**St. Francis Institute of Technology Borivli (West), Mumbai-400103**

**(Autonomous Institute)**

**Department of Information Technology**

**Sub: Internet Programming**

**Experiment – 4: JavaScript Arrow function, Class and Inheritance**

**Aim:** To write a menu driven program in JavaScript to demonstrate the use of arrow function, class, and inheritance.

**2. Objective:** To understand the basic concepts of JavaScript arrow functions, classes and inheritance.

**3. Lab Outcome:** Students will be able to **use** JavaScript to develop interactive web pages (PO3, PO5, PSO3, PSO4)

**4. Prerequisite:** JavaScript

**5. Requirements:** The following are the requirements **–**

• PC/Laptop, Visual Studio Code, Browser

**6. Pre-Experiment Theory:**

JavaScript is the programming language of the Web. JavaScript tis used to program the behaviour of web pages.

In JavaScript we have the following **conditional statements:**

• Use if to specify a block of code to be executed, if a specified condition is true • Use else to specify a block of code to be executed, if the same condition is false • Use else if to specify a new condition to test, if the first condition is false • Use switch to specify many alternative blocks of code to be executed

JavaScript supports different kinds of **loops**:

• for - loops through a block of code a number of times

• for/in - loops through the properties of an object

• for/of - loops through the values of an iterable object

• while - loops through a block of code while a specified condition is true • do/while - also loops through a block of code while a specified condition is true

**JavaScript arrow functions** are a **concise syntax** for writing function expressions. Arrow function should not be used as method or as constructor.

Syntax of arrow function when function body has a **single statement:**

let **myFunction** = (arg1, arg2, ...argN) => expression

Syntax of arrow function when function body has a **multiple statement:** let **myFunction** = (arg1, arg2, ...argN) => {

statement(s)

}

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**Example script using arrow function to display Hello World.**

<script>

let hello = "";

hello = () => {

return "Hello World!";

}

document.getElementById("demo").innerHTML = hello();

</script>

**Example script using arrow function for decision making.**

const greater = (a) => (a > 15? a: 15);

console.log(greater (25));

**JavaScript classes** are templates for JavaScript objects. A JavaScript class is not an object. It is a template for JavaScript objects. Use the keyword class to create a class. Always add a method named **constructor**().

For example,

class ClassName {

constructor() { ... }

}

When you have a class, you can use the class to create objects.

**7. Laboratory Exercise:**

**A. Procedure**

• Open Visual Studio Code

• Select File, New, to create a new file, and save it as .html file

• Write html code in html file.

• Write JavaScript either in the html file or

• Write JavaScript in the external .js file and link it into html file.

• To view the output, right-click on the file and select Open With option. Then choose any web browser that is available or check output on console.

• Check the output.

**B. Program Code**

1. Write a Menu driven program in JavaScript to carry out the following to demonstrate the use of control structures and **arrow functions**

1) To take username as input and display Hello Username!

2) To calculate area of a triangle.

3) To display whether number given by user is even or odd.

4) To find greatest number from array of seven numbers.

5) Find Factorial of a number given by user.

2. Write a Menu driven program in JavaScript to carry out the following to demonstrate the use of classes and inheritance -

1) Create a class ‘accholder’ with following attribute as ‘accnum’, ‘name’, ‘age’, and ‘balance’ and print details of two employees using display function.

2) Create a parent class “Calculator” with attributes length, width. Create one derived class named “rectArea” from “calculator” with attribute radius and method to display area of a rectangle. Use super keyword to call parent’s constructor. Then create

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derived class “circleArea” from “rectArea” and include method to calculate and display area of a circle.

**8. Post Experimental Exercise:**

1. Write JavaScript arrow function to display a table of number.

2. Write JavaScript arrow function to print Fibonacci series up to 7 numbers.

3. Write JavaScript arrow function to find if the given year is a leap year or not. 4. Write JavaScript arrow function to find the entered number is a perfect number or not. 5. Create two objects **Dog** and **Cat** using **Animal** prototype function. Declare any two properties and

one method of your choice for the Animal prototype. Also write a code to implement any one type of inheritance of your choice.

