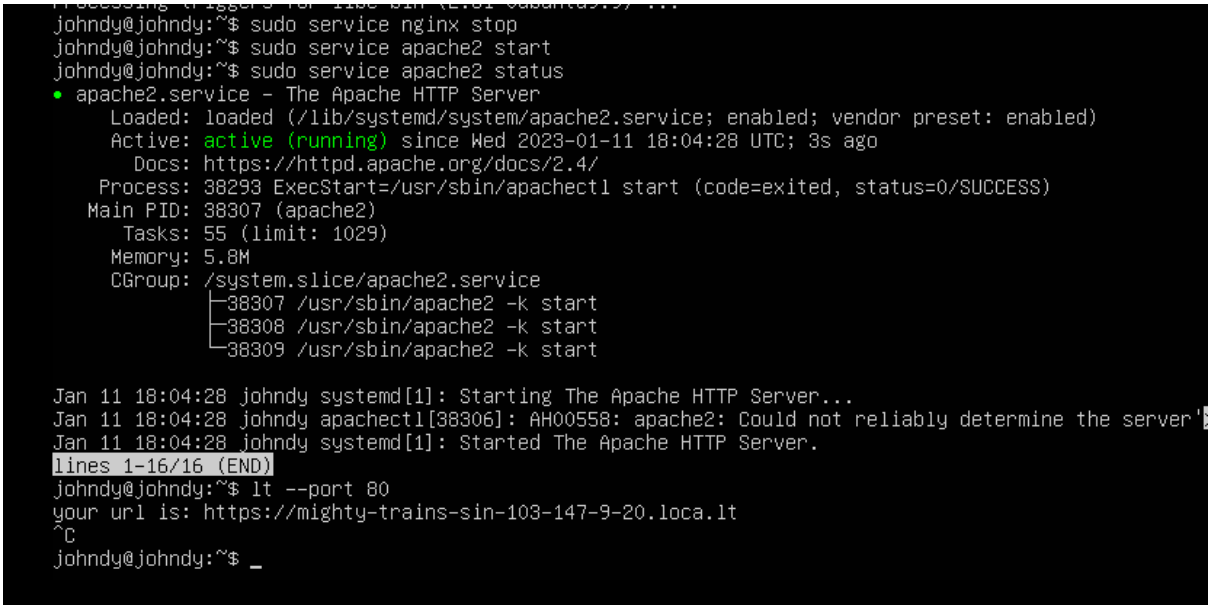
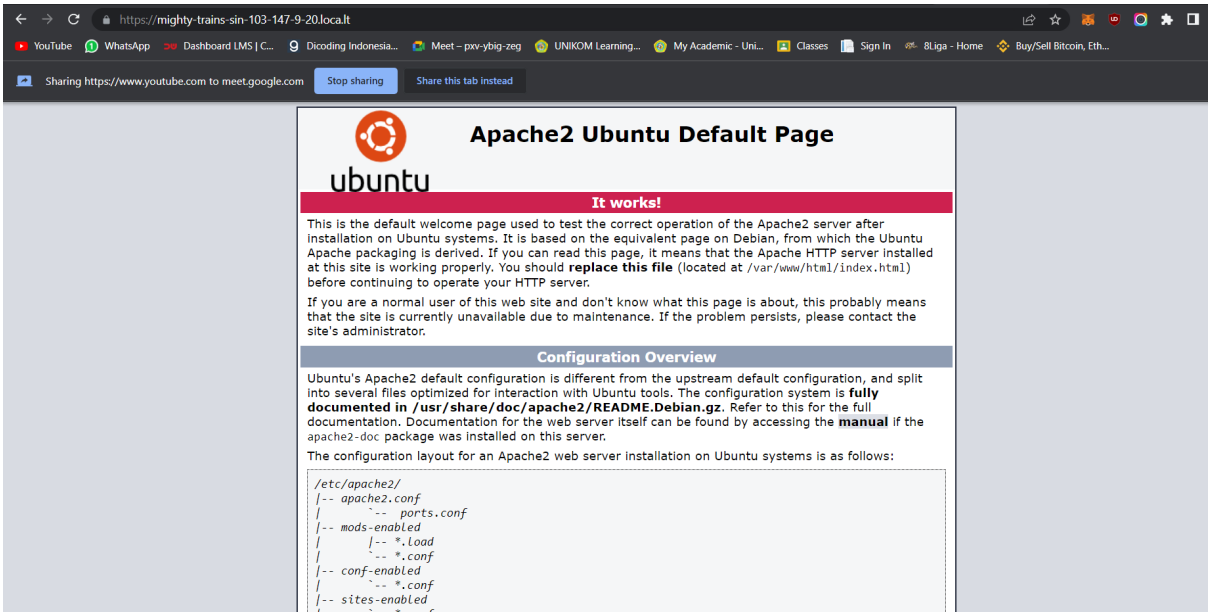
1. Menjalankan aplikasi Webserver (nginx/apache2)
2. Menjalankan 3 aplikasi "hello world" menggunakan nodejs, golang dan python
3. Gunakan localtunnel untuk menjalankan "Hello world!" nodejs

