

## Laporan Praktikum Teknologi Cloud Computing - Minggu 3

# Platform as A Service



Oleh :

Nama : Jauhari Ahmad  
No. Mhs : 205411167  
Jurusan : Teknik Informatika / S1

SEKOLAH TINGGI MANAJEMEN INFORMATIKA DAN KOMPUTER  
AKAKOM  
YOGYAKARTA  
2020

## **PENDAHULUAN**

### **A. TUJUAN**

1. Mahasiswa memahami pengertian PaaS
2. Mahasiswa mampu menggunakan PaaS dari Heroku untuk mendeploy aplikasi

### **B. DASAR TEORI**


1. [https://en.wikipedia.org/wiki/Platform\\_as\\_a\\_service](https://en.wikipedia.org/wiki/Platform_as_a_service)
2. <https://azure.microsoft.com/en-us/overview/what-is-paas/>
3. <https://www.ibm.com/cloud/learn/paas>
4. <https://devcenter.heroku.com/categories/reference>

PEMBAHASAN


A. Latihan

1. Sign up ke Heroku


https://signup.heroku.com/

 **Free account**

Create apps, connect databases and add-on services, and collaborate on your apps, for free.

 **Your app platform**

A platform for apps, with app management & instant scaling, for development and production.

 **Deploy now**

Go from code to running app in minutes. Deploy, scale, and deliver your app to the world.

First name \*

Jauhari

Last name \*

Ahmad

Email address \*

jauhmad@yahoo.com

Company name

STMIK AKAKOM

Role \*


Student


Country \*

Indonesia

Primary development language \*

PHP

 I'm not a robot

 reCAPTCHA  
Privacy - Terms


CREATE FREE ACCOUNT

Signing up signifies that you have read and agree to the [Terms of Service](#) and our [Privacy Policy](#).

2. Membuat aplikasi baru melalui dashboard


Personal

New

 **Welcome to Heroku**


Now that your account has been set up, here's how to get started.

Dismiss

 **Create a new app**

Create your first app and deploy your code to a running dyno.

Create new app


 **Create a team**


Create teams to collaborate on your apps and pipelines.


Create a team


Looking for help getting started with your language?


Get started by reading one of our language guides in the Dev Center


 Node.js


 Ruby


 Java

 PHP

 Python

 Go

 Scala

 Clojure

Create New App

App name

latihan-paas-jauhari

latihan-paas-jauhari is available

Choose a region

United States

Add to pipeline...

Create app

Personal > latihan-paas-jauhari

Open app

More

OverviewResourcesDeployMetricsActivityAccessSettings

Add this app to a pipeline

Create a new pipeline or choose an existing one and add this app to a stage in it.

Add this app to a stage in a pipeline to enable additional features

Pipelines let you connect multiple apps together and promote code between them.

Learn more

Pipelines connected to GitHub can enable review apps, and create apps for new pull requests.

Learn more

Choose a pipeline

Deployment method

Heroku Git

Use Heroku CLI

GitHub

Connect to GitHub

Container Registry

Use Heroku CLI

Deploy using Heroku Git

Use git in the command line or a GUI tool to deploy this app.

Install the Heroku CLI

Download and install the Heroku CLI

If you haven't already, log in to your Heroku account and follow the prompts to create a new SSH public key.

\$ heroku login

Create a new Git repository

Initialize a git repository in a new or existing directory

\$ cd my-project/  
\$ git init  
\$ heroku git:remote -a latihan-paas-jauhari

Deploy your application

Commit your code to the repository and deploy it to Heroku using Git.

3. Install Python dan PostgreSQL

Python 3.8.5 (32-bit) Setup

python for windows

Install Python 3.8.5 (32-bit)

Select Install Now to install Python with default settings, or choose Customize to enable or disable features.

