = 0
++	Increment	var a=10; a++; Now a = 11
--	Decrement	var a=10; a--; Now a = 9

Logical Operators

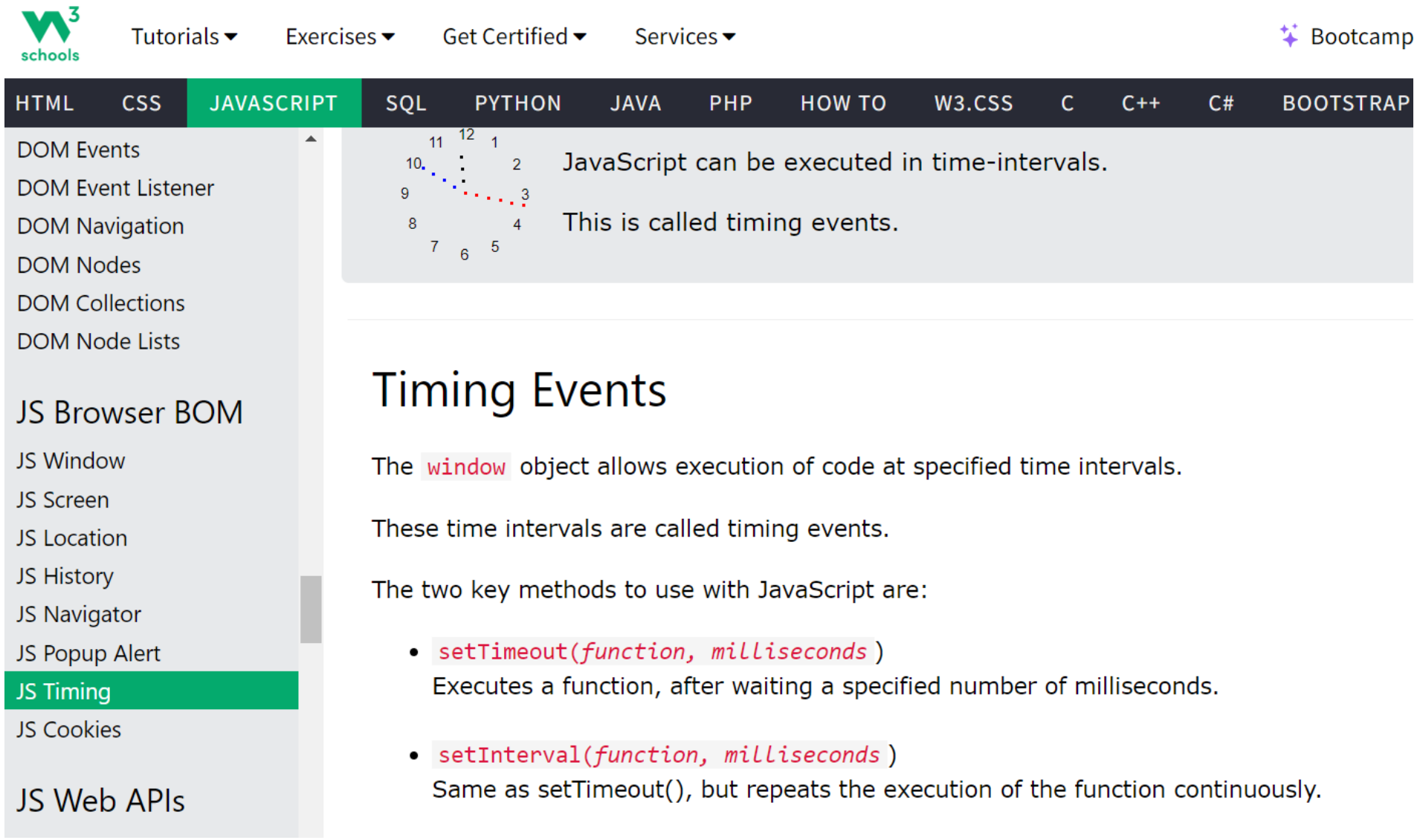
Operator	Description	Example
&&	Logical AND	(10==20 && 20==33) = false
||	Logical OR	(10==20 || 20==33) = false
!	Logical Not	!(10==20) = true

... & many more!