Challenge :
Jalankan "Hello world" di python3 melalui port 5000 (gunakan flask), lalu akses dengan localtunnel
Gunakan PM2

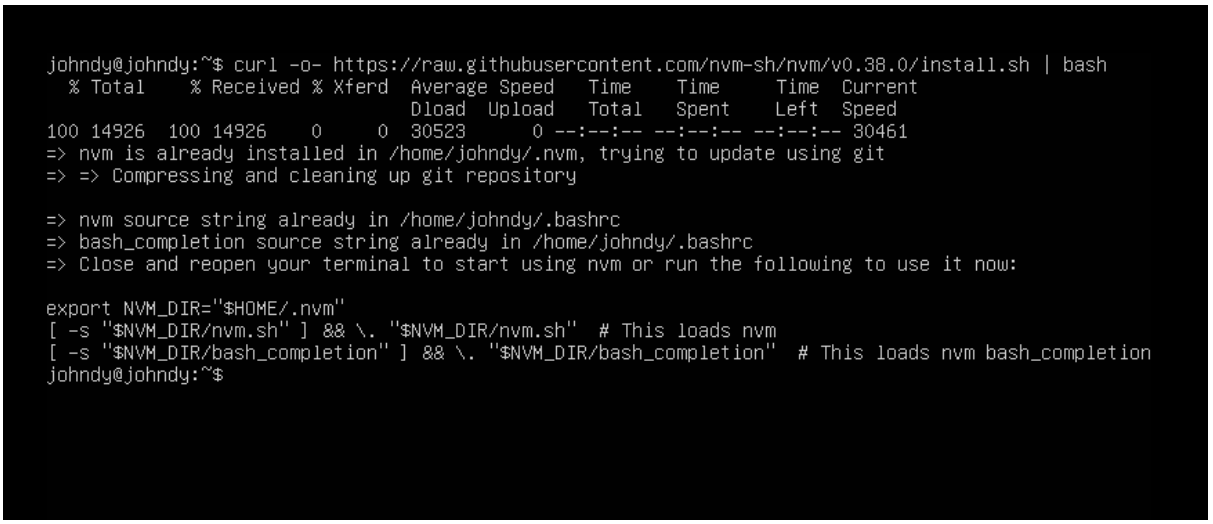
1. Pertama saya akan menginstall apache2 terlebih dahulu, setelah apache2 terinstall kita bisa mengaktifkannya di localtunnel tetapi kita harus mematikan dulu server nginx
Jika sudah maka hasilnya akan seperti ini



