Node JS:

- Install Node js on local VM.
- Create 2 API's running on ports 6080 and 7080 with mesaages "Hello Node JS" and "Node JS installed successfully" respectively.
- Install pm2 tool and create 4 clusters of bothe Node's.
- Delete all 4 clusters one-by-one

Node js and node package manager (npm) are installed on local VM with commands:
Sudo apt install nodejs
Sudo apt install npm

```
Setting up nodejs-doc (10.19.0~dfsg-3ubuntu1) ...
Setting up nodejs (10.19.0~dfsg-3ubuntu1) ...
update-alternatives: using /usr/bin/nodejs to provide /usr/bin/js (js) in auto mode
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
Processing triggers for man-db (2.9.1-1) ...
bijay@batman:/usr/local$ node -v
v10.19.0
bijay@batman:/usr/local$ npm

Command 'npm' not found, but can be installed with:

sudo apt install npm

bijay@batman:/usr/local$ sudo apt install npm
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
```

Then we created a directory named Reactnode for this assignment,
Mkdir Reactnode
Cd Reactnode

Inside the directory, a file, index.js is created with sample code,
Nano index.js

By using the command '***cat index.js***', we can view the content of index.js file.

```
root@batman:/home/bijay/Reactnode# cat index.js
const http = require('http');
const hostname = '192.168.1.67';
const port = 6080;
const server = http.createServer((req, res) =>
        {
                res.statusCode = 200;
                res.setHeader('Content-Type', 'text/plain');
                res.end('Hello Node JS \n');
        });

server.listen(port, hostname, () => {
        console.log(`Server running at http://${hostname}:${port}/`);
        });
```
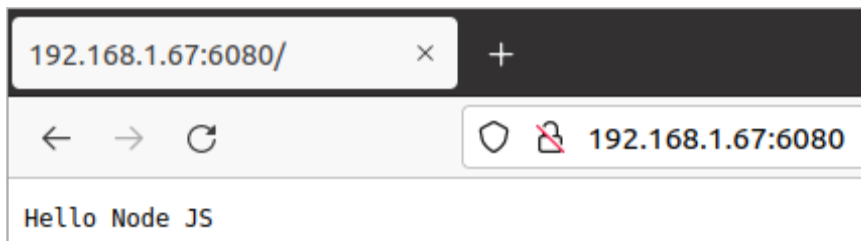
When running the index.js file with node command:
Node index.js

```
root@batman:/home/bijay/Reactnode# nano index.js
root@batman:/home/bijay/Reactnode# node index.js
Server running at http://192.168.1.67:6080/
```

Server starts at the specified port and ip.

At the browser, when we enter the ip and port number: 192.168.1.67:6080,
We see the following result:

```
192.168.1.67:6080/          ×     +

←   →   C                  ○  🔓  192.168.1.67:6080

Hello Node JS
```

Again for next API, we copy the index.js file and perform necessary editing,
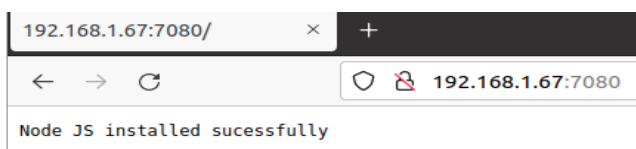*Cp index.js secondindex.js*

```
root@batman:/home/bijay/Reactnode# cat secondindex.js
const http = require('http');
const hostname = '192.168.1.67';
const port = 7080;
const server = http.createServer((req, res) =>
        {
                res.statusCode = 200;
                res.setHeader('Content-Type', 'text/plain');
                res.end('Node JS installed sucessfully\n');
        });

server.listen(port, hostname, () => {
        console.log(`Server running at http://${hostname}:${port}/`);
        });


root@batman:/home/bijay/Reactnode#
```

By entering the command:
Node secondindex.js
We can host the app, and on browser, when we enter 192.168.1.67:7080, we get this result:

```
192.168.1.67:7080/          ×     +

←   →   C                  ○  🔓  192.168.1.67:7080

Node JS installed sucessfully
```

Now, pm2 was installed in our local vm,
Npm install pm2@latest -g

```
+ pm2@5.1.2
added 180 packages from 200 contributors in 49.295s
root@batman:/home/bijay/Reactnode#
```

Now, we can start index.js with PM2 as:
pm2 start index.js

And again, for next file,
pm2 start secondindex.js

```
root@batman:/home/bijay/Reactnode# pm2 start index.js
[PM2] Starting /home/bijay/Reactnode/index.js in fork_mode (1 instance)
[PM2] Done.
```

id	name	mode	↺	status	cpu	memory
0	index	fork	0	online	0%	20.6mb

```
root@batman:/home/bijay/Reactnode# pm2 start secondindex.js
[PM2] Starting /home/bijay/Reactnode/secondindex.js in fork_mode (1 instance)
[PM2] Done.
```

id	name	mode	↺	status	cpu	memory
0	index	fork	0	online	0%	41.9mb
1	secondindex	fork	0	online	0%	8.4mb

We can concurrently run these processes with pm2.
With command ***pm2 plus,*** we can get an extended view of all apps and databases in one single place, at real-time or through history.

