Walchand College of Engineering, Sangli Department of Computer Science and Engineering

Practical No. 3

To use pre-built and user defined modules in Node.js Application.

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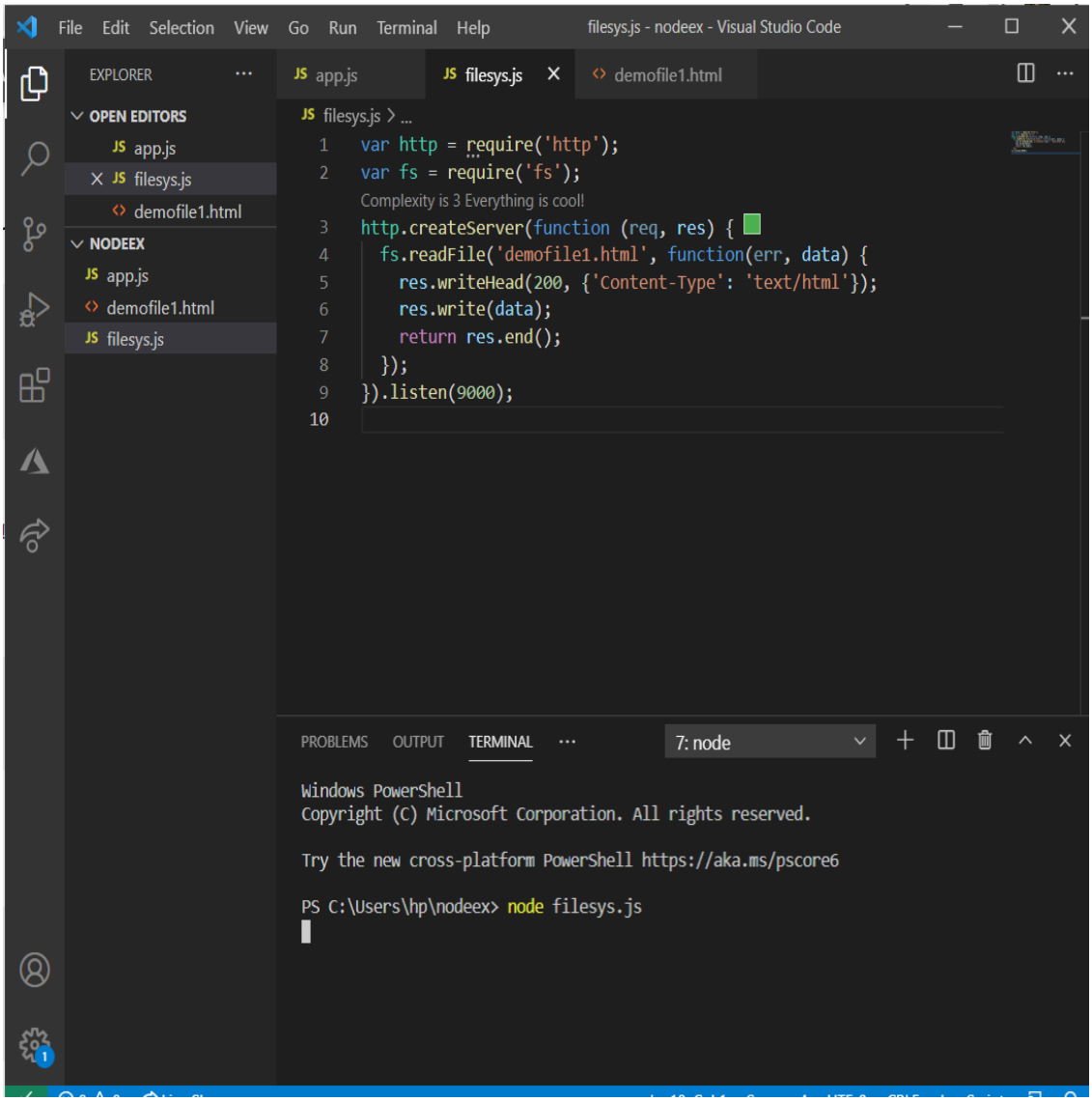
PRN NO: 2018BTECS00042

Problem Statement 1:

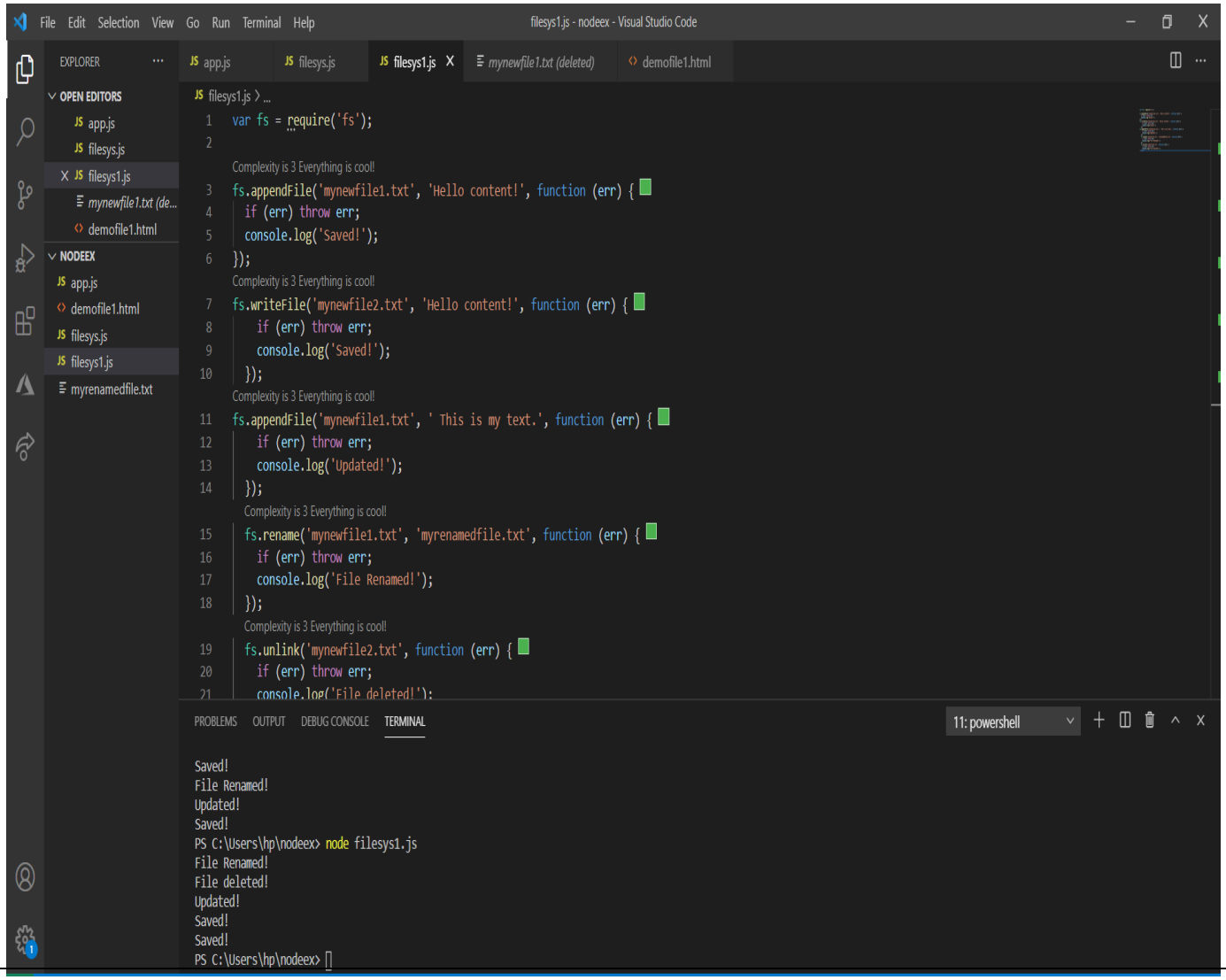
1. With the help of suitable examples use following Node.js pre-built modules in Node.js Application.
    a. File System Module (fs)



