

## LAB- 4

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**Aim:** Debugging Node JS Application, Events, Express JS, Database connectivity and Template Engines

### a)Debugging Node JS - Steps for debugging:

Steps for debugging:

1. Write the following code in the terminal window as shown below:

```
node --inspect-brk-filename.js
```

**The above command starts the debugger and stops at the first line.**

Other commands for debugging :

- next : Stop at the next statement.
- cont : Continue execute and stop at the debugger statement if any.
- Pause : Pause running code.
- step : Step in function.
- out : Step out of function.

Code:

```
var mysql = require('mysql');
var con = mysql.createConnection({
  host:"localhost",
  user:"root",
  password: "",
});

con.connect(function(err)
{
  if(err)throw err;
  console.log("Connected!");
});
```

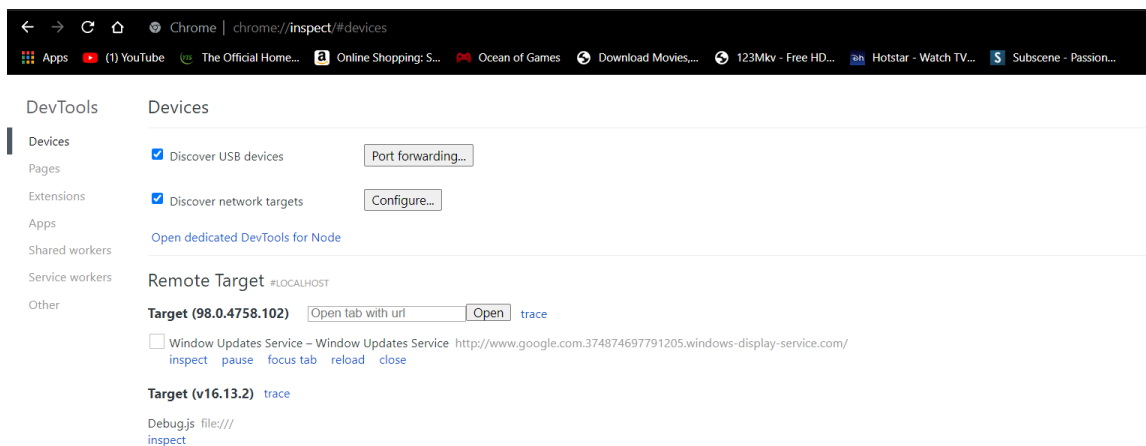
```
1  var looping = function(n)
2  {
3    var a=0, b=1, f=1;
4    for(var i = 2; i<n; i++)
5    {
6      f=a+b;
7      a=b;
8      b=f;
9    }
10   return f;
11 };
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

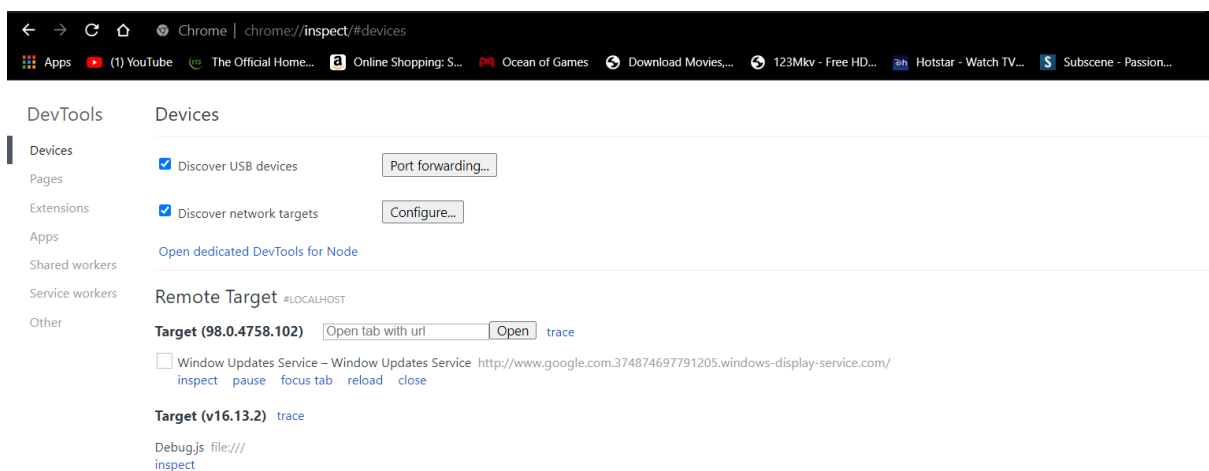
PS D:\VCA 2021 -2022 1st YEAR\> cd tut  
PS D:\VCA 2021 -2022 1st YEAR\tut> node --inspect-brk debug.js  
Debugger listening on ws://127.0.0.1:9229/908b1d7a-326c-4f68-abe0-d5a290157d71  
For help, see: https://nodejs.org/en/docs/inspector

2. Open your Chrome browser and write inspect as shown below:

chrome://inspect/#devices



3. Now click on Open Dedicated DevTools for Node.



4. Now, click on the Node.js icon. The terminal will show the following message:

```
PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

PS D:\MCA 2021 -2022 1st YEAR\C> cd tut
PS D:\MCA 2021 -2022 1st YEAR\C\tut> node --inspect-brk Debug.js
Debugger listening on ws://127.0.0.1:9229/908b1d7a-326c-4f68-abe0-d5a290157d71
For help, see: https://nodejs.org/en/docs/inspector
Debugger attached.
Waiting for the debugger to disconnect...
█
```

```
C:\WebTech\Exp4>node inspect DebugExample.js
< Debugger listening on ws://127.0.0.1:9229/e4fd1716-f7ad-4a15-98ca-cb2c59b1be50
< For help, see: https://nodejs.org/en/docs/inspector
<
ok
< Debugger attached.
<
Break on start in DebugExample.js:1
> 1 var fs = require('fs');
  2
  3 fs.readFile('TestFile.txt', 'utf8', function (err, data) {
debug> next
break in DebugExample.js:3
  1 var fs = require('fs');
  2
> 3 fs.readFile('TestFile.txt', 'utf8', function (err, data) {
  4
  5     debugger;
debug> cont
break in DebugExample.js:5
  3 fs.readFile('TestFile.txt', 'utf8', function (err, data) {
  4
> 5     debugger;
  6
  7     if (err) throw err;
debug>
< Test File Line 1
< My name is Niranjan.
< NodeJS is fun.
<
< Waiting for the debugger to disconnect...
<
debug> .exit

C:\WebTech\Exp4>
```

## b)Events

Node.js has a built-in module, called "Events", where you can create-, fire-, and listen for- your own events.

To include the built-in Events module use the require() method. In addition, all event properties and methods are an instance of an EventEmitter object. To be able to access these properties and methods, create an EventEmitter object:

**Syntax:**

```
var events = require('events');
var EventEmitter = new events.EventEmitter();

var myEventHandler = function()
{
    console.log('Hello there');
}

eventEmitter.on('there',myEventHandler);

eventEmitter.emit('there');
```

**Output:**

```
PS D:\MCA 2021 -2022 1st YEAR\C> node Debug.js
Hello there
PS D:\MCA 2021 -2022 1st YEAR\C> █
```

**c)Express**

Express is a minimal and flexible Node.js web application framework that provides a robust set of features for web and mobile applications.

Syntax -

npm install express --save

**Code:**

```

1  const express = require('express')
2  const app = express()
3  const port = 3000
4
5  app.get('/', (req,res) =>
6  {
7      res.send('Hello World!')
8  })
9
10 app.listen(port, () =>
11 {
12     console.log('Example app listening on port ${port}')

```

#### d)Database connectivity and Template Engines

```

PS D:\MCA 2021 -2022 1st YEAR\C> npm install mysql
added 11 packages, and audited 12 packages in 11s

found 0 vulnerabilities
npm notice
npm notice New minor version of npm available! 8.1.2 -> 8.5.0
npm notice Changelog: https://github.com/npm/cli/releases/tag/v8.5.0
npm notice Run npm install -g npm@8.5.0 to update!
npm notice
PS D:\MCA 2021 -2022 1st YEAR\C>

```

Code:

```
var mysql = require("mysql");
```

```
var con = mysql.createConnection({
```

```
    host: "localhost",
```

```
    user: "root",
```

```
    password: "",
```

```
});
```

```
con.connect(function (err) {  
  if (err) throw err;  
  console.log("Connected!");  
});
```