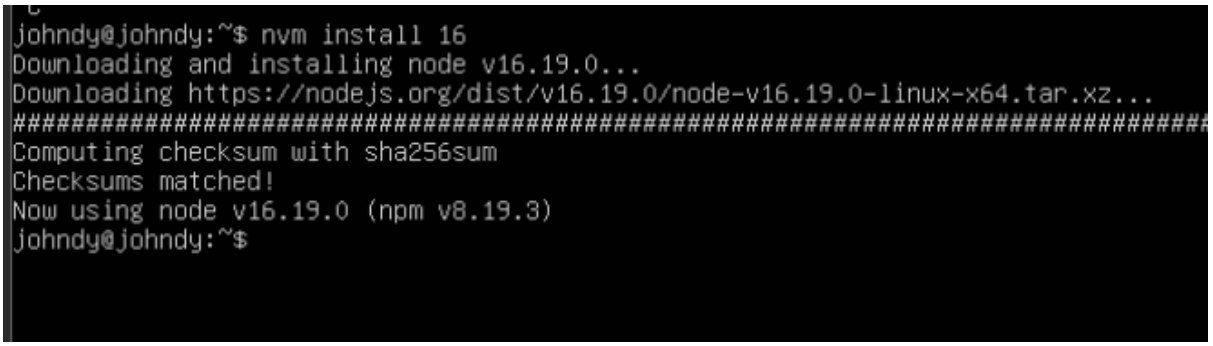


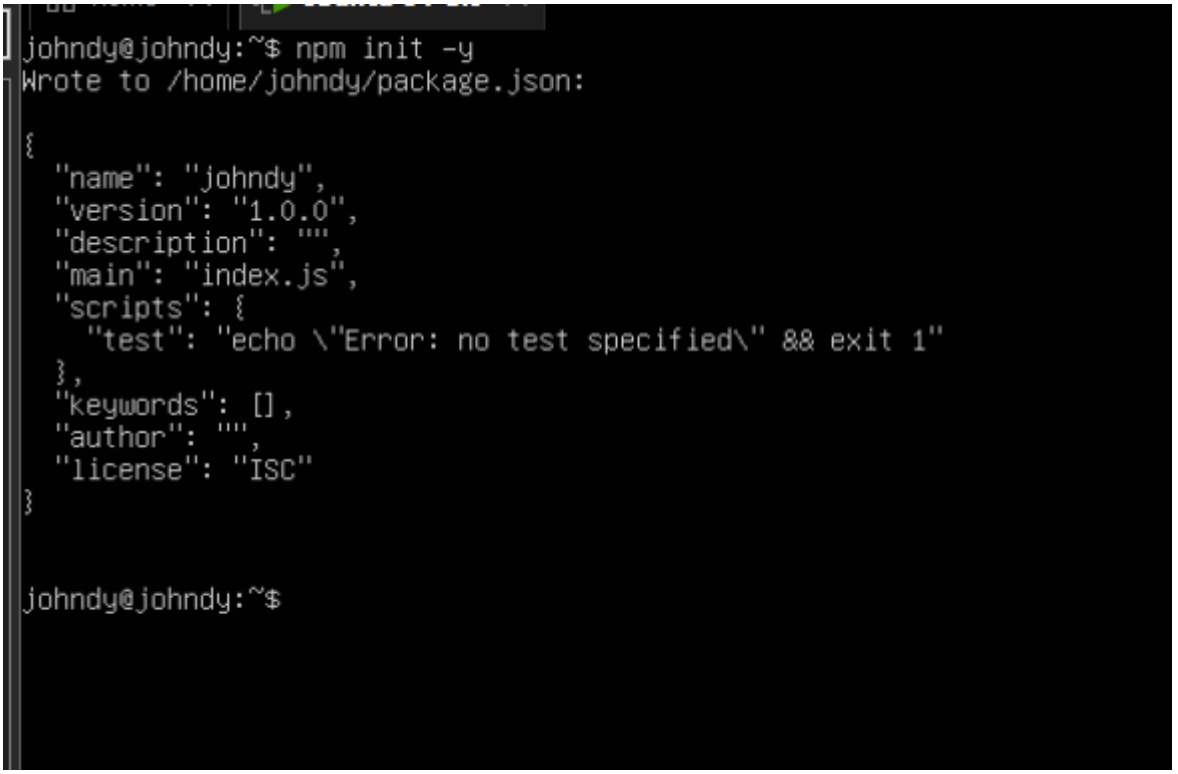
Server apache2 sudah berhasil di run di local tunnel