Install Now

C:\Users\ap\AppData\Local\Programs\Python\Python38-32

Includes IDLE, pip and documentation

Creates shortcuts and file associations

Customize installation

Choose location and features

☒ Install launcher for all users (recommended)

☐ Add Python 3.8 to PATH

Cancel



4. Getting Started on Heroku with Python

a. Setup

Install the Heroku Command Line Interface (CLI)

Set up

**i** The Heroku CLI requires Git, the popular version control system. If you don't already have Git installed, complete the following before proceeding:

- [Git installation](#)
- [First-time Git setup](#)

In this step you'll install the Heroku Command Line Interface (CLI). You use the CLI to manage and scale your applications, provision add-ons, view your application logs, and run your application locally.

Download and run the installer for your platform:

**🍏 macOS**

[Download the installer](#)

Also available via Homebrew:

```
$ brew install heroku/brew/heroku
```

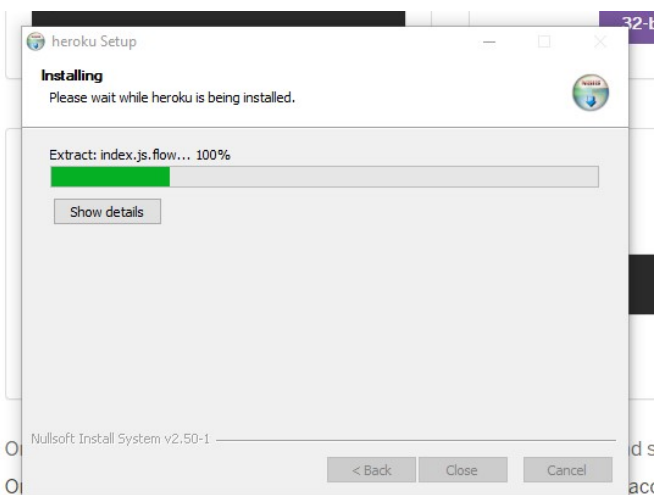
**🪟 Windows**

Download the appropriate installer for your Windows installation:

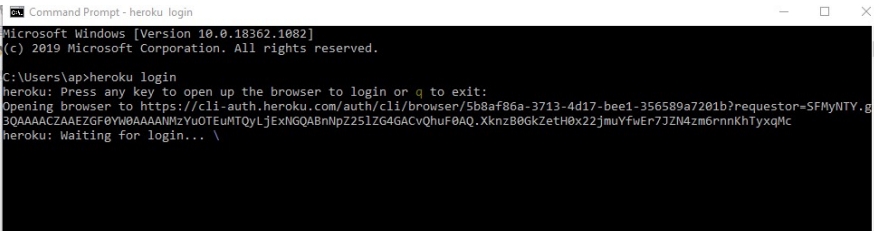
[64-bit installer](#)

[32-bit installer](#)

