- Option 1: directly install on the PC
    1. Set up Ubuntu
    2. How to Check your Ubuntu Version

        **$ lsb_release -a**

    3. Enable the NodeSource repository by running the following curl

        **$ curl -sL https://deb.nodesource.com/setup_10.x | sudo -E bash -**

    4. Install Node.js and npm

        **$ sudo apt install nodejs**

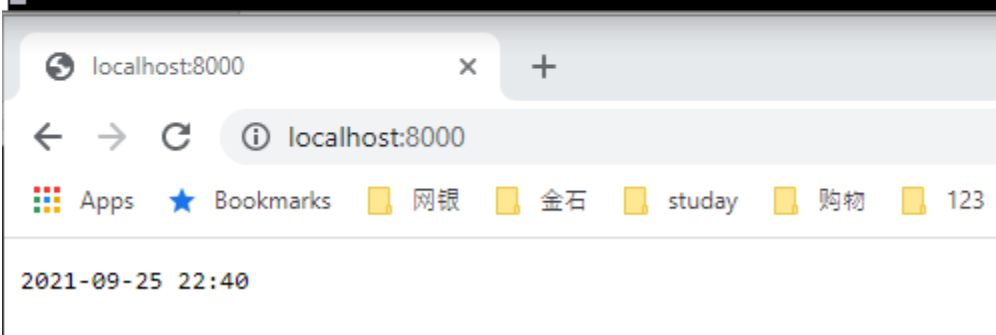    5. Verify that the Node.js and npm were successfully

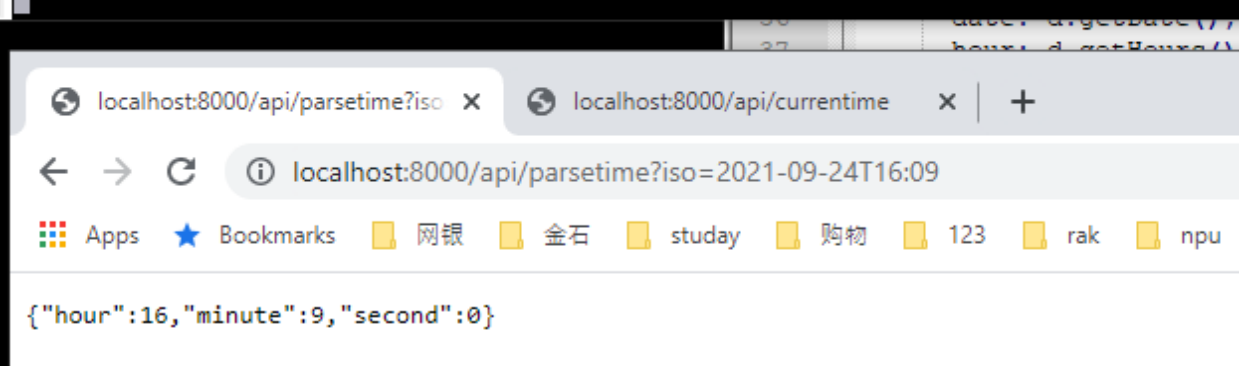        **$ node --version**
        **$ npm --version**

```
wayne@DESKTOP-H61AHKT:~$
wayne@DESKTOP-H61AHKT:~$
wayne@DESKTOP-H61AHKT:~$ node --version
v10.24.1
wayne@DESKTOP-H61AHKT:~$
wayne@DESKTOP-H61AHKT:~$
wayne@DESKTOP-H61AHKT:~$ npm --version
6.14.12
wayne@DESKTOP-H61AHKT:~$
```
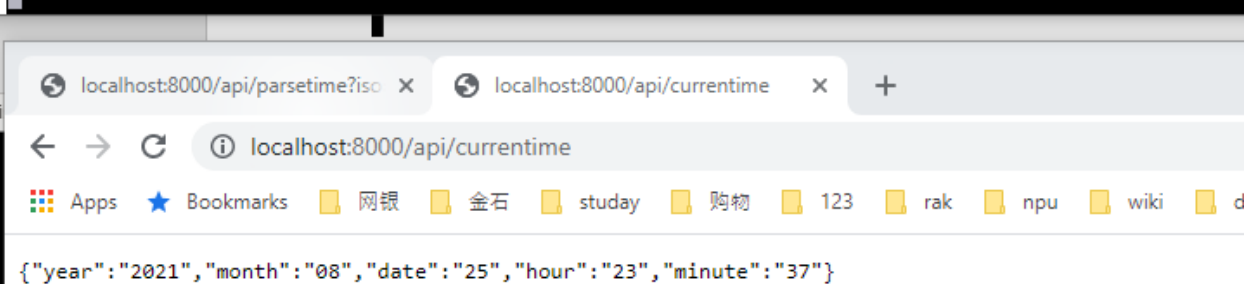
TimeServer

```
wayne@DESKTOP-H61AHKT:~/nodejs$
wayne@DESKTOP-H61AHKT:~/nodejs$ vim time_server.js
wayne@DESKTOP-H61AHKT:~/nodejs$
wayne@DESKTOP-H61AHKT:~/nodejs$
wayne@DESKTOP-H61AHKT:~/nodejs$ node time_server.js 8000
Node server running on http://localhost:8000
```

localhost:8000    ×    +

← → C  ⓘ localhost:8000

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```
wayne@DESKTOP-H61AHKT:~/nodejs$
wayne@DESKTOP-H61AHKT:~/nodejs$
wayne@DESKTOP-H61AHKT:~/nodejs$ node json_api_server.js 8000
```

{"hour":16,"minute":9,"second":0}

