PRACTICAL NO 4

Date of Performance: 06-09-2022

Software Requirement: Visual Studio Code, Notepad, Notepad++, NodeJS

Aim: To use JavaScript to write codes .

Objectives: The aim of this experiment is that the students will be able to:

- To expose students to JavaScript to write basic codes.
- Understand different features of JavaScript & its usage in code.

Outcomes: After study of this experiment, the students will be able to:

- Write and run logical codes and menu-driven programs in JavaScript.
- Implement the usage of JavaScript.

Prerequisite: Basic knowledge of JavaScript syntax required.

Theory:

ES6 or ECMAScript 2015 is the 6th version of the ECMAScript programming language. ECMAScript is the standardization of JavaScript.

NodeJS is a cross-platform and opensource JavaScript runtime environment that allows the JavaScript to be run on the server-side. Nodejs allows JavaScript code to run outside the browser. Nodejs comes with a lot of modules and mostly used in web development.

JavaScript is the world most popular lightweight, interpreted compiled programming language. It is also known as scripting language for web pages.

Installation of Node.js on Windows
1. Downloading the Node.js '.msi' installer.

2. Running the Node.js installer.

3. Verify that Node.js was properly installed or not.

4. Updating the Local npm version.

What is JavaScript used for?
- Web pages with interactive elements.
- Developing online and mobile applications.
- Creating web servers and server applications.
- Game Development.

What can we build using JavaScript ?
- Websites.
- Web Servers.
- Game Development.
- 3D Drawings.
- Mobile Apps.
- Smartwatch Apps.

Why to learn JavaScript ?
- No need of compilers.
- Used both Client and Server-side.
- Helps to build a complete solution.
- Used everywhere.
- Huge community support.

Problem Statement:

4.1) JS code to generate grading system (Using nested if else).

4.2) JS code for menu driven program.

4.3) JS code to perform: Sum of odd factorial; reverse of a number & checking palindrome; Fibonacci Series.

Source Code: 4.1

```
var score = 88;
var grade;
console.log("Your exam score is " +score);
if (score>=90){
 console.log("Your grade is A.");
}
else if(score>=80 && score<=89){
 console.log("Your grade is B.");
}
else if(score>=70 && score<=79){
 console.log("Your grade is C.");
}
else if(score>=60 && score<=69){
 console.log("Your grade is D.");
}
else{
 console.log("Your grade is F.");
}
```
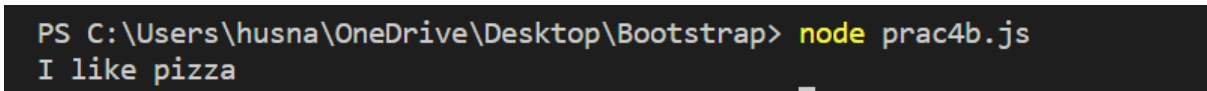**Output:**

Source Code: 4.2

```
const food = "pizza";

switch (food) {
  case "cake":
    console.log("I like cake");
    break;
  case "pizza":
    console.log("I like pizza");
    break;
  default:
    console.log("I like all foods");
    break;
  case "ice cream":
    console.log("I like ice cream");
    break;
}
```

Output:

```
PS C:\Users\husna\OneDrive\Desktop\Bootstrap> node prac4b.js
I like pizza
```

Source Code: 4.3

Factorial:

```
var n = 7;
var add = 0;
var factorial = 1;
console.log("The already defined number is " +n);
 for(var i=1;i<=n;i++){
 factorial*=i;
 if(i%2!=0){
 add+=factorial;
 }
 }
console.log("The sum of odd factorial upto " +n ,"is " +add)
```

Print reverse of a number & check whether it is palindrome or not:

```
var num = 12;
var n= num;
var rev = 0, rem;
while (n>0)
{
rem = n % 10;
rev = rev * 10 + rem ;
n = Math.floor(n/10);
```

```
}
console.log("The given number is : " +num+ " \nThe reverse of " +num+ " is:
"+rev);
if(num==rev)
{
console.log(num+' is a palindorme')
}
else
{
console.log(num+" is not a Palindrome")
}
```

Fibonacci series:

```
const num = 8;
console.log('The number of terms are : '+num)
let n1 = 0, n2 = 1, nextTerm;
console.log("Fibonacci Series of first " +num+ " terms is:" );
for (let i = 1; i <= num; i++)
{
console.log(n1);
nextTerm = n1 + n2;
n1 = n2;
n2 = nextTerm;
}
```

Output:

```
PS C:\Users\husna\OneDrive\Desktop\Bootstrap> node exp3-fact.js
The already defined number is 7
The sum of odd factorial upto 7 is 5167
```

```
PS C:\Users\husna\OneDrive\Desktop\Bootstrap> node exp3-pal.js
The given number is : 12
The reverse of 12 is: 21
12 is not a Palindrome
PS C:\Users\husna\OneDrive\Desktop\Bootstrap> node exp3-pal.js
The given number is : 33
The reverse of 33 is: 33
33 is a palindorme
```

```
PS C:\Users\husna\OneDrive\Desktop\Bootstrap> node exp3-fib.js
The number of terms are : 8
Fibonacci Series of first 8 terms is:
0
1
1
2
3
5
8
13
```

Conclusion:

From this experiment we understand that JavaScript is a very powerful web language and is used at a large scale. We have learned how to implement JavaScript into basic codes and understood it's syntax. We also learned about node.js and its installation.

Performance: 7M	Journal: 3M	Lab Ethics: 2M	Attendance: 3M	Total: 15M	Faculty Sign