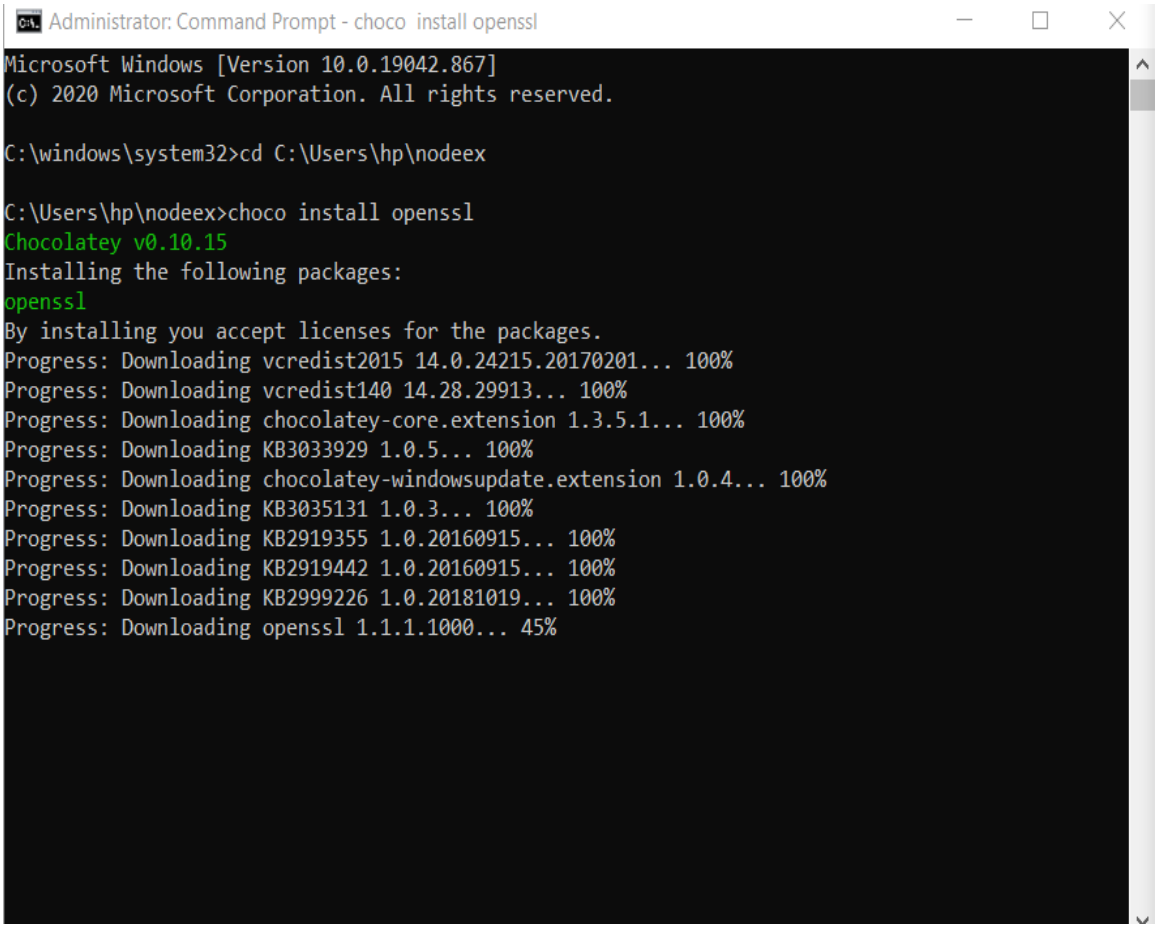
localhost:9000

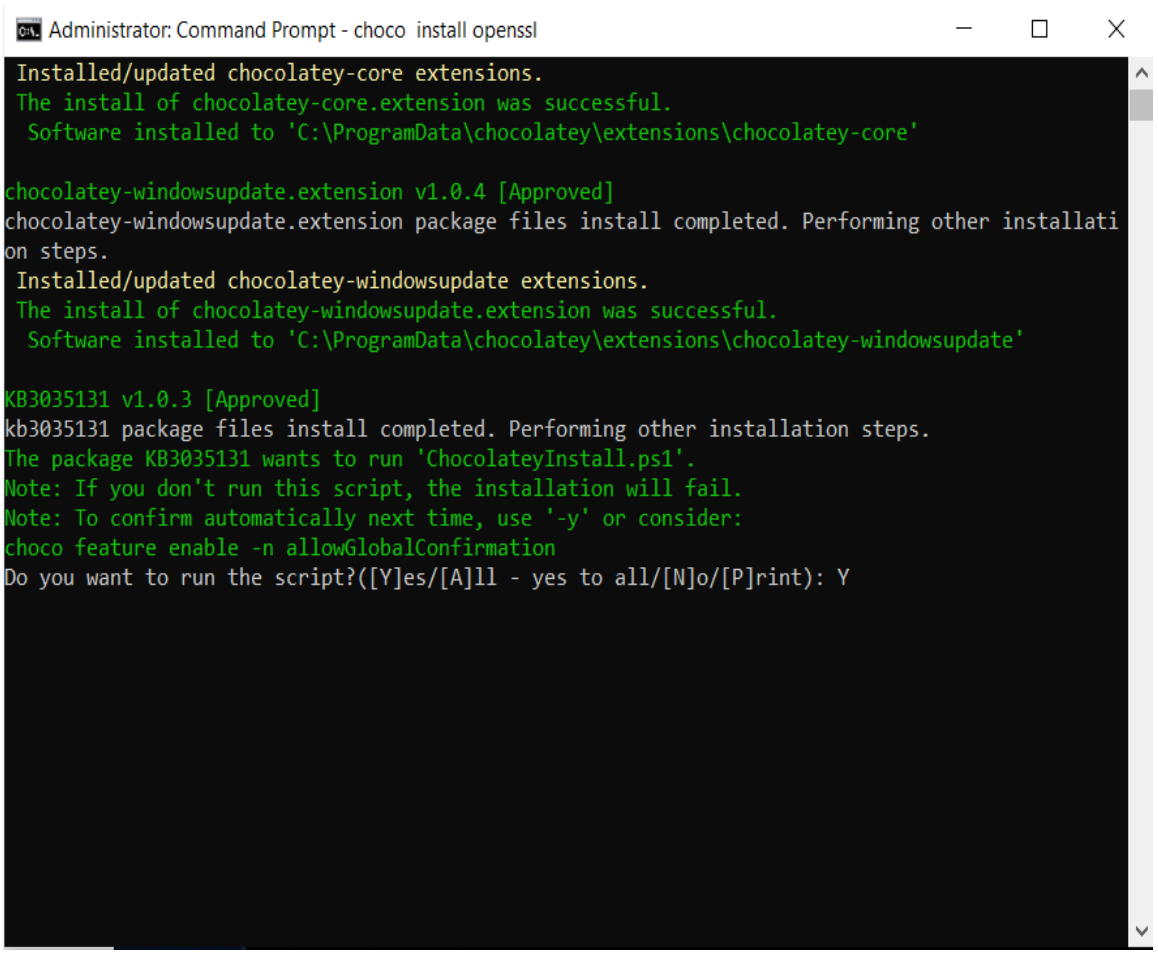
NODEJS

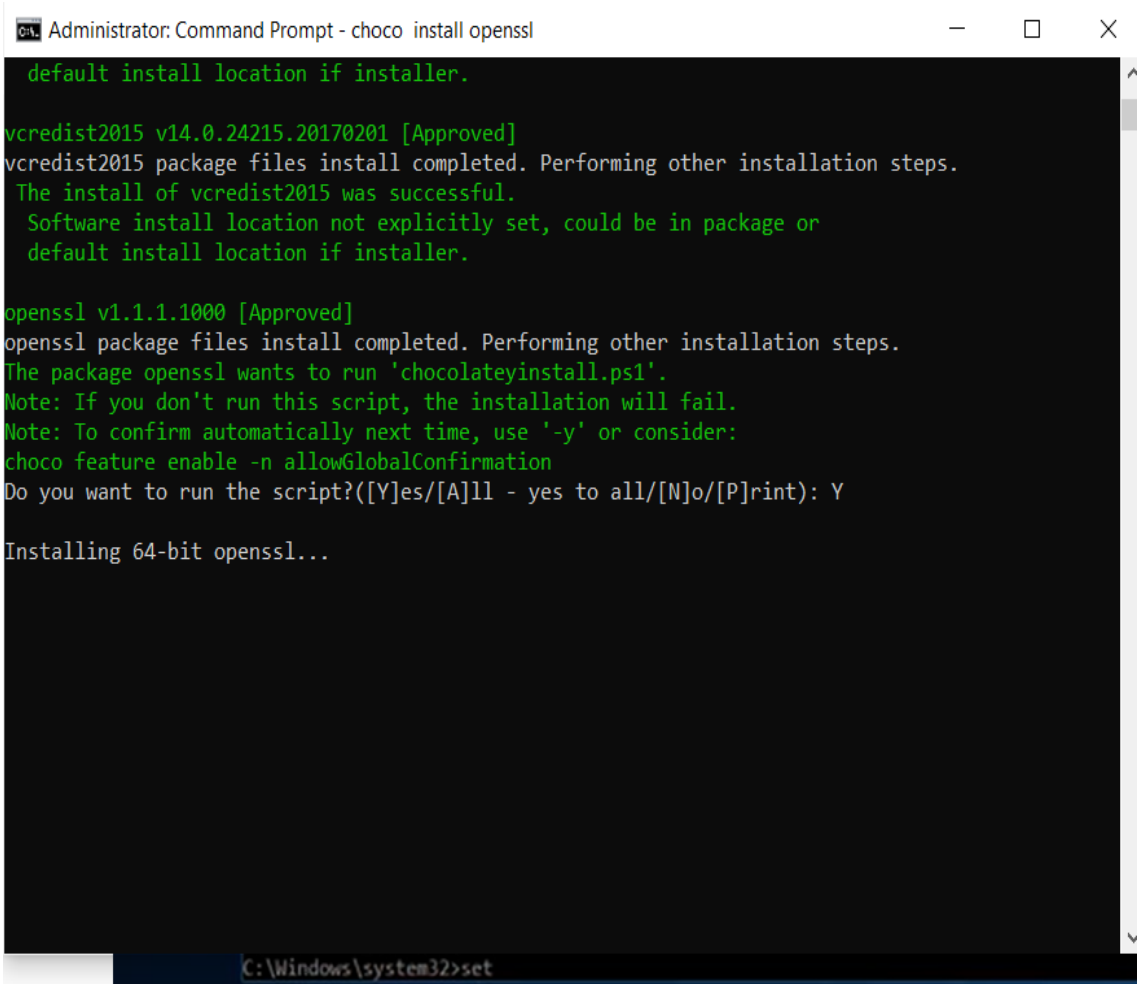
This is practical no.3

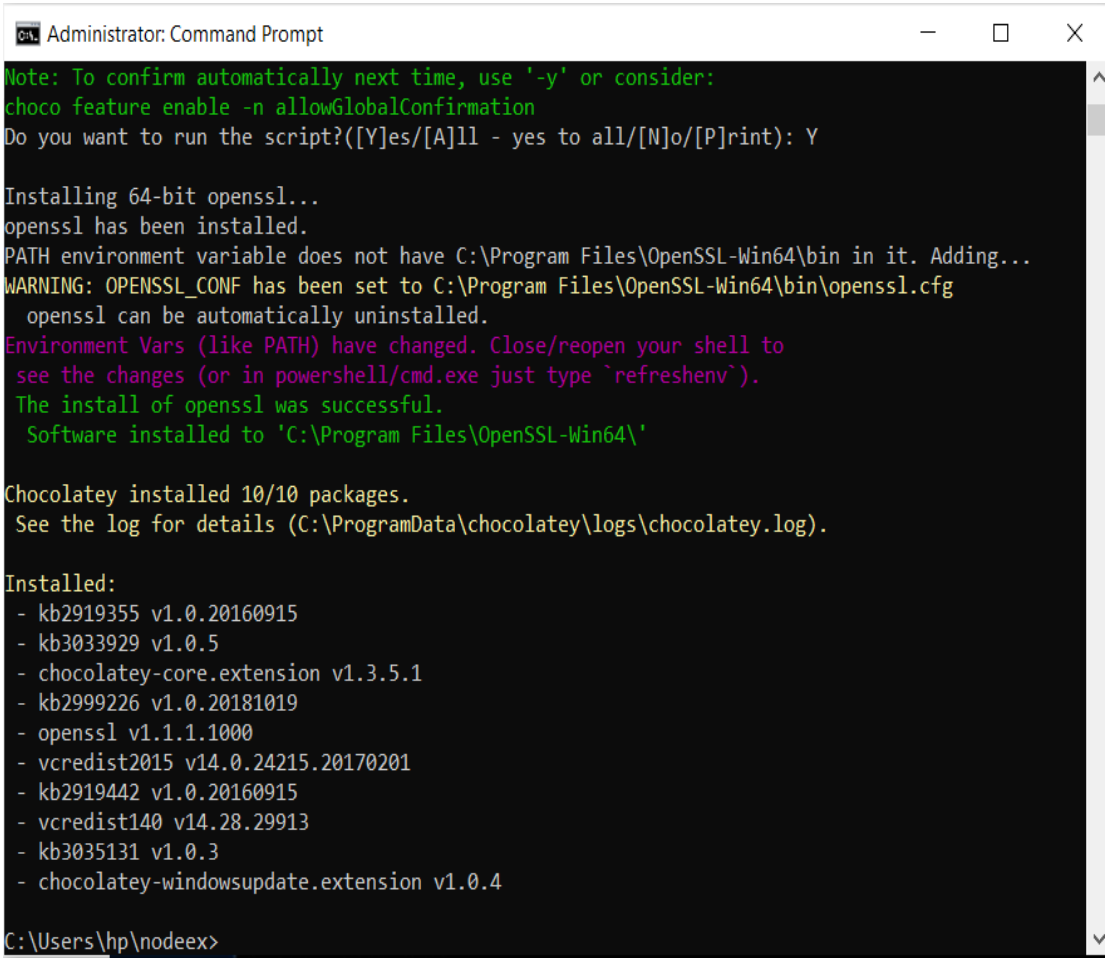


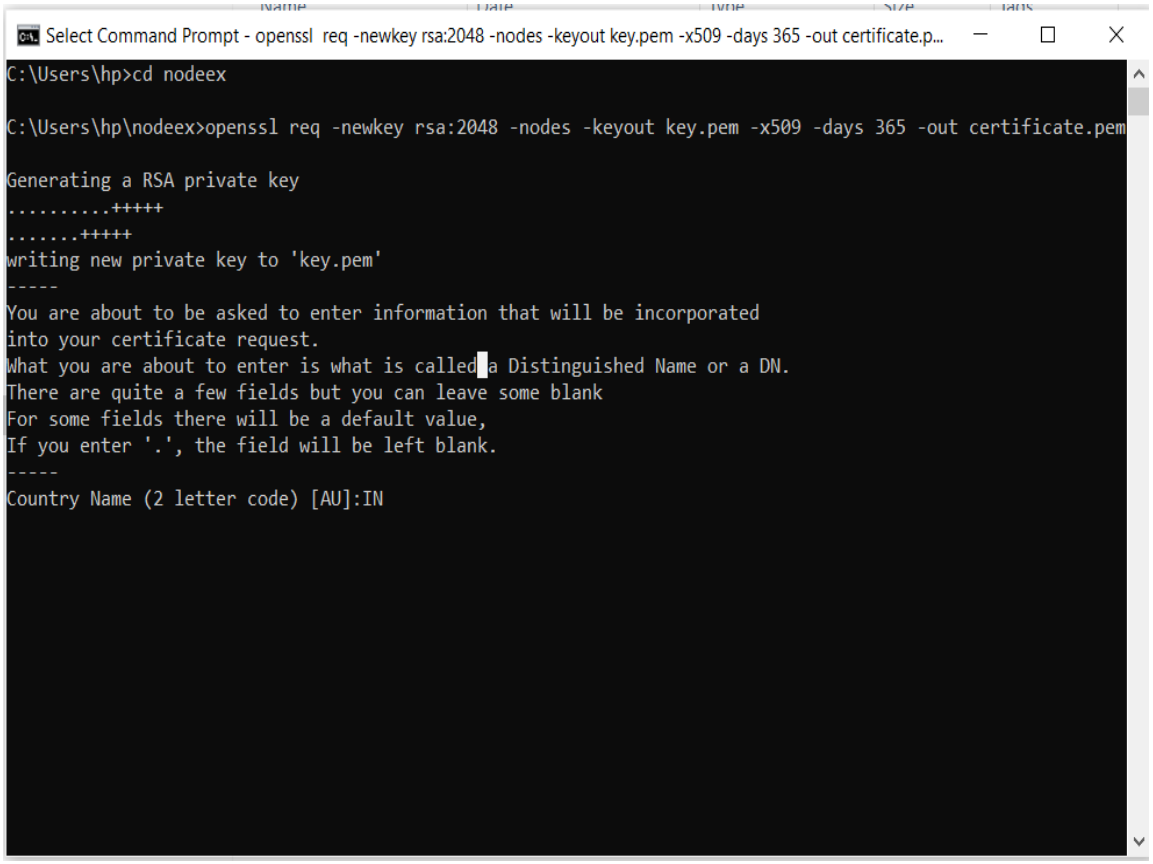
b. Secure HTTP Module (https)





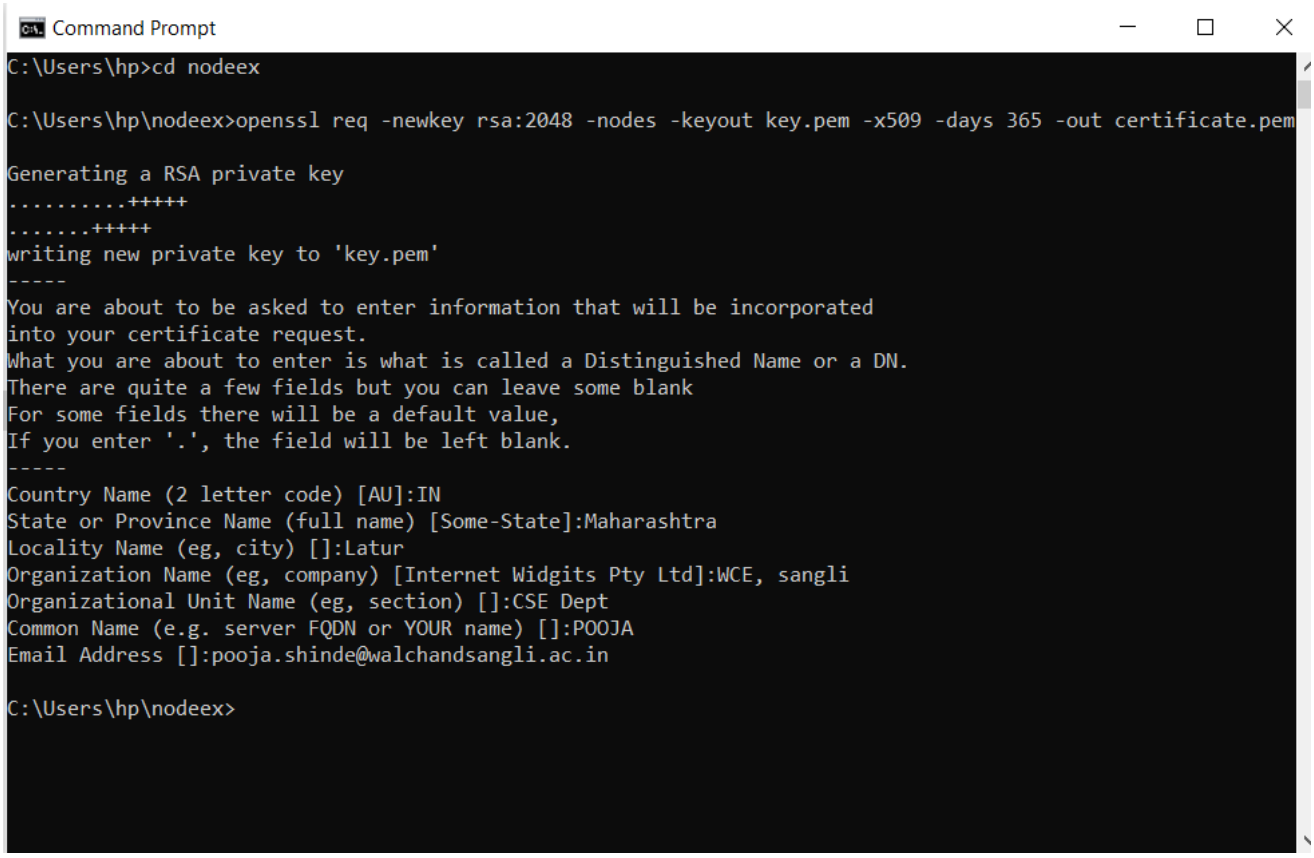

Administrator: Command Prompt - choco install openssl
default install location if installer.
vcredist2015 v14.0.24215.20170201 [Approved]
vcredist2015 package files install completed. Performing other installation steps.
The install of vcredist2015 was successful.
Software install location not explicitly set, could be in package or
default install location if installer.
openssl v1.1.1.1000 [Approved]
openssl package files install completed. Performing other installation steps.
The package openssl wants to run 'chocolateyinstall.ps1'.
Note: If you don't run this script, the installation will fail.