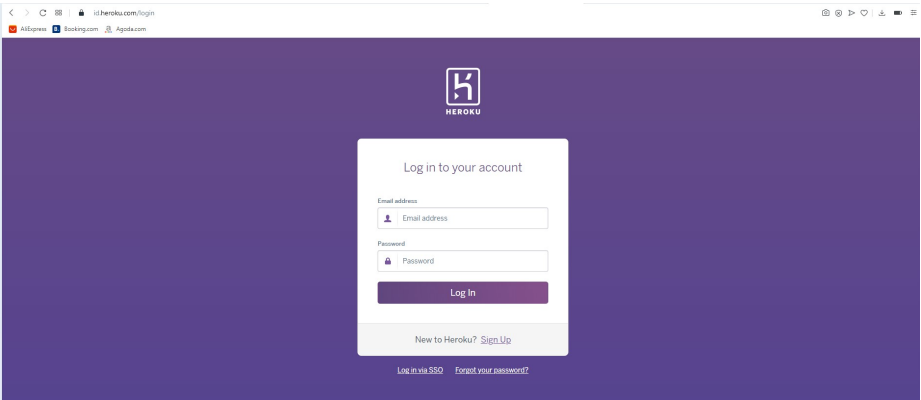
Proses Instalasi



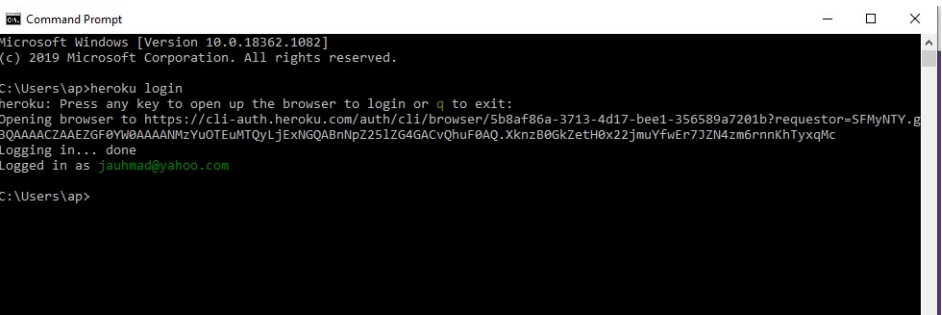
## Command Shell Heroku login



Perintah tersebut akan membuka browser yang akan digunakan untuk login melalui web app

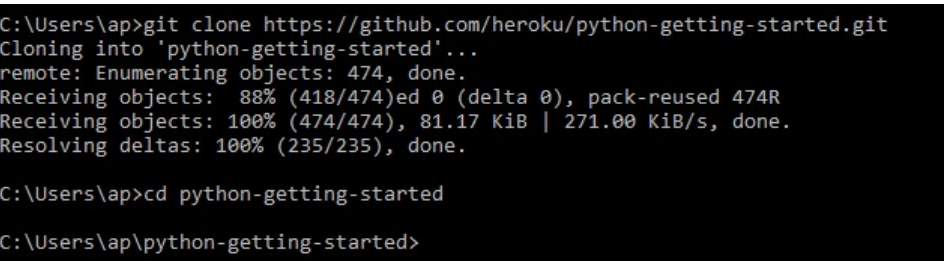


Setelah login melalui web berhasil, maka status pada command shell sudah berhasil login



### b. Menyiapkan Aplikasi

#### Git clone Python



c. Deploy aplikasi

Membuat app pada Heroku, untuk menerima kode sumber

```
C:\Users\ap\python-getting-started>heroku create
Creating app... done, ⬢ young-crag-67838
https://young-crag-67838.herokuapp.com/ | https://git.heroku.com/young-crag-67838.git
```