2. Node.js
   Pertama kita harus menginstall node.js terlebih dahulu



Disini saya sudah pernah menginstall nvm jadi selanjutnya saya akan menginstall node,js version 16





Lalu jalankan command npm init -y untuk menginisiasi projek

```
johndy@johndy:~$ npm install express --save

added 57 packages, and audited 58 packages in 2s

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

6 low severity vulnerabilities

To address all issues, run:
  npm audit fix

Run `npm audit` for details.
npm notice
npm notice New major version of npm available! 8.19.3 -> 9.2.0
npm notice Changelog: https://github.com/npm/cli/releases/tag/v9.2.0
npm notice Run npm install -g npm@9.2.0 to update!
npm notice
johndy@johndy:~$
```

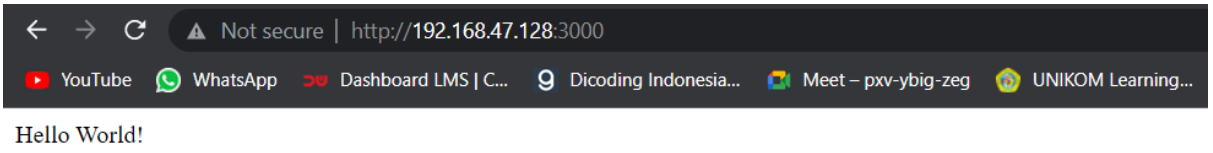
Lalu jalankan command npm install express –save
Lalu buat file index.js dengan command
Nano index.js
Dan tambahkan script didalamnya

```
  GNU nano 4.8                          index.js
const express = require("express");
const app = express();
const port = 3000;

app.get("/", (req, res) => {
  res.send("Hello World!");
});

app.listen(port, () => {
  console.log(`Example app listening on port ${port}`);
});
```

Lalu run command index.js untuk menjalankan aplikasi

```
johndy@johndy:~/nodejs$ node index.js
Example app listening on port 3000
```

Karena saya menggunakan virtual machine saya tidak bisa langsung mengaksesnya melalui localhost melainkan melalui ip vm saya jadi hasilnya menjadi seperti ini



GOLANG

```
johndy@johndy:~/app$ wget https://golang.org/dl/go1.16.5.linux-amd64.tar.gz
&& sudo su
--2023-01-11 19:48:05--  https://golang.org/dl/go1.16.5.linux-amd64.tar.gz
Resolving golang.org (golang.org)...
```

Lalu kita masukan path go pada .bashrc

```
  GNU nano 4.8                          .bashrc
export PATH=$PATH:/usr/local/go/bin
```

Untuk golang pertama kita harus menginstalnya terlebih dahulu

```
johndy@johndy:~/app$ mkdir golang
johndy@johndy:~/app$ mv go1.16.5.linux-amd64.tar.gz golang
johndy@johndy:~/app$ ls
golang  index.js  package.json
johndy@johndy:~/app$ cd golang
johndy@johndy:~/app/golang$ export PATH=$PATH:/usr/local/go/bin
johndy@johndy:~/app/golang$ go version
go version go1.16.5 linux/amd64
johndy@johndy:~/app/golang$
johndy@johndy:~/app/golang$ nano index.go
johndy@johndy:~/app/golang$ go run index.go
Hello World!
```

