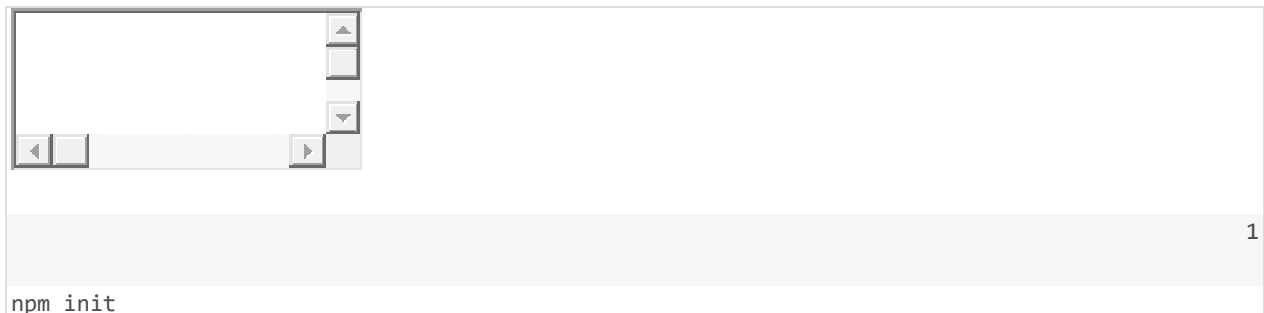# Exercise (Instructions): Understanding Node Modules

Objectives and Outcomes

In this exercise, you will learn about writing Node applications using JavaScript and also learn about the basics of Node modules. At the end of this exercise, you will be able to:

- Write a simple Node application in JavaScript.
- Understand the basics of Node modules and write simple file-based Node modules
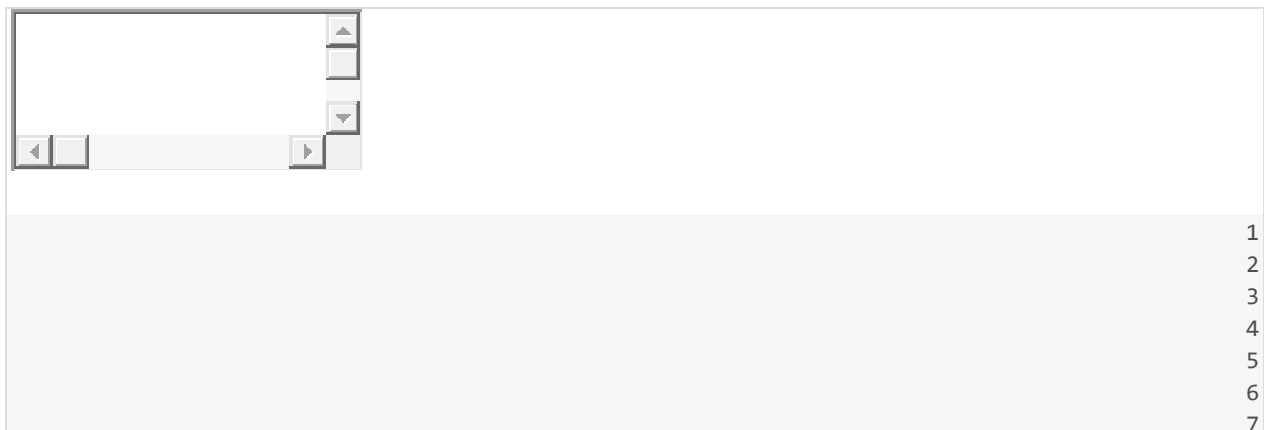
Starting a Node Application

- Go to a convenient location on your computer and create a folder named *NodeJS*. Then move to this folder.
- Now create a folder named *node-examples* and then move into this folder.
- At the prompt, type the following to initialize a package.json file in the node-examples folder:

```
npm init
```
1

- Accept the standard defaults suggested and then update the *package.json* file until you end up with the file containing the following:

1
2
3
4
5
6
7

```
                                                                              8
                                                                              9
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                                                                             12
                                                                             13
{
  "name": "node-examples",
  "version": "1.0.0",
  "description": "Simple Node Examples",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1",
    "start": "node index"
  },
  "author": "Jogesh Muppala",
  "license": "ISC"
}
```

- Create a file named index.*js* and add the following code to this file:

```
                                                                              1
                                                                              2
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var rect = {
  perimeter: (x, y) => (2*(x+y)),
  area: (x, y) => (x*y)
};
```
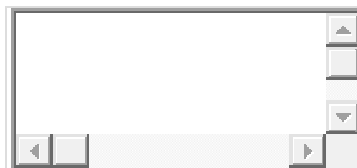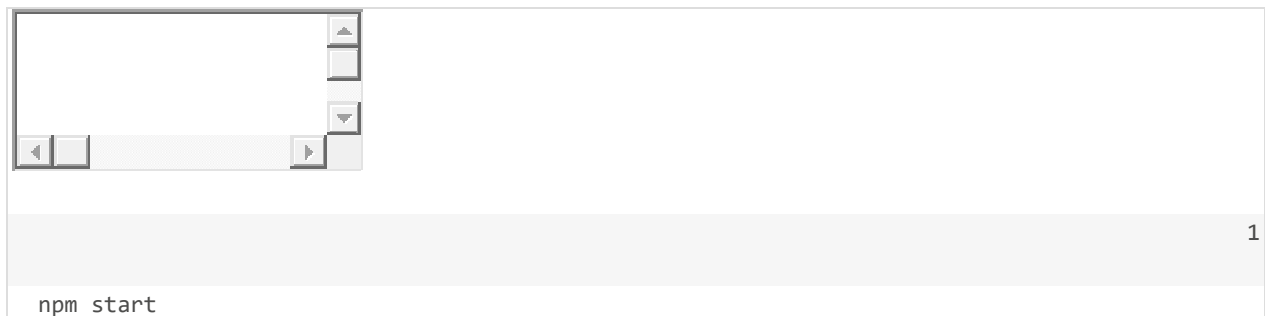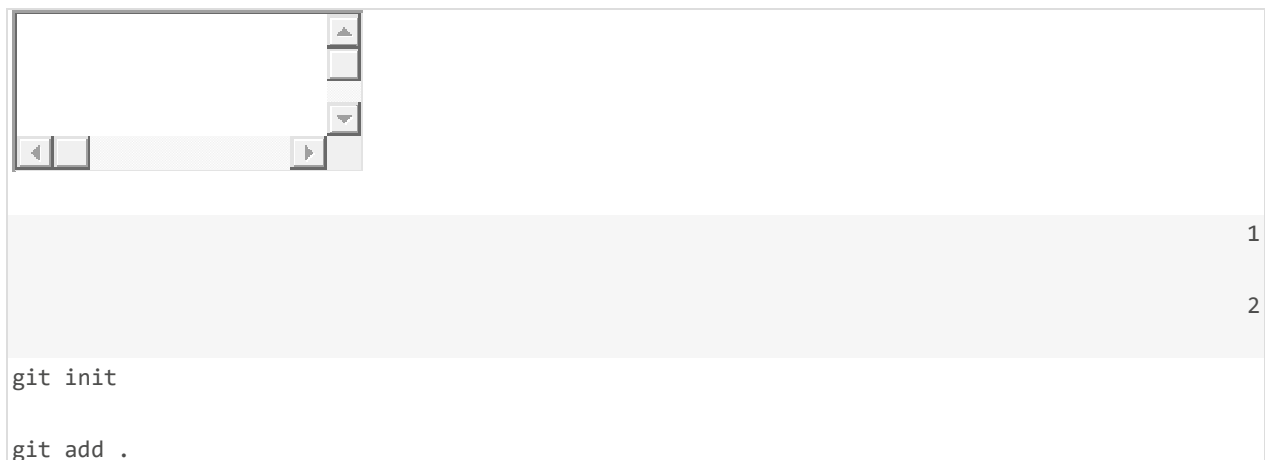
```
function solveRect(l,b) {
    console.log("Solving for rectangle with l = " + l + " and b = " + b);
    if (l <= 0 || b <= 0) {
        console.log("Rectangle dimensions should be greater than zero:  l = "
                + l + ",  and b = " + b);
    }
    else {
      console.log("The area of the rectangle is " + rect.area(l,b));
      console.log("The perimeter of the rectangle is " + rect.perimeter(l,b));
    }
}
solveRect(2,4);
solveRect(3,5);
solveRect(0,5);
solveRect(-3,5);
```