Note: To confirm automatically next time, use '-y' or consider:
choco feature enable -n allowGlobalConfirmation
Do you want to run the script?([Y]es/[A]ll - yes to all/[N]o/[P]rint): Y
Installing 64-bit openssl...
C:\Windows\system32>set


Administrator: Command Prompt
Note: To confirm automatically next time, use '-y' or consider:
choco feature enable -n allowGlobalConfirmation
Do you want to run the script?([Y]es/[A]ll - yes to all/[N]o/[P]rint): Y
Installing 64-bit openssl...
openssl has been installed.
PATH environment variable does not have C:\Program Files\OpenSSL-Win64\bin in it. Adding...
WARNING: OPENSSL_CONF has been set to C:\Program Files\OpenSSL-Win64\bin\openssl.cfg
openssl can be automatically uninstalled.
Environment Vars (like PATH) have changed. Close/reopen your shell to
see the changes (or in powershell/cmd.exe just type `refreshenv`).
The install of openssl was successful.
Software installed to 'C:\Program Files\OpenSSL-Win64\'
Chocolatey installed 10/10 packages.
See the log for details (C:\ProgramData\chocolatey\logs\chocolatey.log).
Installed:
- kb2919355 v1.0.20160915
- kb3033929 v1.0.5
- chocolatey-core.extension v1.3.5.1
- kb2999226 v1.0.20181019
- openssl v1.1.1.1000
- vcredist2015 v14.0.24215.20170201
- kb2919442 v1.0.20160915
- vcredist140 v14.28.29913
- kb3035131 v1.0.3
- chocolatey-windowsupdate.extension v1.0.4
C:\Users\hp\nodeex>


Select Command Prompt - openssl req -newkey rsa:2048 -nodes -keyout key.pem -x509 -days 365 -out certificate.p...
C:\Users\hp>cd nodeex
C:\Users\hp\nodeex>openssl req -newkey rsa:2048 -nodes -keyout key.pem -x509 -days 365 -out certificate.pem
Generating a RSA private key
.....+++++
.....+++++
writing new private key to 'key.pem'

You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.