Deploy kode

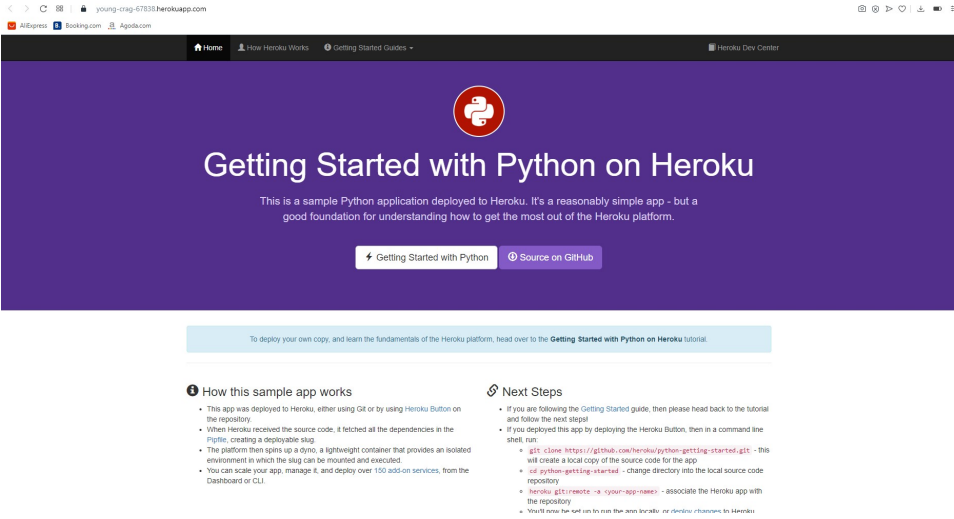
```
C:\Users\ap\python-getting-started>git push heroku main
Enumerating objects: 469, done.
Counting objects: 100% (469/469), done.
Delta compression using up to 4 threads.
Compressing objects: 100% (268/268), done.
Writing objects: 100% (469/469), 80.39 KiB | 13.40 MiB/s, done.
Total 469 (delta 232), reused 469 (delta 232), pack-reused 0
remote: Compressing source files... done.
remote: Building source:
remote:
remote: ----> Python app detected
remote: !     Python has released a security update! Please consider upgrading to python-3.7.9
remote:   Learn More: https://devcenter.heroku.com/articles/python-runtime
remote: ----> Installing python-3.7.8
remote: ----> Installing pip 20.1.1, setuptools 47.1.1 and wheel 0.34.2
remote: ----> Installing setuptools
remote: ----> Installing requirements with pip
remote:   Collecting django
remote:     Downloading Django-3.1.1-py3-none-any.whl (7.8 MB)
remote:   Collecting gunicorn
remote:     Downloading gunicorn-20.0.4-py2.py3-none-any.whl (77 kB)
remote:   Collecting django-heroku
remote:     Downloading django-heroku-0.3.1-py2.py3-none-any.whl (6.2 kB)
remote:   Collecting sqlparse>=0.2.2
remote:     Downloading sqlparse-0.3.1-py2.py3-none-any.whl (40 kB)
remote:   Collecting pytz
remote:     Downloading pytz-2020.1-py2.py3-none-any.whl (510 kB)
remote:   Collecting asgiref<3.2.10
remote:     Downloading asgiref-3.2.10-py3-none-any.whl (19 kB)
remote:   Collecting psycopg2
remote:     Downloading psycopg2-2.8.6.tar.gz (383 kB)
remote:   Collecting whitenoise
remote:     Downloading whitenoise-5.2.0-py2.py3-none-any.whl (19 kB)
remote:   Collecting dj-database-url>=0.5.0
remote:     Downloading dj-database-url-0.5.0-py2.py3-none-any.whl (5.5 kB)
remote:   Building wheels for collected packages: psycopg2
remote:   Building wheel for psycopg2 (setup.py): started
remote:   Building wheel for psycopg2 (setup.py): finished with status 'done'
remote:   Created wheel for psycopg2: filename=psycopg2-2.8.6-cp37-cp37m-linux_x86_64.whl size=455968 sha256=178676888a7be7527facb1e1112d3cf200551c441c7b80194b9876448d1ccad
remote:   Stored in directory: /tmp/pip-ephem-wheel-cache-6llr1u25/wheels/25/72/75/6cd32172c1fb42143cd439392be07680a1934a8b6e61c0261
remote:   Successfully built psycopg2
remote:   Installing collected packages: sqlparse, pytz, asgiref, django, gunicorn, psycopg2, whitenoise, dj-database-url, django-heroku
remote:   Successfully installed asgiref-3.2.10 dj-database-url-0.5.0 django-3.1.1 django-heroku-0.3.1 gunicorn-20.0.4 psycopg2-2.8.6 pytz-2020.1 sqlparse-0.3.1 whitenoise-5.2.0
remote:   133 static files copied to '/tmp/build_b1b81adf/staticfiles', 419 post-processed.
remote:
remote: ----> Discovering process types
remote:   Profile declares types -> web
remote:
remote: ----> Compressing...
remote:   Done: 56.0M
remote: ----> Launching...
remote:   Released v5
remote:   https://young-crag-67838.herokuapp.com/ deployed to Heroku
remote:
remote: Verifying deploy... done.
To https://git.heroku.com/young-crag-67838.git
 * [new branch]    main -> main
C:\Users\ap\python-getting-started
```