```
wayne@DESKTOP-H61AHKT:~/nodejs$
wayne@DESKTOP-H61AHKT:~/nodejs$
wayne@DESKTOP-H61AHKT:~/nodejs$ node json_api_server.js 8000
```

{"year":"2021","month":"08","date":"25","hour":"23","minute":"37"}

Add code

```
function zeroFill(i) {
    return (i < 10 ? '0' : '') + i
}
function now () {
  var d = new Date()
  return {
      year: zeroFill(d.getFullYear()),
      month: zeroFill(d.getMonth()),
      date: zeroFill(d.getDate()),
      hour: zeroFill(d.getHours()),
      minute: zeroFill(d.getMinutes())
  }
}
```

```javascript
var server = http.createServer(function (req, res) {
  // req.url = /api/parsetime?iso=2013-08-10T12:10:15.474Z
  //        or
  // req.url = /api/unixtime?iso=2013-08-10T12:10:15.474Z
  var parsedUrl = url.parse(req.url, true)

  // time = 2013-08-10T12:10:15.474Z
  var time = new Date(parsedUrl.query.iso)
  var result

  // match req.url with the string /api/parsetime
  if (/^\/api\/parsetime/.test(req.url))
    // e.g., of time "2013-08-10T12:10:15.474Z"
    result = parsetime(time)
  // match req.url with the string /api/unixtime
  else if (/^\/api\/unixtime/.test(req.url))
    result = unixtime(time)
  else if (req.url == '/api/currentime')
    result = now()

  if (result) {
    res.writeHead(200, { 'Content-Type': 'application/json' })
    res.end(JSON.stringify(result))
  }
  else {
    res.writeHead(404)
    res.end()
  }
})
server.listen(Number(process.argv[2]))
```

```javascript
/////////////////////////////////////////////////////////
//
// Write an HTTP server that serves JSON data when it
// receives a GET request to the path '/api/parsetime'.
//
/////////////////////////////////////////////////////////
var http = require('http')
var url = require('url')

// - Expect the request to contain a query
//   string with a key 'iso' and an ISO-format time as
```

```
//   the value. For example
//    /api/parsetime?iso=2013-08-10T12:10:15.474Z
// - The JSON response should contain only 'hour', 'minute'
//   and 'second' properties. For example:
//
//   {
//     "hour": 14,
//     "minute": 23,
//     "second": 15
//   }
//
function parsetime (time) {
  return {
    hour: time.getHours(),
    minute: time.getMinutes(),
    second: time.getSeconds()
  }
}


// Add second endpoint for the path '/api/unixtime' which
// accepts the same query string but returns UNIX epoch
// time under the property 'unixtime'. For example:
//
//   { "unixtime": 1376136615474 }
function unixtime (time) {
  return { unixtime : time.getTime() }
}


function zeroFill(i) {
```

```javascript
    return (i < 10 ? '0' : '') + i
}
function now () {
  var d = new Date()
  return {
     year: zeroFill(d.getFullYear()),
     month: zeroFill(d.getMonth()),
     date: zeroFill(d.getDate()),
     hour: zeroFill(d.getHours()),
     minute: zeroFill(d.getMinutes())
  }
}


var server = http.createServer(function (req, res) {
  // req.url = /api/parsetime?iso=2013-08-10T12:10:15.474Z
  //      or
  // req.url = /api/unixtime?iso=2013-08-10T12:10:15.474Z
  var parsedUrl = url.parse(req.url, true)


  // time = 2013-08-10T12:10:15.474Z
  var time = new Date(parsedUrl.query.iso)
  var result

  // match req.url with the string /api/parsetime
  if (/^\/api\/parsetime/.test(req.url))
    // e.g., of time "2013-08-10T12:10:15.474Z"
    result = parsetime(time)
  // match req.url with the string /api/unixtime
  else if (/^\/api\/unixtime/.test(req.url))
```

```
    result = unixtime(time)
  else if (req.url == '/api/currentime')
    result = now()


  if (result) {
    res.writeHead(200, { 'Content-Type': 'application/json' })
    res.end(JSON.stringify(result))
  }
  else {
    res.writeHead(404)
    res.end()
  }
})
server.listen(Number(process.argv[2]))
```