Country Name (2 letter code) [AU]:IN


Command Prompt
C:\Users\hp>cd nodeex
C:\Users\hp\nodeex>openssl req -newkey rsa:2048 -nodes -keyout key.pem -x509 -days 365 -out certificate.pem
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.....+++++
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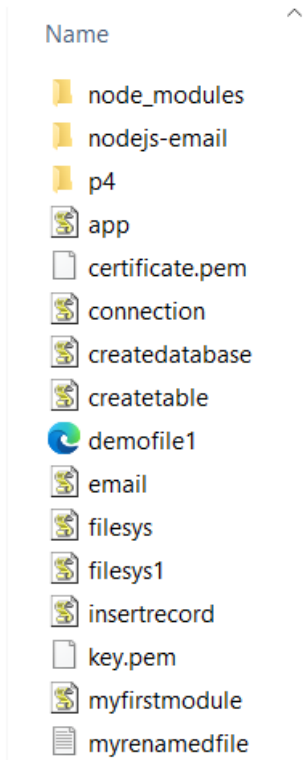
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.

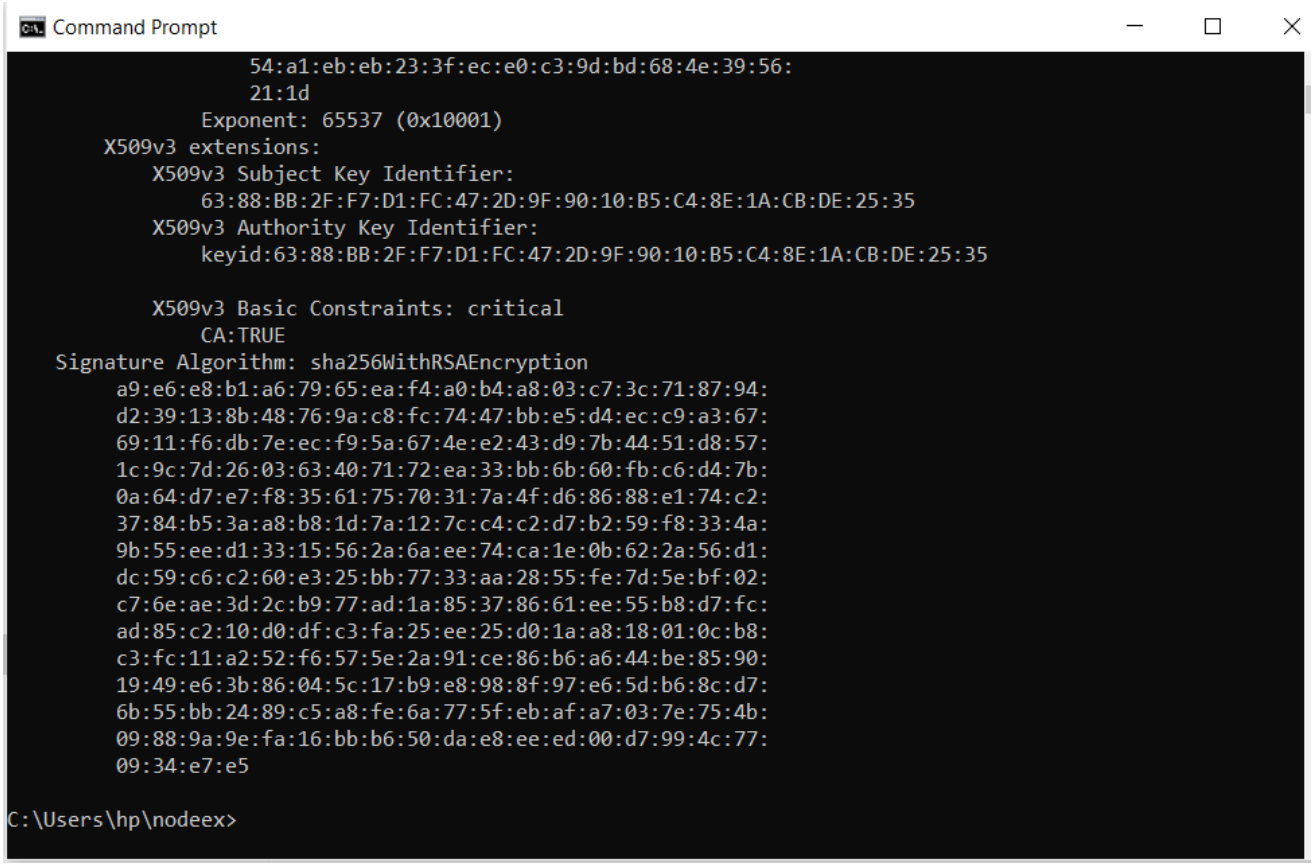
Country Name (2 letter code) [AU]:IN
State or Province Name (full name) [Some-State]:Maharashtra
Locality Name (eg, city) []:Latur
Organization Name (eg, company) [Internet Widgits Pty Ltd]:WCE, sangli
Organizational Unit Name (eg, section) []:CSE Dept
Common Name (e.g. server FQDN or YOUR name) []:POOJA
Email Address []:pooja.shinde@walchandsangli.ac.in
C:\Users\hp\nodeex>