**9. Results/Observations/Program output:**

• Present the program code and output.

**10. Conclusion:**

• Write what was performed in the experiment.

• Write which all features of JavaScript you used to perform the experiment.

**11. References:**

▪ HTML 5 Black Book (Covers CSS3, JavaScript, XML, XHTML, AJAX, PHP, jQuery) 2Ed., DT Editorial Services

▪ https://www.w3schools.com/js/default.asp

▪ https://www.tutorialspoint.com/javascript/index.htm

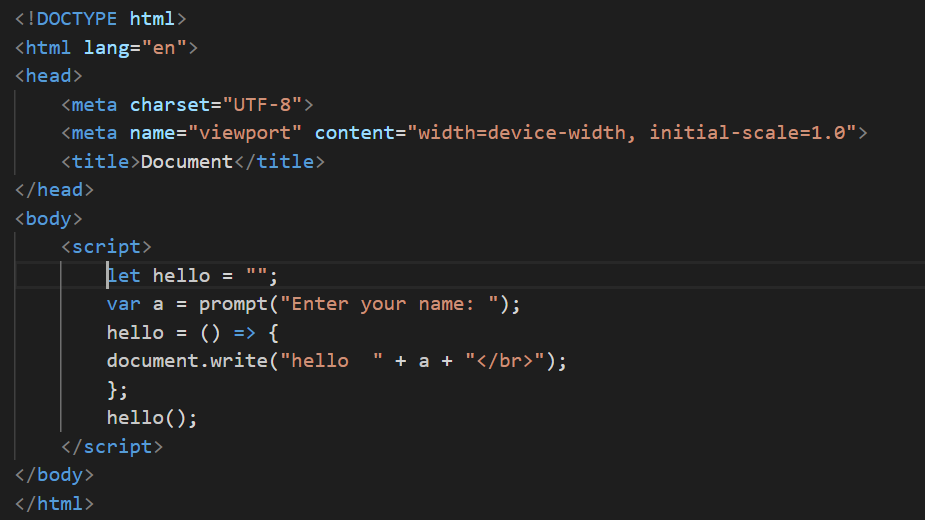
▪ https://www.youtube.com/watch?v=W6NZfCO5SIk

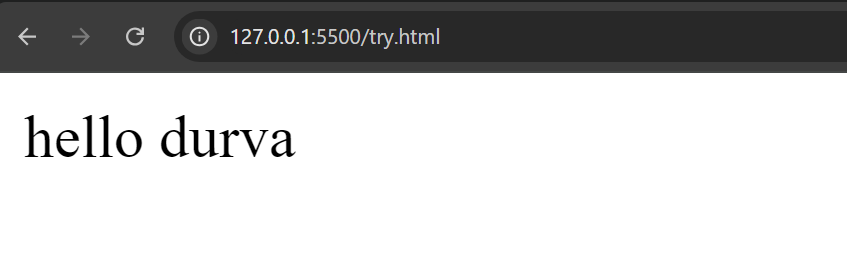
▪ <https://www.youtube.com/watch?v=PkZNo7MFNFg>

**B. Program Code:**

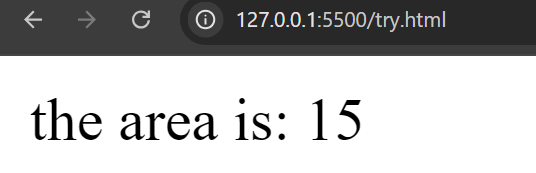
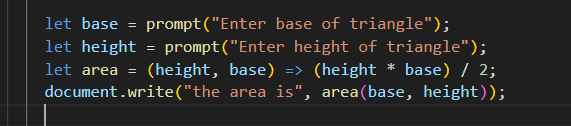
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1) To take username as input and display Hello Username!