In order to start 4 instances of both the APIs, these commands were used:
Pm2 start index.js -i 4
Pm2 start secondindex.js -i 4

```
root@batman:/home/bijay/Reactnode# pm2 start index.js -i 4
[PM2] Starting /home/bijay/Reactnode/index.js in cluster_mode (4 instances)
[PM2] Done.
⇆ PM2+ activated | Instance Name: batman-67c0 | Dash: https://app.pm2.io/#/r/zpc3f8b8bx7apgu
```

id	name	mode	↺	status	cpu	memory
0	index	cluster	0	online	1.1%	41.2mb
1	index	cluster	0	online	0%	41.9mb
2	index	cluster	0	online	0%	41.5mb
3	index	cluster	0	online	0%	33.9mb

```
root@batman:/home/bijay/Reactnode# pm2 start secondindex.js -i 4
[PM2] Starting /home/bijay/Reactnode/secondindex.js in cluster_mode (4 instances)
[PM2] Done.
⇆ PM2+ activated | Instance Name: batman-67c0 | Dash: https://app.pm2.io/#/r/zpc3f8b8bx7apgu
```

id	name	mode	↺	status	cpu	memory
0	index	cluster	0	online	0%	41.4mb
1	index	cluster	0	online	0%	42.2mb
2	index	cluster	0	online	0%	41.9mb
3	index	cluster	0	online	0%	41.9mb
4	secondindex	cluster	0	online	0%	41.8mb
5	secondindex	cluster	0	online	0%	42.0mb
6	secondindex	cluster	0	online	0%	41.5mb
7	secondindex	cluster	0	online	0%	33.6mb

```
root@batman:/home/bijay/Reactnode#
```

To delete the clusters one by one, the id of each cluster was mentioned with stop command:

Pm2 stop 0

Pm2 stop 1

Pm2 stop 2

Pm2 stop 3

Pm2 stop 4

Pm2 stop 5

Pm2 stop 6

Pm2 stop 7

```
root@batman:/home/bijay/Reactnode# pm2 stop 0
[PM2] Applying action stopProcessId on app [0](ids: 0)
[PM2] [index](0) ✓
PM2+ activated | Instance Name: batman-67c0 | Dash: https://app.pm2.io/#/r/zpc3f8b8bx7apgu
```

id	name	namespace	version	mode	pid	uptime	↻	status	cpu	mem	user	watching
0	index	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
1	index	default	1.0.0	cluster	16927	4m	0	online	0%	45.1mb	root	disabled
2	index	default	1.0.0	cluster	16940	4m	0	online	0%	45.8mb	root	disabled
3	index	default	1.0.0	cluster	16941	4m	0	online	0%	45.3mb	root	disabled
4	secondindex	default	1.0.0	cluster	16981	4m	0	online	0%	44.5mb	root	disabled
5	secondindex	default	1.0.0	cluster	16982	4m	0	online	0%	45.1mb	root	disabled
6	secondindex	default	1.0.0	cluster	16995	4m	0	online	0%	45.1mb	root	disabled
7	secondindex	default	1.0.0	cluster	17001	4m	0	online	0%	45.0mb	root	disabled

```
root@batman:/home/bijay/Reactnode# pm2 stop 1
[PM2] Applying action stopProcessId on app [1](ids: 1)
[PM2] [index](1) ✓
PM2+ activated | Instance Name: batman-67c0 | Dash: https://app.pm2.io/#/r/zpc3f8b8bx7apgu
```

id	name	namespace	version	mode	pid	uptime	↻	status	cpu	mem	user	watching
0	index	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
1	index	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
2	index	default	1.0.0	cluster	16940	4m	0	online	0%	45.8mb	root	disabled
3	index	default	1.0.0	cluster	16941	4m	0	online	0%	45.3mb	root	disabled
4	secondindex	default	1.0.0	cluster	16981	4m	0	online	0%	44.5mb	root	disabled
5	secondindex	default	1.0.0	cluster	16982	4m	0	online	0%	45.1mb	root	disabled
6	secondindex	default	1.0.0	cluster	16995	4m	0	online	0%	45.1mb	root	disabled
7	secondindex	default	1.0.0	cluster	17001	4m	0	online	0%	45.0mb	root	disabled

```
root@batman:/home/bijay/Reactnode# pm2 stop 2
[PM2] Applying action stopProcessId on app [2](ids: 2)
[PM2] [index](2) ✓
PM2+ activated | Instance Name: batman-67c0 | Dash: https://app.pm2.io/#/r/zpc3f8b8bx7apgu
```

| 6 | secondindex | default | 1.0.0 | cluster | 16995 | 5m | 0 | online | 0% | 45.1mb | root | disabled |
| 7 | secondindex | default | 1.0.0 | cluster | 17001 | 5m | 0 | online | 0% | 45.0mb | root | disabled |

```
root@batman:/home/bijay/Reactnode# pm2 stop 6
[PM2] Applying action stopProcessId on app [6](ids: 6)
[PM2] [secondindex](6) ✓
PM2+ activated | Instance Name: batman-67c0 | Dash: https://app.pm2.io/#/r/zpc3f8b8bx7apgu
```

id	name	namespace	version	mode	pid	uptime	↻	status	cpu	mem	user	watching
0	index	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
1	index	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
2	index	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
3	index	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
4	secondindex	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
5	secondindex	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
6	secondindex	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
7	secondindex	default	1.0.0	cluster	17001	5m	0	online	0%	45.0mb	root	disabled

```
root@batman:/home/bijay/Reactnode# pm2 stop 7
[PM2] Applying action stopProcessId on app [7](ids: 7)
[PM2] [secondindex](7) ✓
PM2+ activated | Instance Name: batman-67c0 | Dash: https://app.pm2.io/#/r/zpc3f8b8bx7apgu
```

id	name	namespace	version	mode	pid	uptime	↻	status	cpu	mem	user	watching
0	index	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
1	index	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
2	index	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
3	index	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
4	secondindex	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
5	secondindex	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
6	secondindex	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled
7	secondindex	default	1.0.0	cluster	0	0	0	stopped	0%	0b	root	disabled

```
root@batman:/home/bijay/Reactnode#
```