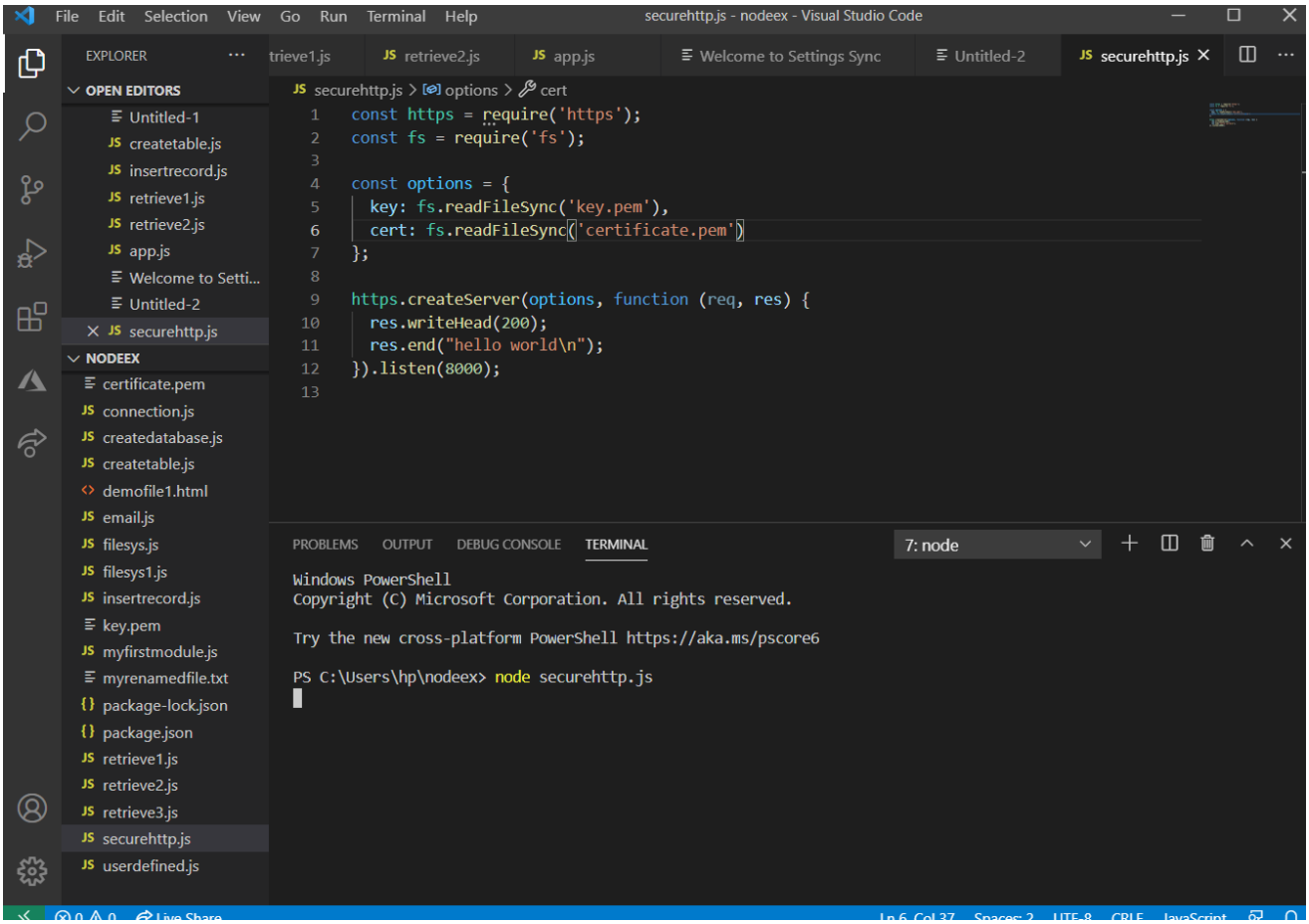


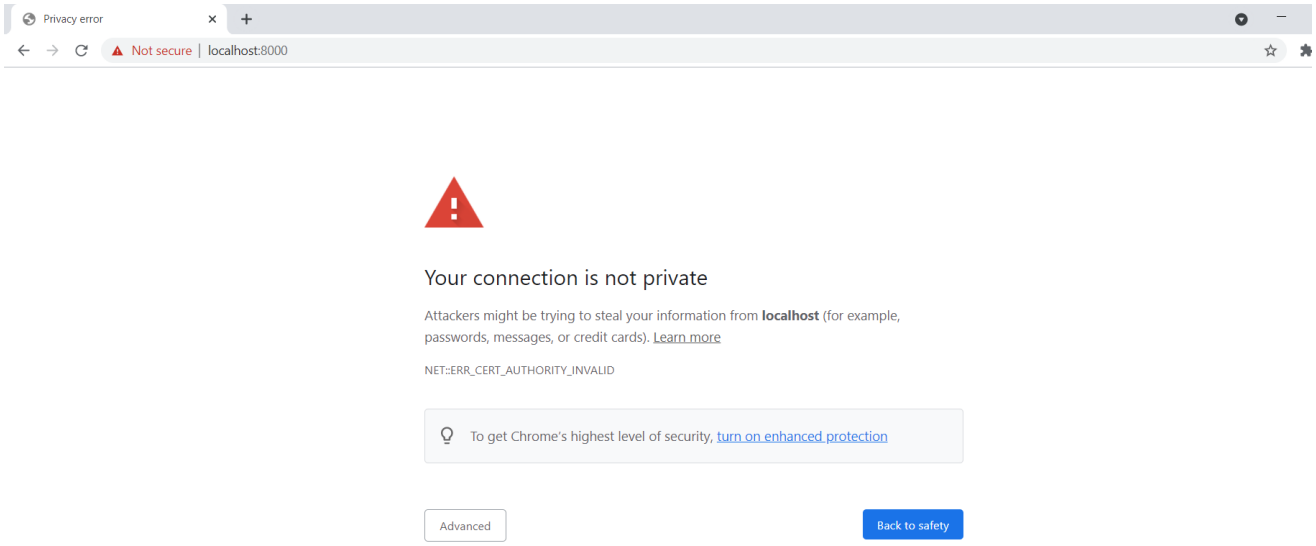
Command Prompt

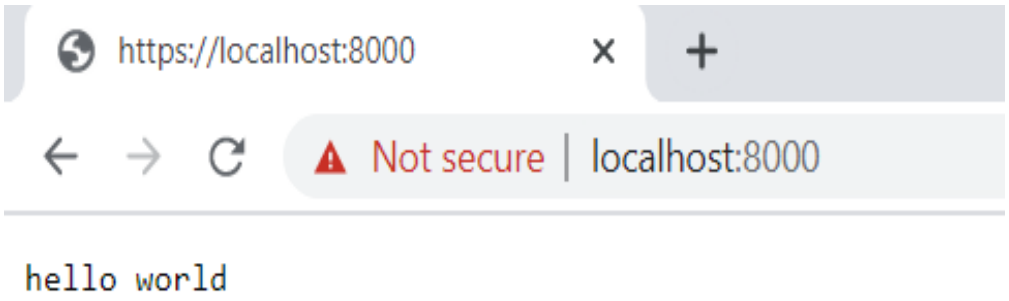
```
Common Name (e.g. server FQDN or YOUR name) []:POOJA
Email Address []:pooja.shinde@walchandsangli.ac.in

C:\Users\hp\nodeex>openssl x509 -text -noout -in certificate.pem
Certificate:
    Data:
        Version: 3 (0x2)
        Serial Number:
            4a:16:48:e7:bc:88:33:9e:f7:3f:fb:de:2e:3a:50:9c:4b:ce:92:01
        Signature Algorithm: sha256WithRSAEncryption
        Issuer: C = IN, ST = Maharashtra, L = Latur, O = "WCE, sangli", OU = CSE Dept, CN = POOJA, emailAdd
ress = pooja.shinde@walchandsangli.ac.in
        Validity
            Not Before: Mar 31 11:57:06 2021 GMT
            Not After : Mar 31 11:57:06 2022 GMT
        Subject: C = IN, ST = Maharashtra, L = Latur, O = "WCE, sangli", OU = CSE Dept, CN = POOJA, emailAd
dress = pooja.shinde@walchandsangli.ac.in
        Subject Public Key Info:
            Public Key Algorithm: rsaEncryption
                RSA Public-Key: (2048 bit)
                Modulus:
                    00:b8:c0:99:84:8d:c9:11:fe:7a:f8:65:d0:b5:ad:
                    70:39:68:7c:41:75:98:83:22:63:a4:62:05:e4:69:
                    67:72:85:a2:22:0f:c1:32:9f:dd:41:41:66:09:9d:
                    88:23:ad:b3:46:dc:f2:93:41:ac:be:da:9c:9c:eb:
                    bf:29:b8:41:84:cb:0c:04:9d:4d:db:5d:a1:97:23:
                    84:69:c1:12:96:c4:3a:58:73:49:b8:5c:26:b1:f1:
                    93:54:8d:9f:66:2d:1f:64:8e:c5:26:11:bf:5c:08:
                    54:80:fd:53:34:e5:e5:b6:53:ec:f7:05:b8:bf:c3:
                    1f:9a:ac:60:e2:e0:f2:1e:ee:30:8c:c1:88:3d:ad:
```


Command Prompt
54:a1:eb:eb:23:3f:ec:e0:c3:9d:bd:68:4e:39:56:
21:1d
Exponent: 65537 (0x10001)
X509v3 extensions:
X509v3 Subject Key Identifier:
63:88:BB:2F:F7:D1:FC:47:2D:9F:90:10:B5:C4:8E:1A:CB:DE:25:35
X509v3 Authority Key Identifier:
keyid:63:88:BB:2F:F7:D1:FC:47:2D:9F:90:10:B5:C4:8E:1A:CB:DE:25:35
X509v3 Basic Constraints: critical
CA:TRUE
Signature Algorithm: sha256WithRSAEncryption
a9:e6:e8:b1:a6:79:65:ea:f4:a0:b4:a8:03:c7:3c:71:87:94:
d2:39:13:8b:48:76:9a:c8:fc:74:47:bb:e5:d4:ec:c9:a3:67:
69:11:f6:db:7e:ec:f9:5a:67:4e:e2:43:d9:7b:44:51:d8:57:
1c:9c:7d:26:03:63:40:71:72:ea:33:bb:6b:60:fb:c6:d4:7b:
0a:64:d7:e7:f8:35:61:75:70:31:7a:4f:d6:86:88:e1:74:c2:
37:84:b5:3a:a8:b8:1d:7a:12:7c:c4:c2:d7:b2:59:f8:33:4a:
9b:55:ee:d1:33:15:56:2a:6a:ee:74:ca:1e:0b:62:2a:56:d1:
dc:59:c6:c2:60:e3:25:bb:77:33:aa:28:55:fe:7d:5e:bf:02:
c7:6e:ae:3d:2c:b9:77:ad:1a:85:37:86:61:ee:55:b8:d7:fc:
ad:85:c2:10:d0:df:c3:fa:25:ee:25:d0:1a:a8:18:01:0c:b8:
c3:fc:11:a2:52:f6:57:5e:2a:91:ce:86:b6:a6:44:be:85:90:
19:49:e6:3b:86:04:5c:17:b9:e8:98:8f:97:e6:5d:b6:8c:d7:
6b:55:bb:24:89:c5:a8:fe:6a:77:5f:eb:af:a7:03:7e:75:4b:
09:88:9a:9e:fa:16:bb:b6:50:da:e8:ee:ed:00:d7:99:4c:77:
09:34:e7:e5
C:\Users\hp\nodeex>