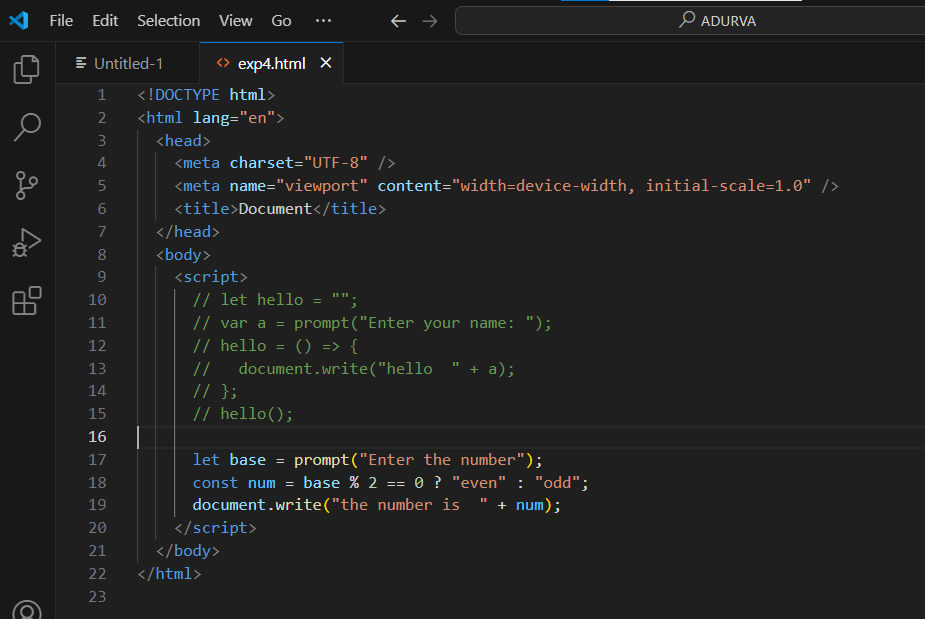
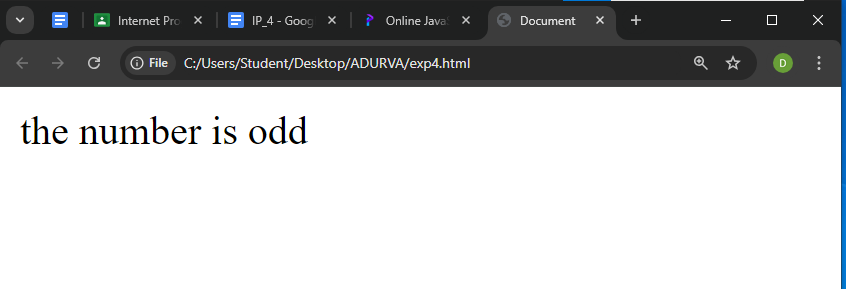




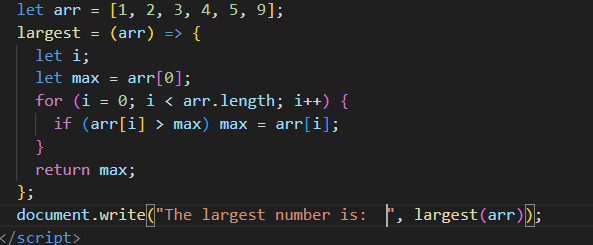
2) To calculate the area of a triangle.

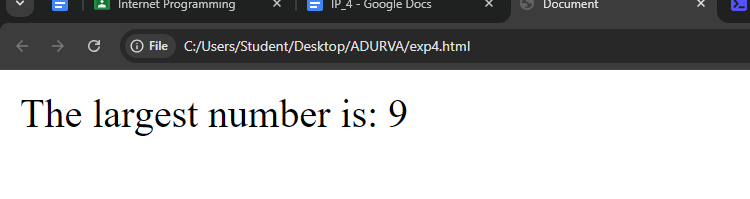


3) To display whether number given by user is even or odd.

