Aim:

1. Node JS Modules
2. Node Package Manager
3. Creating Web server
4. File System

1. Node JS Module

In Node.js, Modules are the blocks of encapsulated code that communicates with an external application on the basis of their related functionality. Modules can be a single file or a collection of multiples files/folders. The reason programmers are heavily reliant on modules is because of their re-usability as well as the ability to break down a complex piece of code into manageable chunks.

Modules:
Core Modules
local Modules
Core Modules: Node.js has many built-in modules that are part of the platform and comes with Node.js installation. These modules can be loaded into the program by using the require function.

Syntax:

```
let os = require('os')
console.log(os.arch())
console.log(os.platform())
console.log(os.userInfo())
console.log(os.totalmem())
```

Output:

```
PS D:\MCA 2021 -2022 1st YEAR\C\tut> node tut.js
x64
win32
{
  uid: -1,
  gid: -1,
  username: 'Prasad',
  homedir: 'C:\\Users\\Prasad',
  shell: null
}
4154486784
PS D:\MCA 2021 -2022 1st YEAR\C\tut>
```

Local Modules: Unlike built-in and external modules, local modules are created locally in your Node.js application. Let's create a simple calculating module that calculates various operations.

2. **Node package Manager(NPM)**

NPM (Node Package Manager) is the default package manager for Node.js and is written entirely in Javascript. Developed by Isaac Z. Schlueter, it was initially released in January 12, 2010. NPM manages all the packages and modules for Node.js and consists of command line client npm. It gets installed into the system with installation of Node.js. The required packages and modules in Node project are installed using NPM.

```
PS D:\MCA 2021 -2022 1st YEAR\C> npm
                npm <command>

Usage:

npm install        install all the dependencies in your project
npm install <foo>  add the <foo> dependency to your project
npm test           run this project's tests
npm run <foo>      run the script named <foo>
npm <command> -h   quick help on <command>
npm -l             display usage info for all commands
npm help <term>    search for help on <term> (in a browser)
npm help npm       more involved overview (in a browser)

All commands:

    access, adduser, audit, bin, bugs, cache, ci, completion,
    config, dedupe, deprecate, diff, dist-tag, docs, doctor,
    edit, exec, explain, explore, find-dupes, fund, get, help,
    hook, init, install, install-ci-test, install-test, link,
PS D:\MCA 2021 -2022 1st YEAR\C> npm
npm <command>

Usage:

npm install        install all the dependencies in your project
npm install <foo>  add the <foo> dependency to your project
npm test           run this project's tests
npm run <foo>      run the script named <foo>
npm <command> -h   quick help on <command>
npm -l             display usage info for all commands
```

```
PS D:\MCA 2021 -2022 1st YEAR\C> npm ---version
8.1.2
PS D:\MCA 2021 -2022 1st YEAR\C>
```

Installing package "express"

```
PS D:\MCA 2021 -2022 1st YEAR\C\tut> npm install express

added 50 packages, and audited 51 packages in 14s

2 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
PS D:\MCA 2021 -2022 1st YEAR\C\tut>
```
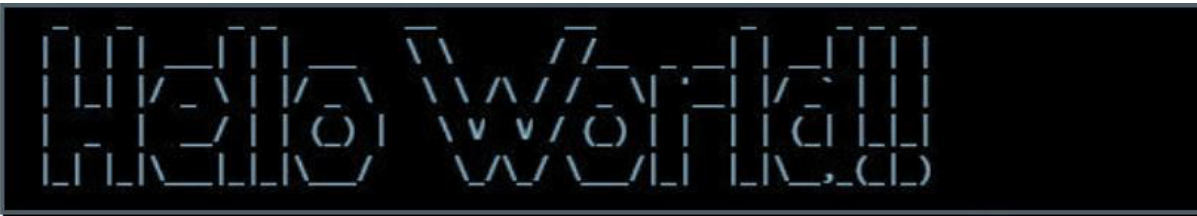
```javascript
var figlet = require('figlet');

figlet('Hello World!!', function(err, data) {
    if (err) {
        console.log('Something went wrong...');
        console.dir(err);
        return;
    }
    console.log(data)
});
```
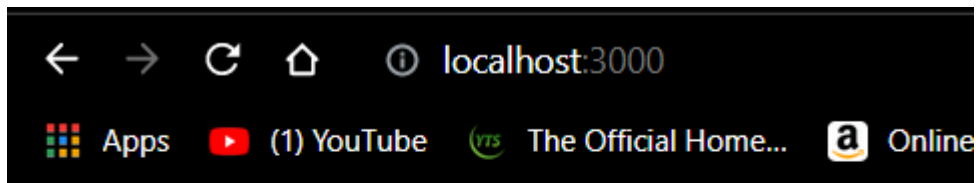

3. Creating Web server:
Syntax:

```javascript
var http=require("http")
http.createServer(function(req, res){
    res.writeHead(200, {'Content-Type': 'text/html'});
    res.write("Hello node");
    res.end();
}).listen(3000);
```

Output:

Hello node

4. File System:
Syntax:

```
const fs = require("fs");
let text = fs.readFileSync("read.txt", "utf-8");
text =  text.replace("application", "file")

console.log("The content of the file is")
console.log(text);

console.log("Creating a new file..")
fs.writeFileSync("Prasad.text", text)
```

Output:

```
PS D:\MCA 2021 -2022 1st YEAR\C> & node 'd:\MCA 2021 -2022 1st YEAR\C\module.js'
The content of the file is
Consider modules to be the same as JavaScript libraries.
A set of functions you want to include in your file.
Creating a new file..
```