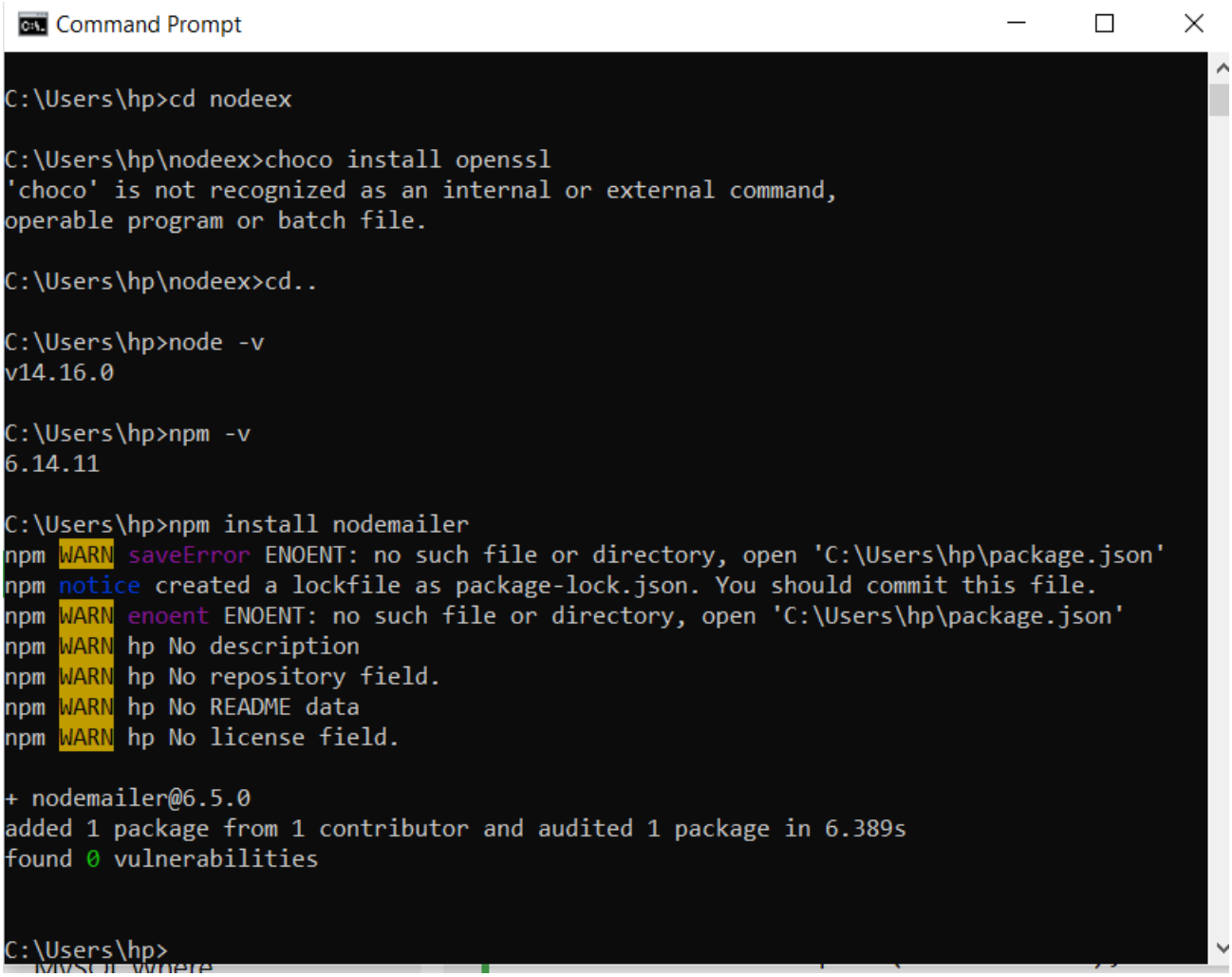

File Edit Selection View Go Run Terminal Help
securehttp.js - nodeex - Visual Studio Code
EXPLORER
OPEN EDITORS
Untitled-1
createtable.js
insertrecord.js
retrieve1.js
retrieve2.js
app.js
Welcome to Setti...
Untitled-2
securehttp.js
NODEEX
certificate.pem
connection.js
createdatabase.js
createtable.js
demofile1.html
email.js
filesys.js
filesys1.js
insertrecord.js
key.pem
myfirstmodule.js
myrenamedfile.txt
package-lock.json
package.json
retrieve1.js
retrieve2.js
retrieve3.js
securehttp.js
userdefined.js
retrieve1.js
retrieve2.js
app.js
Welcome to Settings Sync
Untitled-2
securehttp.js
securehttp.js > options > cert
1 const https = require('https');
2 const fs = require('fs');
3
4 const options = {
5 key: fs.readFileSync('key.pem'),
6 cert: fs.readFileSync('certificate.pem')
7 };
8
9 https.createServer(options, function (req, res) {
10 res.writeHead(200);
11 res.end("hello world\n");
12 }).listen(8000);
13
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL
7: node
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Try the new cross-platform PowerShell https://aka.ms/pscore6
PS C:\Users\hp\nodeex> node securehttp.js