Comparison Operators

Operator	Description	Example
==	Is equal to	10==20 = false
===	Identical (equal and of same type)	10==20 = false
!=	Not equal to	10!=20 = true
!==	Not Identical	20!==20 = false
>	Greater than	20>10 = true
>=	Greater than or equal to	20>=10 = true
<	Less than	20<10 = false
<=	Less than or equal to	20<=10 = false

Usage of Timer




Run
<!DOCTYPE html>
<html>
<body>
<h2>JavaScript Timing</h2>
A script on this page starts this clock:

<script>
setInterval(myTimer, 1000);
function myTimer() {
const d = new Date();
document.getElementById("demo").innerHTML = d.toLocaleTimeString();
}
</script>
</body>
</html>
JavaScript Timing
A script on this page starts this clock:
11:51:21 AM

Run ›

Resu

```
<!DOCTYPE html>
<html>
<body>

<h2>JavaScript Timing</h2>

<p>A script on this page starts this clock:</p>

<p id="demo"></p>

<button onclick="clearInterval(myVar)">Stop time</button>

<script>
let myVar = setInterval(myTimer ,1000);
function myTimer() {
  const d = new Date();
  document.getElementById("demo").innerHTML = d.toLocaleTimeString();
}
</script>

</body>
</html>
```

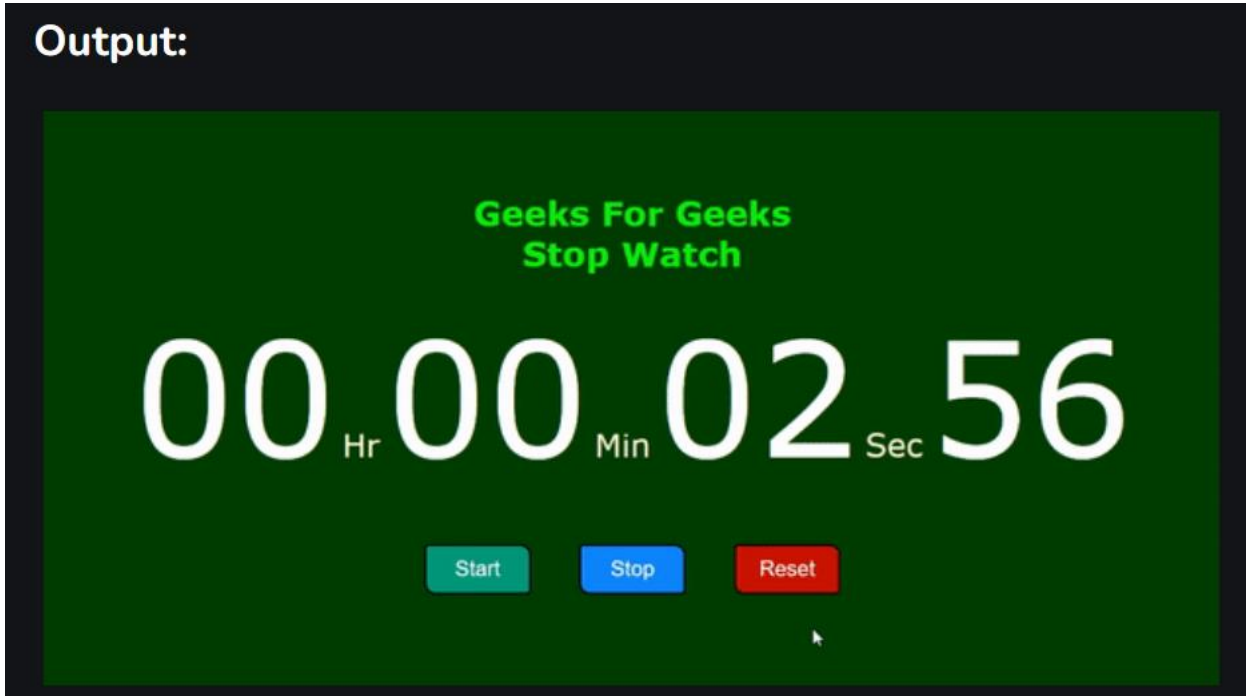
JavaScript Timing

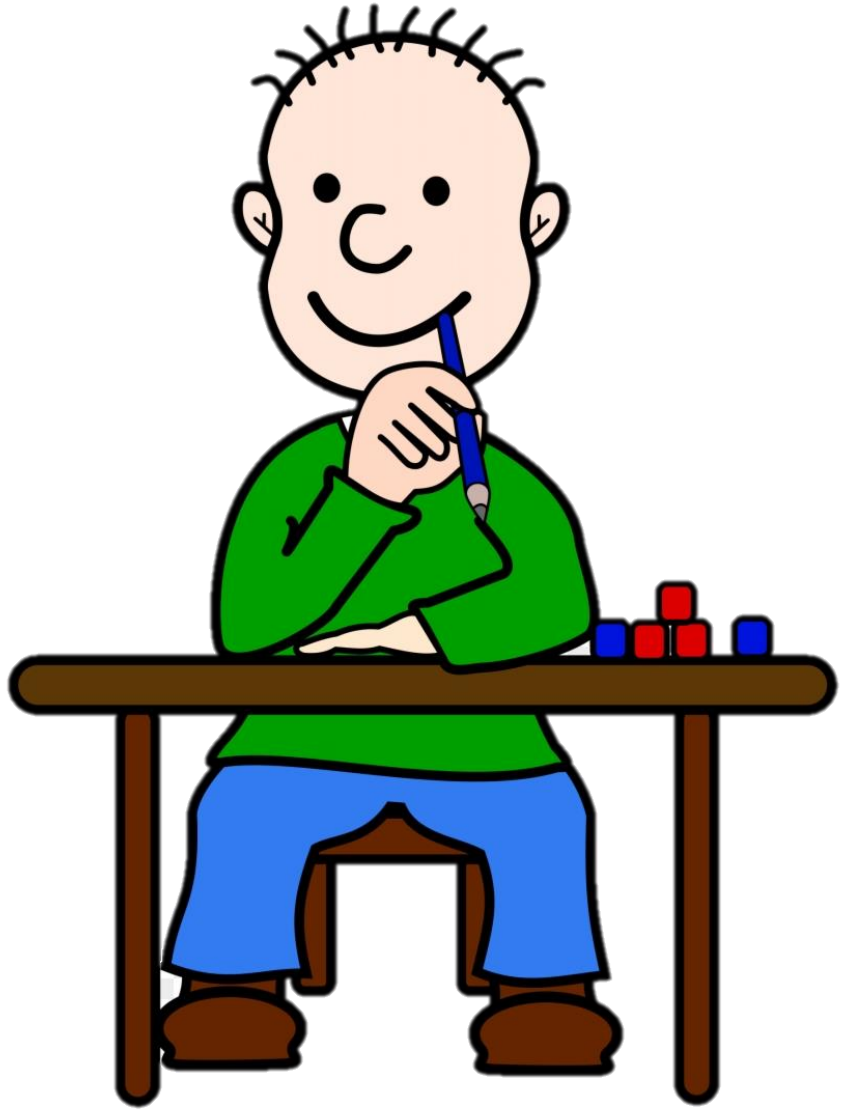
A script on this page starts this clock:

11:53:13 AM

Stop time

https://www.geeksforgeeks.org/how-to-create-stopwatch-using-html-css-and-javascript/





- Create a local variable localdata = 10 & global variable globaldata = 20, print both inside a common function print() triggered on a button click.
- List the types of primitive and non primitive datatypes in JS
- Draw a tree of JS operators
- Create a demo on let,const,var and Array's using JS

javaTpoint

✓ JavaScript Basics

- JS Comment
- JS Variable
- JS Global Variable
- JS Data Types
- JS Operators
- JS If Statement
- JS Switch
- JS Loop
- JS Function

Thank you