Lalu buatlah sebuah direktori untuk menyimpan file testing kita
Lalu run command nano index.go
Didalam index go masukan script ini

```
package main

import "fmt"

func main() {
   fmt.Println("Hello World!")
}
```

```
  GNU nano 4.8                                  index.go
package main

import "fmt"

func main() {
    fmt.Println("Hello World!")
}
```

Lalu save dan coba run aplikasi dengan command

go run index.go

Dan build aplikasi dengan command

Go build index.go

Aplikasi yang telah dibuild bisa dirun dengan command

./index

PYTHON
Pertama kita akan menginstall python3 dahulu, biasanya python3 secara default terinstall di ubuntu dan dapat kita check dahulu dengan command

Python3 -v

```
johndy@johndy:~$ python3 -V
Python 3.8.10
johndy@johndy:~$
```

Dapat dilihat python sudah ada di sistem kita
Selanjutnya kita akan menginstall package manager python3 dengan command

sudo apt install python3-pip

```
johndy@johndy:~$ sudo apt install python3-pip
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential cpp
  cpp-9 dpkg-dev fakeroot g++ g++-9 gcc gcc-9 gcc-9-base
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl
  libasan5 libatomic1 libbinutils libc-dev-bin libc6-dev libcc1-0
  libcrypt-dev libctf-nobfd0 libctf0 libdpkg-perl libexpat1-dev
  libfakeroot libfile-fcntllock-perl libgcc-9-dev libgomp1 libisl22
  libitm1 liblsan0 libmpc3 libpython3-dev libpython3.8-dev libquadmath0
  libstdc++-9-dev libtsan0 libubsan1 linux-libc-dev make manpages-dev
  python-pip-whl python3-dev python3-wheel python3.8-dev zlib1g-dev
Suggested packages:
  binutils-doc cpp-doc gcc-9-locales debian-keyring g++-multilib
  g++-9-multilib gcc-9-doc gcc-multilib autoconf automake libtool flex
  bison gdb gcc-doc gcc-9-multilib glibc-doc bzr libstdc++-9-doc make-doc
The following NEW packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential cpp
  cpp-9 dpkg-dev fakeroot g++ g++-9 gcc gcc-9 gcc-9-base
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl
  libasan5 libatomic1 libbinutils libc-dev-bin libc6-dev libcc1-0
  libcrypt-dev libctf-nobfd0 libctf0 libdpkg-perl libexpat1-dev
  libfakeroot libfile-fcntllock-perl libgcc-9-dev libgomp1 libisl22
  libitm1 liblsan0 libmpc3 libpython3-dev libpython3.8-dev libquadmath0
  libstdc++-9-dev libtsan0 libubsan1 linux-libc-dev make manpages-dev
  python-pip-whl python3-dev python3-pip python3-wheel python3.8-dev
  zlib1g-dev
0 upgraded, 50 newly installed, 0 to remove and 0 not upgraded.
```

Setelah command ini selesai dirun lanjutkan dengan command

Pip install flask

```
johndy@johndy:~$ pip install flask
Collecting flask
  Downloading Flask-2.2.2-py3-none-any.whl (101 kB)
     |████████████████████████████████| 101 kB 4.4 MB/s
Collecting click>=8.0
  Downloading click-8.1.3-py3-none-any.whl (96 kB)
     |████████████████████████████████| 96 kB 9.9 MB/s
Collecting Werkzeug>=2.2.2
  Downloading Werkzeug-2.2.2-py3-none-any.whl (232 kB)
     |████████████████████████████████| 232 kB 14.7 MB/s
Collecting Jinja2>=3.0
  Downloading Jinja2-3.1.2-py3-none-any.whl (133 kB)
     |████████████████████████████████| 133 kB 12.9 MB/s
Collecting importlib-metadata>=3.6.0; python_version < "3.10"
  Downloading importlib_metadata-6.0.0-py3-none-any.whl (21 kB)
Collecting itsdangerous>=2.0
  Downloading itsdangerous-2.1.2-py3-none-any.whl (15 kB)
Collecting MarkupSafe>=2.1.1
```