Aplikasi sudah terpasang, untuk memastikan aplikasi sudah jalan:

```
C:\Users\ap>heroku ps:scale web=1 --app young-crag-67838
Scaling dynos... done, now running web at 1:Free
```

Membuka web app

```
C:\Users\ap>heroku open --app young-crag-67838
```



d. Lihat Logs

```
C:\Users\ap\heroku logs --tail --app young-crag-67838
2020-10-01T00:28:53.143Z+00:00 app[api]: Release created by user 'jauhmad@yahoo.com'
2020-10-01T00:28:53.143Z+00:00 app[api]: Initial release by user 'jauhmad@yahoo.com'
2020-10-01T00:28:53.143Z+00:00 app[api]: Release created by user 'jauhmad@yahoo.com'
2020-10-01T00:28:53.143Z+00:00 app[api]: Enable logging by user 'jauhmad@yahoo.com'
2020-10-01T00:28:54.000Z+00:00 app[api]: Build started by user 'jauhmad@yahoo.com'
2020-10-01T00:31:27.738Z+00:00 app[api]: Attach DATABASE (pre:postgresql-cubed-45959) by user 'jauhmad@yahoo.com'
2020-10-01T00:31:27.738Z+00:00 app[api]: Running release id commands by user 'jauhmad@yahoo.com'
2020-10-01T00:31:27.742Z+00:00 app[api]: pre:postgresql-cubed-45959 completed provisioning, setting DATABASE_URL by user 'jauhmad@yahoo.com'
2020-10-01T00:31:28.03844Z+00:00 app[api]: Release created by user 'jauhmad@yahoo.com'
2020-10-01T00:31:28.03844Z+00:00 app[api]: Deploy 1361fba by user 'jauhmad@yahoo.com'
2020-10-01T00:31:28.03844Z+00:00 app[api]: Release created by user 'jauhmad@yahoo.com'
2020-10-01T00:31:28.03844Z+00:00 app[api]: Scaled to web:1 free by user 'jauhmad@yahoo.com'
2020-10-01T00:31:28.03844Z+00:00 app[web.1]: Starting process with command 'gunicorn gettingstarted.wsgi --log-file -'
2020-10-01T00:31:34.2558Z+00:00 app[web.1]: [2020-10-01 00:31:34 +0000] [4] [INFO] Starting gunicorn 20.0.4
2020-10-01T00:31:34.2572Z+00:00 app[web.1]: [2020-10-01 00:31:34 +0000] [4] [INFO] Listening at: http://0.0.0.0:51700 (4)
2020-10-01T00:31:34.2572Z+00:00 app[web.1]: [2020-10-01 00:31:34 +0000] [4] [INFO] Using worker: sync
2020-10-01T00:31:34.26124Z+00:00 app[web.1]: [2020-10-01 00:31:34 +0000] [9] [INFO] Booting worker with pid: 10
2020-10-01T00:31:34.26124Z+00:00 app[web.1]: [2020-10-01 00:31:34 +0000] [11] [INFO] Booting worker with pid: 11
2020-10-01T00:31:34.26124Z+00:00 app[web.1]: State changed from starting to up
2020-10-01T00:31:38.00000Z+00:00 app[api]: Build succeeded
2020-10-01T00:31:38.00000Z+00:00 app[web.1]: 10.111.188.15 - - [01/Oct/2020:00:44:49 +0000] "GET / HTTP/1.1" 200 7422 "-" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/84.0.4147.135 Safari/537.36"
2020-10-01T00:31:38.00000Z+00:00 heroku[router]: at=info method=GET path="/ HTTP/1.1" src=host-young-crag-67838.herokuapp.com request_id=c6765ab-3cc-480b-93f3-d9c30f40070 fwd="36.91.142.114" dyno=web.1 connect=ms service=3ms status=200 bytes=7671 protocol=https
2020-10-01T00:44:09.00000Z+00:00 app[web.1]: 10.111.188.15 - - [01/Oct/2020:00:44:50 +0000] "GET /static/js/jquery.js HTTP/1.1" 200 0 "https://young-crag-67838.herokuapp.com/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/84.0.4147.135 Safari/537.36"
2020-10-01T00:44:09.00000Z+00:00 heroku[router]: at=info method=GET path="/static/js/jquery.js" src=host-young-crag-67838.herokuapp.com request_id=3809990b-445c-4f3b-ba0b-b085b757a00 fwd="36.91.142.114" dyno=web.1 connect=ms service=ms status=200 bytes=2498 protocol=https
2020-10-01T00:44:09.00000Z+00:00 app[web.1]: Not Found: /favicon.ico
2020-10-01T00:44:09.00000Z+00:00 app[web.1]: 10.111.188.15 - - [01/Oct/2020:00:44:50 +0000] "GET /favicon.ico HTTP/1.1" 404 2225 "https://young-crag-67838.herokuapp.com/" "Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/84.0.4147.135 Safari/537.36"
2020-10-01T00:44:09.00000Z+00:00 heroku[router]: at=info method=GET path="/favicon.ico" src=host-young-crag-67838.herokuapp.com request_id=d778d1c1-fb69-4680-8ceb-2f1c76cb328 fwd="36.91.142.114" dyno=web.1 connect=ms service=2ms status=404 bytes=1465 protocol=https
```