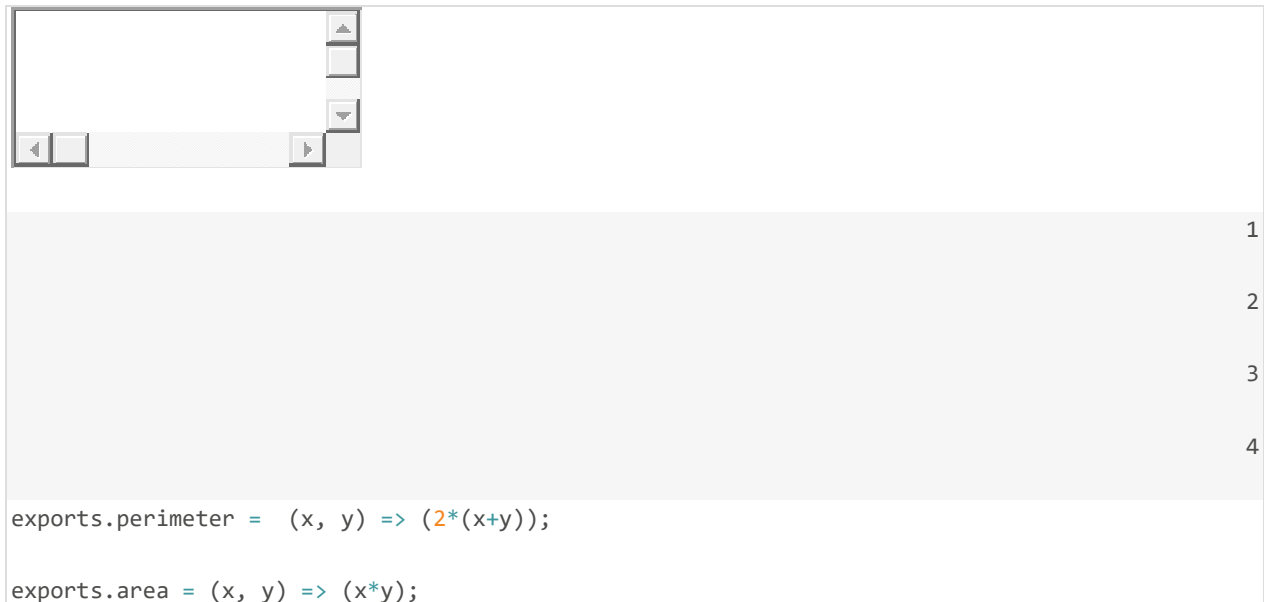- To run the Node application, type the following at the prompt:

```
                                                                              1
  npm start
```

- To initialize a Git repository and add the current files in the folder to the repository, type the following at the prompt:

```
                                                                              1

                                                                              2
git init

git add .
```

- Then, do a Git commit with the message "Simple Node Example".

A Simple Node Module

- Now, create a file named *rectangle.js*, and add the following code to it:

	1
	2
	3
	4

```
exports.perimeter =  (x, y) => (2*(x+y));

exports.area = (x, y) => (x*y);
```

- Then, update *index.js* as follows:

	1
	2
	3

```
var rect = require('./rectangle');

. . .
```

- Run the Node application like before and observe that the result will be the same.
- Do a Git commit with the message "Simple Node Module".

Conclusions

In this exercise, you learnt about writing simple Node applications in JavaScript. Thereafter you learnt about writing a simple Node module and use it within your Node application.