Dan python3 pun siap digunakan kita coba dengan membuat sebuah app sederhana

Pertama buat direktori untuk testing

```
johndy@johndy:~/app$ mkdir python3
johndy@johndy:~/app$ cd python3/
```

Lalu buat file dengan nama index .py dan masukan script ini

```
from flask import Flask
app = Flask(__name__)
@app.route("/")
def helloworld():
    return "Hello World"
if __name__ == "__main__":
    app.run()
```

```
johndy@johndy:~/app/python3$ nano index.py
```

```
  GNU nano 4.8
from flask import Flask
app = Flask(__name__)
@app.route("/")
def helloworld():
    return "Hello World"
if __name__ == "__main__":
    app.run()
```

Setelah itu run command

python3 index.js

```
johndy@johndy:~/app/python3$ python3 index.py
 * Serving Flask app 'index'
 * Debug mode: off
WARNING: This is a development server. Do not use it in a production deploym
ent. Use a production WSGI server instead.
 * Running on http://127.0.0.1:5000
Press CTRL+C to quit
127.0.0.1 - - [12/Jan/2023 02:53:36] "GET / HTTP/1.1" 200 -
```

Untuk di python3 kita tidak bisa membukanya di browser secara langsung, untuk melihat hasil kita buka terminal baru dan curl alamat ip yang diberikan oleh sistem disini alamat yang diberikan adalah 127.0.0.1:5000

```
johndy@johndy:~$ curl 127.0.0.1:5000
Hello Worldjohndy@johndy:~$
```

Jika muncul hello world maka python3 kita sudah berjalan

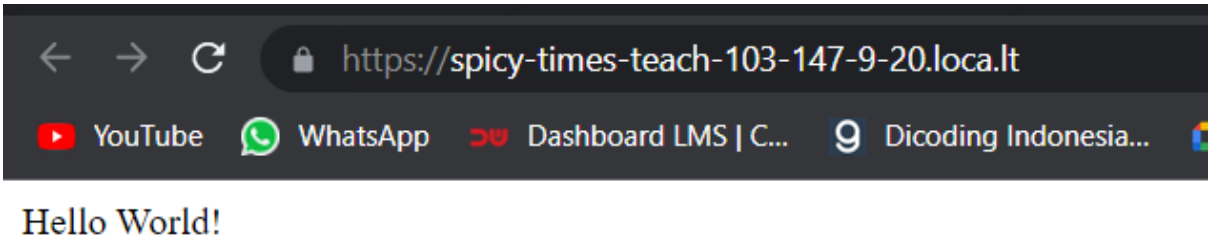
3. Untuk localtunnel pertama kita harus run aplikasi node js kita terlebih dahulu

```
johndy@johndy:~/nodejs$ node index.js
Example app listening on port 3000
```

Setelah di run, buka terminal baru dan masukan command
Lt –port 3000

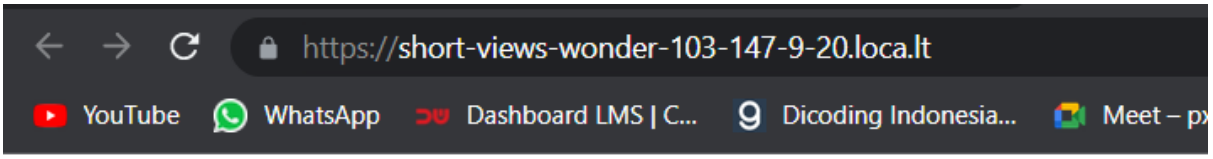
```
johndy@johndy:~$ lt --port 3000
your url is: https://spicy-times-teach-103-147-9-20.loca.lt
```