e. Mendefinisikan Procfile

f. Scale App

```
C:\Users\ap>heroku ps --app young-crag-67838
Free dyno hours quota remaining this month: 550h 0m (100%)
Free dyno usage for this app: 0h 0m (0%)
For more information on dyno sleeping and how to upgrade, see:
https://devcenter.heroku.com/articles/dyno-sleeping

=== web (Free): gunicorn gettingstarted.wsgi --log-file - (1)
web.1: up 2020/10/01 07:31:34 +0700 (~ 25m ago)
```

```
C:\Users\ap>heroku ps:scale web=0 --app young-crag-67838
Scaling dynos... done, now running web at 0:Free

C:\Users\ap>heroku ps:scale web=1 --app young-crag-67838
Scaling dynos... done, now running web at 1:Free
```

g. Deklarasi dependensi

h. Menjalankan aplikasi lokal

```
C:\Users\ap>python manage.py collectstatic
```



## B. Tugas

# Getting Started on Heroku with PHP

### 1. Cek versi PHP

```
C:\Users\ap>php -v
PHP 7.3.9 (cli) (built: Aug 28 2019 09:28:48) ( ZTS MSVC15 (Visual C++ 2017) x64 )
Copyright (c) 1997-2018 The PHP Group
Zend Engine v3.3.9, Copyright (c) 1998-2018 Zend Technologies
```

### 2. Cek composer sudah terinstall

```
C:\Users\ap>composer -V
Composer version 1.10.13 2020-09-09 11:46:34
```

### 3. Cek Git sudah terinstall

```
C:\Users\ap>git --version
git version 2.26.2.windows.1
```

### 4. Mempersiapkan app

Git clone PHP

```
C:\Users\ap>git clone https://github.com/heroku/php-getting-started.git
Cloning into 'php-getting-started'...
remote: Enumerating objects: 198, done.
       ts:   71% (141/198)
Receiving objects: 100% (198/198), 53.55 KiB | 219.00 KiB/s, done.
Resolving deltas: 100% (87/87), done.

C:\Users\ap>cd php-getting-started
C:\Users\ap\php-getting-started>
```