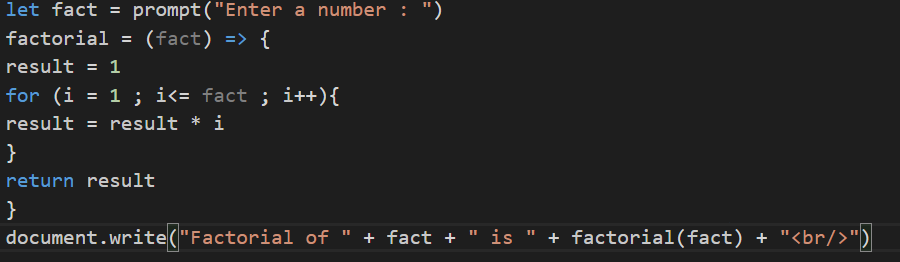
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4) To find the greatest number from an array of seven numbers.





5) Find Factorial of a number given by the user.



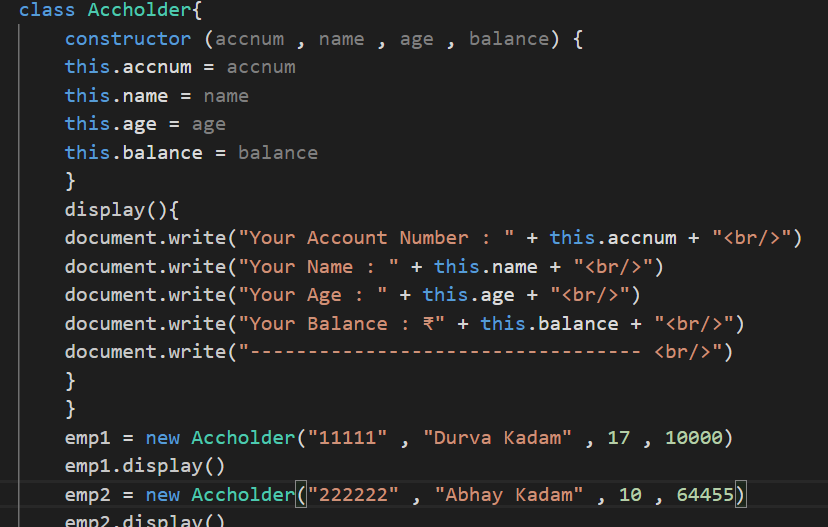


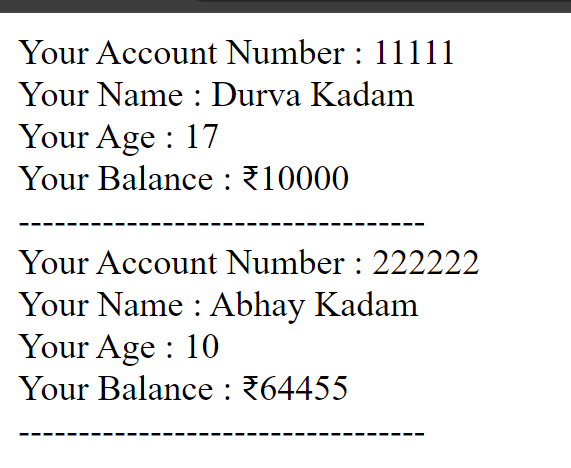