Sekarang kita bisa mengakses aplikasi kita melalui localtunnel



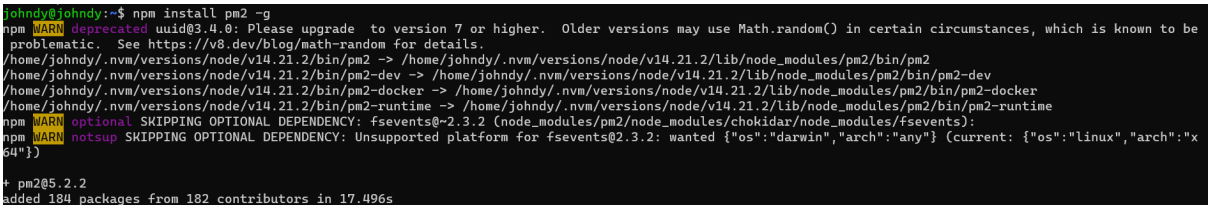
Challenge

Python3 dijalankan melalui local tunnel



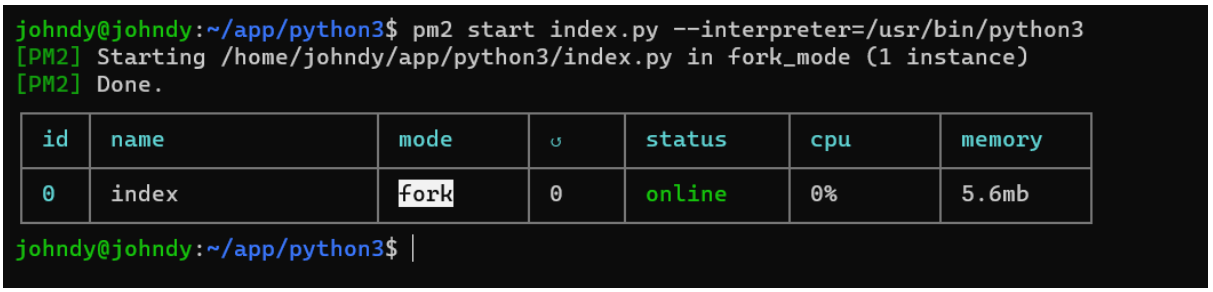
Hello World

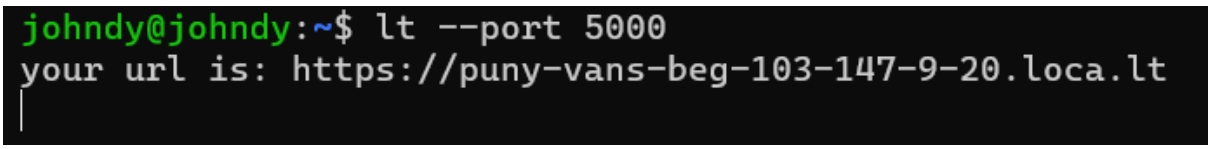
Pm2



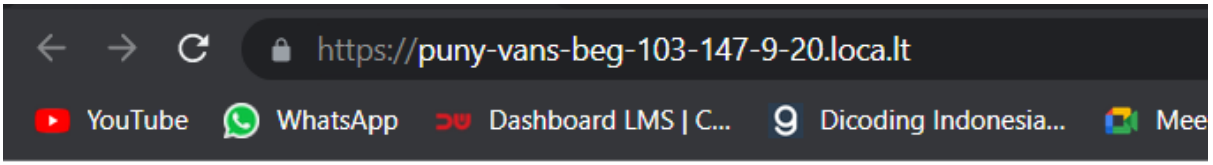
Pertama kita install dulu pm2 nya
Lalu kita run aplikasi python dengan pm2 menggunakan command

pm2 start index.py --interpreter=/usr/bin/python3





Lalu jalankan locatunnel dengan port 5000



Hello World

Aplikasi python pun berhasil dijalankan dengan pm2