Deploy app

```
C:\Users\ap\php-getting-started>heroku create
Creating app... done, ⬢ rocky-reef-82991
https://rocky-reef-82991.herokuapp.com/ | https://git.heroku.com/rocky-reef-82991.git
```

Deploy code

```
C:\Users\ap\php-getting-started>git push heroku main
Enumerating objects: 184, done.
Counting objects: 100% (184/184), done.
Delta compression using up to 4 threads
Compressing objects: 100% (93/93), done.
Writing objects: 100% (184/184), 47.21 KiB | 7.87 MiB/s, done.
Total 184 (delta 77), reused 184 (delta 77), pack-reused 0
remote: Compressing source files... done.
remote: Building source:
remote:
remote: -----> PHP app detected
remote: -----> Bootstrapping...
remote: -----> Installing platform packages...
remote:      NOTICE: No runtime required in composer.json; requirements
remote:      from dependencies in composer.lock will be used for selection
remote:      - php (7.4.10)
remote:      - apache (2.4.46)
remote:      - nginx (1.18.0)
remote: -----> Installing dependencies...
remote:      Composer version 1.10.13 2020-09-09 11:46:34
remote:      Loading composer repositories with package information
remote:      Installing dependencies from lock file
remote:      Package operations: 12 installs, 0 updates, 0 removals
remote:      - Installing psr/log (1.0.2): Downloading (100%)
remote:      - Installing monolog/monolog (1.22.1): Downloading (100%)
remote:      - Installing symfony/routing (v3.2.7): Downloading (100%)
remote:      - Installing symfony/polyfill-mbstring (v1.3.0): Downloading (100%)
remote:      - Installing symfony/http-foundation (v3.2.7): Downloading (100%)
remote:      - Installing symfony/event-dispatcher (v3.2.7): Downloading (100%)
remote:      - Installing symfony/debug (v3.2.7): Downloading (100%)
remote:      - Installing symfony/http-kernel (v3.2.7): Downloading (100%)
remote:      - Installing pimple/pimple (v3.0.2): Downloading (100%)
remote:      - Installing silex/silex (v2.0.4): Downloading (100%)
remote:      - Installing twig/twig (v2.3.0): Downloading (100%)
remote:      - Installing symfony/twig-bridge (v3.2.7): Downloading (100%)
remote:      Generating optimized autoload files
remote: -----> Preparing runtime environment...
remote: -----> Checking for additional extensions to install...
remote: -----> Discovering process types
remote:      Procfile declares types -> web
remote:
remote: -----> Compressing...
remote:      Done: 15M
remote: -----> Launching...
remote:      Released v3
remote:      https://rocky-reef-82991.herokuapp.com/ deployed to Heroku
remote:
remote: Verifying deploy... done.
To https://git.heroku.com/rocky-reef-82991.git
 * [new branch]      main -> main

C:\Users\ap\php-getting-started>
```

Memastikan aplikasi sudah jalan:

```
C:\Users\ap\php-getting-started>heroku ps:scale web=1 --app rocky-reef-82991
Scaling dynos... done, now running web at 1:Free
```