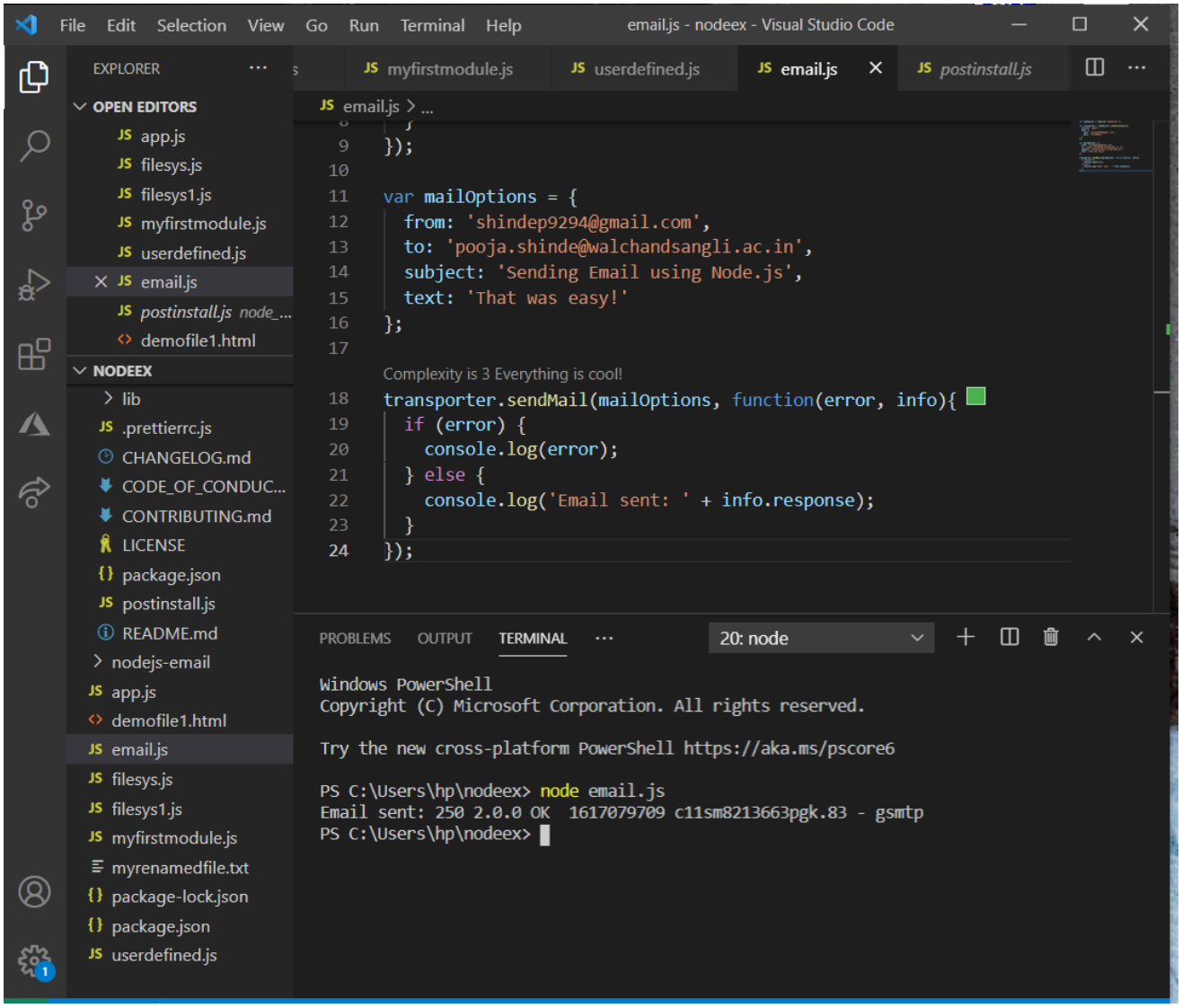

Privacy error
Not secure | localhost:8000
Your connection is not private
Attackers might be trying to steal your information from localhost (for example, passwords, messages, or credit cards). Learn more
NET::ERR_CERT_AUTHORITY_INVALID
To get Chrome's highest level of security, turn on enhanced protection
Advanced
Back to safety


https://localhost:8000
Not secure | localhost:8000
hello world

c. Nodemailer Module (nodemailer)

i. Install this module from npm

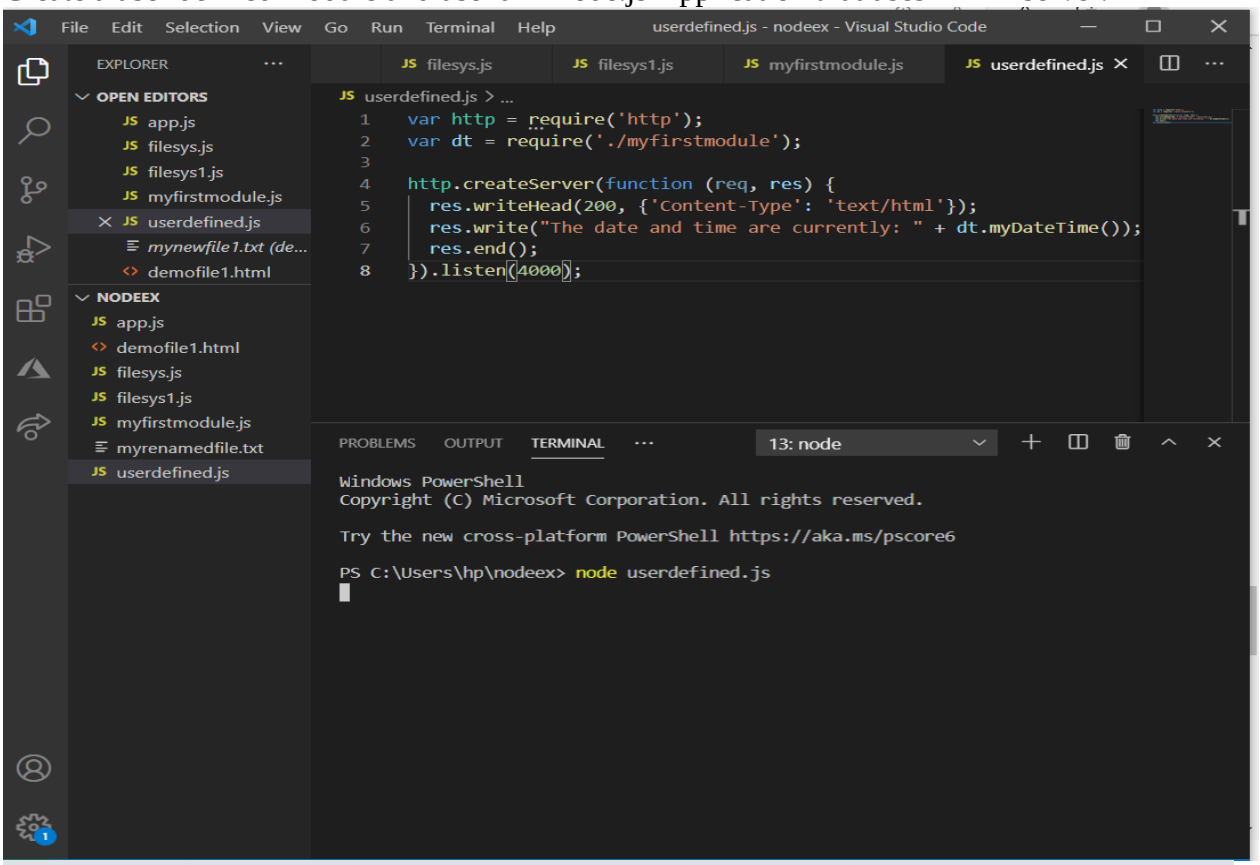


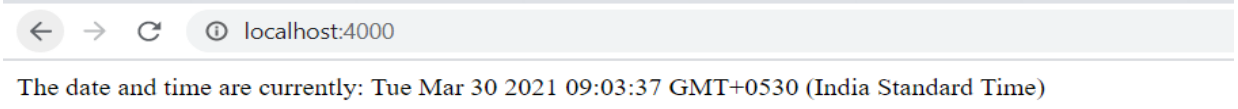

File Edit Selection View Go Run Terminal Help
email.js - nodeex - Visual Studio Code
EXPLORER
OPEN EDITORS
app.js
filesys.js
filesys1.js
myfirstmodule.js
userdefined.js
email.js
postinstall.js node_...
demofile1.html
NODEEX
lib
.prettierrc.js
CHANGELOG.md
CODE_OF_CONDUC...
CONTRIBUTING.md
LICENSE
package.json
postinstall.js
README.md
nodejs-email
app.js
demofile1.html
email.js
filesys.js
filesys1.js
myfirstmodule.js
myrenamedfile.txt
package-lock.json
package.json
userdefined.js
myfirstmodule.js
userdefined.js
email.js
postinstall.js
email.js > ...
});
var mailOptions = {
from: 'shindep9294@gmail.com',
to: 'pooja.shinde@walchandsangli.ac.in',
subject: 'Sending Email using Node.js',
text: 'That was easy!'
};
Complexity is 3 Everything is cool!
transporter.sendMail(mailOptions, function(error, info){
if (error) {
console.log(error);
} else {
console.log('Email sent: ' + info.response);
}
});
PROBLEMS
OUTPUT
TERMINAL
20: node
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
Try the new cross-platform PowerShell https://aka.ms/pscore6
PS C:\Users\hp\nodeex> node email.js
Email sent: 250 2.0.0 OK 1617079709 c11sm8213663pgk.83 - gsmtp
PS C:\Users\hp\nodeex>


Reply
Reply all
Forward
Archive
Sending Email using Node.js
S
shindep9294@gmail.com <shindep9294@gmail.com>
10:18
To: pooja.shinde@walchandsangli.ac.in
That was easy!

Problem Statement 2:

1. Create a user defined module and use it in Node.js Application that uses HTTP server.





The date and time are currently: Tue Mar 30 2021 09:03:37 GMT+0530 (India Standard Time)

TY CSE Advanced Web and Mobile Application Development Lab (4CS381) (2020-21)