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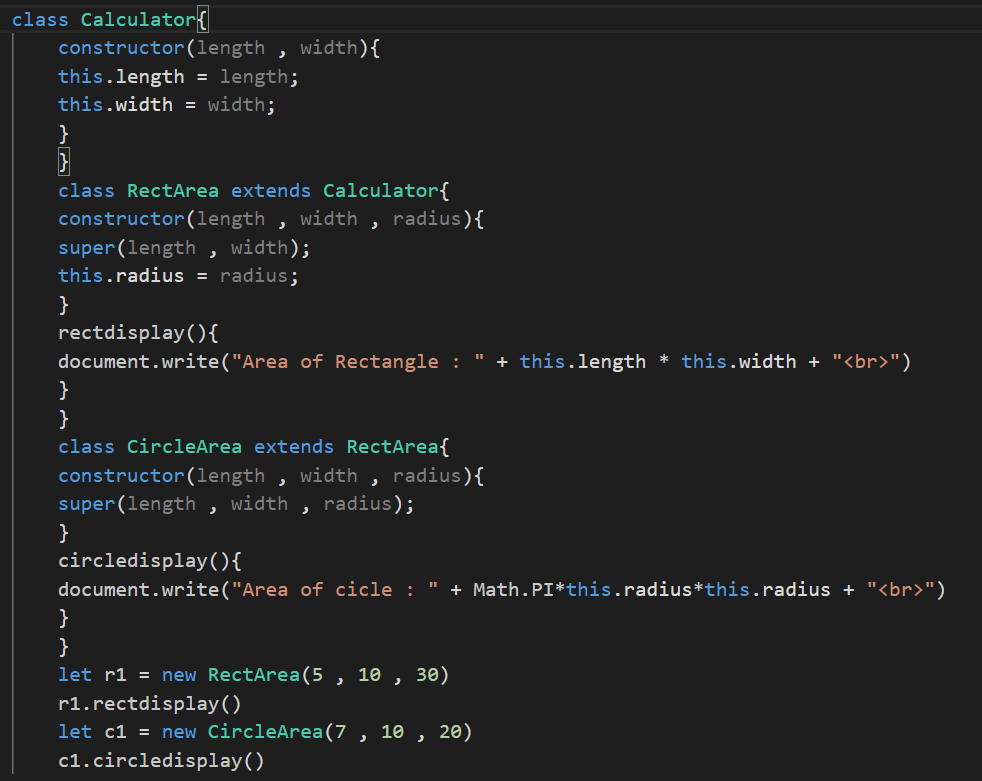
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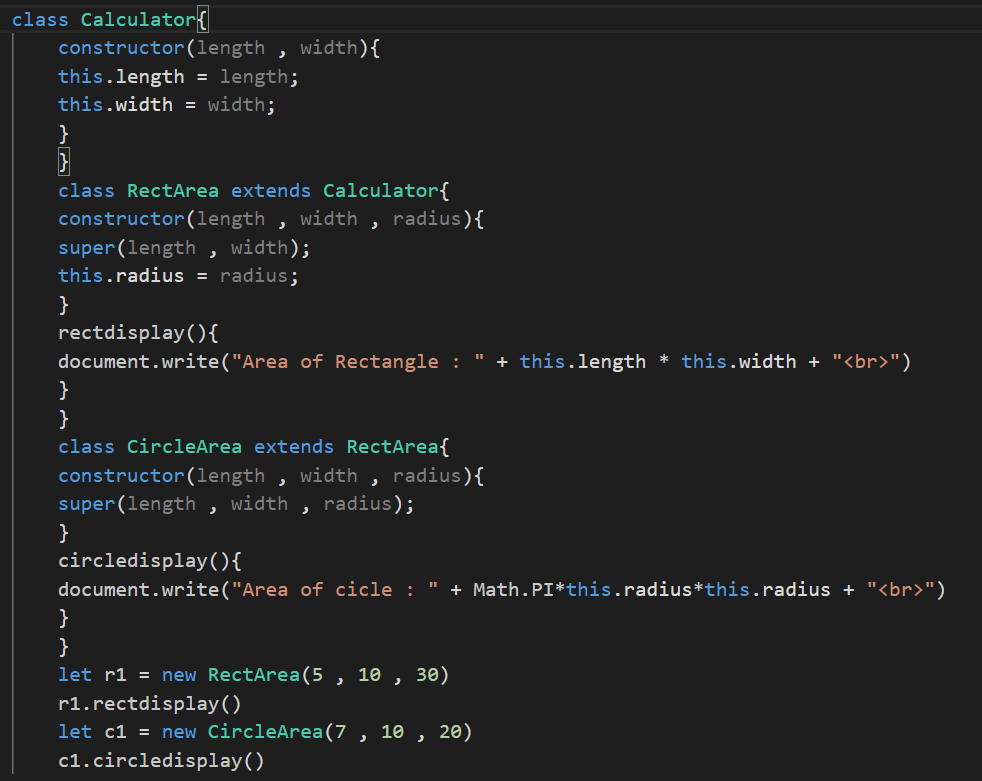
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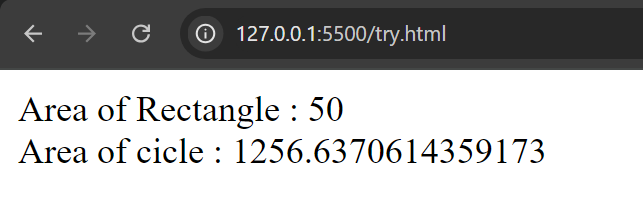
class named “rectArea” from “calculator” with attribute radius and method to display