Membuka web app

```
C:\Users\ap\php-getting-started>heroku open
```

## 5. Lihat log

```
C:\Users\ap\php-getting-started>heroku logs --tail
2020-10-01T01:13:07.807615+00:00 app[api]: Release v1 created by user jauhmad@yahoo.com
2020-10-01T01:13:07.807615+00:00 app[api]: Initial release by user jauhmad@yahoo.com
2020-10-01T01:13:07.989407+00:00 app[api]: Enable Logplex by user jauhmad@yahoo.com
2020-10-01T01:13:07.989407+00:00 app[api]: Release v2 created by user jauhmad@yahoo.com
2020-10-01T01:17:33.000000+00:00 app[api]: Build started by user jauhmad@yahoo.com
2020-10-01T01:17:43.000000+00:00 app[api]: Build succeeded
2020-10-01T01:17:43.021970+00:00 app[api]: Deploy fe5e4554 by user jauhmad@yahoo.com
2020-10-01T01:17:43.021970+00:00 app[api]: Release v3 created by user jauhmad@yahoo.com
2020-10-01T01:17:43.039297+00:00 app[api]: Scaled to web@1:Free by user jauhmad@yahoo.com
2020-10-01T01:17:44.928328+00:00 heroku[web.1]: Starting process with command `vendor/bin/heroku-php-apache2 web/`
2020-10-01T01:17:49.448718+00:00 app[web.1]: DOCUMENT_ROOT changed to `web/`
2020-10-01T01:17:49.543310+00:00 app[web.1]: Detected 536870912 Bytes of RAM
2020-10-01T01:17:49.576285+00:00 app[web.1]: PHP memory_limit is 128M Bytes
2020-10-01T01:17:49.586090+00:00 app[web.1]: Starting php-fpm with 4 workers...
2020-10-01T01:17:49.766055+00:00 app[web.1]: Starting httpd...
2020-10-01T01:17:50.350851+00:00 heroku[web.1]: State changed from starting to up
2020-10-01T01:51:19.213833+00:00 heroku[web.1]: Idling
2020-10-01T01:51:19.215756+00:00 heroku[web.1]: State changed from up to down
2020-10-01T01:51:20.312389+00:00 heroku[web.1]: Stopping all processes with SIGTERM
2020-10-01T01:51:20.352559+00:00 app[web.1]: Stopping httpd...
2020-10-01T01:51:20.354725+00:00 app[web.1]: SIGTERM received, attempting graceful shutdown...
2020-10-01T01:51:20.354726+00:00 app[web.1]: Stopping httpd gracefully...
2020-10-01T01:51:20.354727+00:00 app[web.1]: Stopping php-fpm...
2020-10-01T01:51:20.439701+00:00 app[web.1]: Shutdown complete.
2020-10-01T01:51:20.483805+00:00 heroku[web.1]: Process exited with status 143
2020-10-01T05:54:23.829282+00:00 heroku[web.1]: Unidling
2020-10-01T05:54:23.841569+00:00 heroku[web.1]: State changed from down to starting
2020-10-01T05:54:25.811009+00:00 heroku[web.1]: Starting process with command `vendor/bin/heroku-php-apache2 web/`
2020-10-01T05:54:30.739244+00:00 app[web.1]: DOCUMENT_ROOT changed to `web/`
2020-10-01T05:54:30.852902+00:00 app[web.1]: Detected 536870912 Bytes of RAM
2020-10-01T05:54:30.919262+00:00 app[web.1]: PHP memory_limit is 128M Bytes
2020-10-01T05:54:30.933386+00:00 app[web.1]: Starting php-fpm with 4 workers
```

## 6. Definiskan Procfile

## 7. Scale the app

Mengecek dyno yang berjalan

```
C:\Users\ap\php-getting-started>heroku ps
Free dyno hours quota remaining this month: 550h 0m (100%)
Free dyno usage for this app: 0h 0m (0%)
For more information on dyno sleeping and how to upgrade, see:
https://devcenter.heroku.com/articles/dyno-sleeping

=== web (Free): vendor/bin/heroku-php-apache2 web/ (1)
web.1: up 2020/10/01 12:54:31 +0700 (~ 4m ago)
```

```
C:\Users\ap\php-getting-started>heroku ps:scale web=1
Scaling dynos... done, now running web at 1:Free
```

## 8. Deklarasi dependensi app

Update composer

```
C:\Users\ap\php-getting-started>composer update
Loading composer repositories with package information
Updating dependencies (including require-dev)
```

## 9. Push perubahan pada lokal

## KESMIPULAN

1. Java adalah persyaratan utama untuk menjalankan Hadoop pada sistem apa pun
2. Hadoop NameNode dimulai pada port default 9870
3. Akses port 9864 untuk mendapatkan detail tentang node Hadoop