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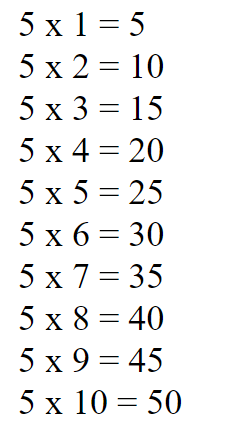
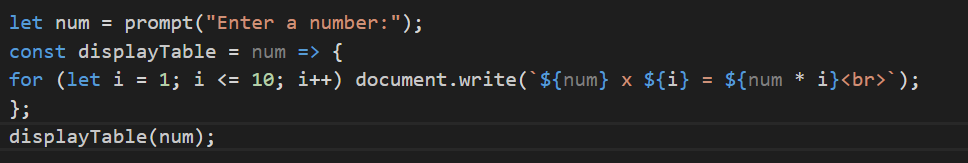




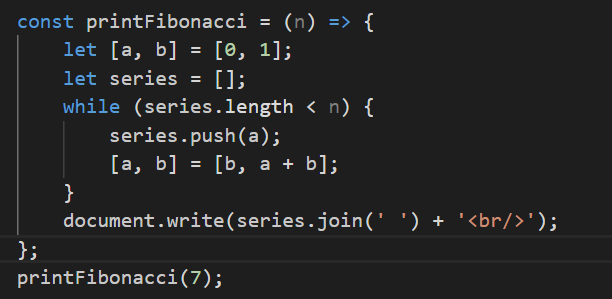


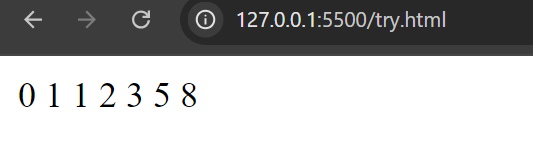
**8. Post Experimental Exercise-**

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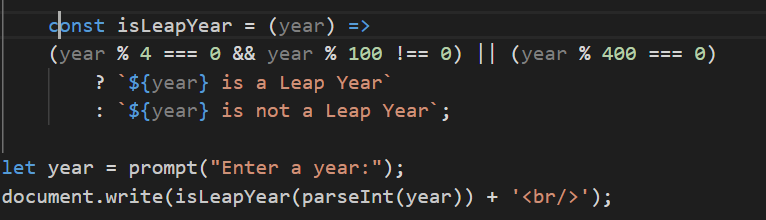


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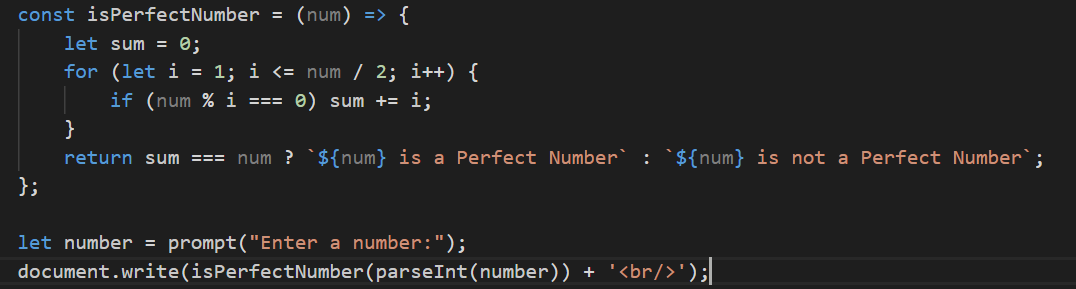




3. Write JavaScript arrow function to find if the given year is a leap year or not.



4. Write JavaScript arrow function to find the entered number is a perfect number or not.



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one method of your choice for the Animal prototype. Also write a code to implement any one type

of inheritance of your choice.

