5 - Cloud & IaaS Basics - DigitalOcean

Solutions for Module "Cloud & IaaS - DigitalOcean"

You are asked to create a simple NodeJS app that lists all the projects each developer is working on. Everyone on your team wants to be able to see the list themselves and share with the project managers, so they ask you to make it available online, so everyone can access it.

Used the repository: https://gitlab.com/twn-devops-bootcamp/latest/05-cloud/cloud-basics-exercises

▶ Solution 0: Clone Git Repository

> EXERCISE 0: Clone Git Repository For that you can use my provided git repository.

- clone the git repository and
- create your own project/git repo from it

I have created my own public remote repo on Github: https://github.com/Saban39/cloud-basics-exercises.git

```
sgworker@MacBook-Pro-3.local /Users/sgworker
% git clone https://gitlab.com/twn-devops-bootcamp/latest/05-cloud/cloud-
basics-exercises
Klone nach 'cloud-basics-exercises'...
Warnung: Umleitung nach https://gitlab.com/twn-devops-bootcamp/latest/05-
cloud/cloud-basics-exercises.git/
remote: Enumerating objects: 43, done.
remote: Total 43 (delta 0), reused 0 (delta 0), pack-reused 43
Empfange Objekte: 100% (43/43), 206.07 KiB | 2.00 MiB/s, fertig.
Löse Unterschiede auf: 100% (15/15), fertig.

sgworker@MacBook-Pro-3.local /Users/sgworker
% cd cloud-basics-exercises
sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises
[master]
% rm -rf .git
sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises
% git init
Leeres Git-Repository in /Users/sgworker/cloud-basics-exercises/.git/
initialisiert


sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises
% git remote add origin https://github.com/Saban39/cloud-basics-exercises

sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises
% git add *
sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises
% git commit -m "initial commit"
[main (Root-Commit) c4f1105] initial commit
```

```
 8 files changed, 3873 insertions(+)
 create mode 100644 README.md
 create mode 100644 app/images/profile-andrea.jpg
 create mode 100644 app/images/profile-ari.jpeg
 create mode 100644 app/index.html
 create mode 100644 app/package-lock.json
 create mode 100644 app/package.json
 create mode 100644 app/server.js
 create mode 100644 app/server.test.js

sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises [main]
% git push --set-upstream origin main
Objekte aufzählen: 12, fertig.
Zähle Objekte: 100% (12/12), fertig.
Delta-Kompression verwendet bis zu 16 Threads.
Komprimiere Objekte: 100% (12/12), fertig.
Schreibe Objekte: 100% (12/12), 114.49 KiB | 19.08 MiB/s, fertig.
Gesamt 12 (Delta 0), Wiederverwendet 0 (Delta 0), Pack wiederverwendet 0
To https://github.com/Saban39/cloud-basics-exercises
 * [new branch]      main -> main
Branch 'main' folgt nun 'origin/main'.
```

▶ Solution 1: Package NodeJS App

> EXERCISE 1: Package NodeJS App To have just 1 file, you create an artifact from the Node App. So you do the following:

- Package your Node app into a tar file (npm pack)

```
sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises [main]
% cd app

sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises/app
[main]
% npm pack
npm notice
npm notice 📦   bootcamp-node-project@1.0.0
npm notice === Tarball Contents ===
npm notice 60.5kB images/profile-andrea.jpg
npm notice 17.5kB images/profile-ari.jpeg
npm notice 1.2kB  index.html
npm notice 283B   package.json
npm notice 724B   server.js
npm notice 205B   server.test.js
npm notice === Tarball Details ===
```

```
npm notice name:          bootcamp-node-project
npm notice version:       1.0.0
npm notice filename:      bootcamp-node-project-1.0.0.tgz
npm notice package size:  79.3 kB
npm notice unpacked size: 80.4 kB
npm notice shasum:        07f8d863a90ed72716d78c5859380ab6faedebcc
npm notice integrity:     sha512-zCD4psSmEc3LQ[...]Su4qDRk5M8lgA==
npm notice total files:   6
npm notice
bootcamp-node-project-1.0.0.tgz
sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises/app
[main]
```

▶ Solution 2: Create a new server

EXERCISE 2: Create a new server Your company uses DigitalOcean as Infrastructure as a Service platform, instead of having on-premise servers. So you:

- Create a new droplet server on DigitalOcean

```
sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises/app
[main]
% ssh -i /Users/sgworker/.ssh/kamdev1  root@207.154.206.195
The authenticity of host '207.154.206.195 (207.154.206.195)' can't be
established.
ED25519 key fingerprint is
SHA256:WJKqgGARdYxWFvcAhu8ScNEJeQLUFIObqYVYSTiAAjA.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '207.154.206.195' (ED25519) to the list of
known hosts.
X11 forwarding request failed on channel 0
Linux debian-s-1vcpu-512mb-10gb-fra1-01 6.1.0-9-amd64 #1 SMP
PREEMPT_DYNAMIC Debian 6.1.27-1 (2023-05-08) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
root@debian-s-1vcpu-512mb-10gb-fra1-01:~#
```

▶ Solution 3: Prepare server to run Node App

> EXERCISE 3: Prepare server to run Node App Now you have a new fresh server nothing installed on
> it. Because you want to run a NodeJS application you need to install Node and npm on it:

- Install nodejs & npm on it

```
root@debian-s-1vcpu-512mb-10gb-fra1-01:~# apt install -y nodejs npm

root@debian-s-1vcpu-512mb-10gb-fra1-01:~# npm -v
```

```
9.2.0
root@debian-s-1vcpu-512mb-10gb-fra1-01:~# nodejs -v
v18.13.0
```

▶ Solution 4: Copy App and package.json

> EXERCISE 4: Copy App and package.json Having everything prepared for the application, you finally:

- Copy your simple Nodejs app tar file and package.json to the droplet

```
sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises/app
[main]
% sftp -i root@207.154.206.195
usage: sftp [-46AaCfNpqrv] [-B buffer_size] [-b batchfile] [-c cipher]
            [-D sftp_server_path] [-F ssh_config] [-i identity_file]
            [-J destination] [-l limit] [-o ssh_option] [-P port]
            [-R num_requests] [-S program] [-s subsystem | sftp_server]
            destination
sgworker@MacBook-Pro-3.local /Users/sgworker/cloud-basics-exercises/app
[main]
% sftp  root@207.154.206.195
Connected to 207.154.206.195.
sftp> put package.json
Uploading package.json to /root/package.json
package.json
100%  283    14.0KB/s   00:00
sftp> put bootcamp-node-project-1.0.0.tgz
Uploading bootcamp-node-project-1.0.0.tgz to /root/bootcamp-node-project-
1.0.0.tgz
bootcamp-node-project-1.0.0.tgz
100%   77KB 570.7KB/s   00:00
sftp> bye


Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Mon Oct  2 19:19:23 2023 from 176.199.168.192
root@debian-s-1vcpu-512mb-10gb-fra1-01:~# npm install

added 349 packages, and audited 350 packages in 23s

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

found 0 vulnerabilities
```

▶ Solution 5: Run Node App

> EXERCISE 5: Run Node App Start the node application in detached mode (npm install and node server.js commands)

```
root@debian-s-1vcpu-512mb-10gb-fra1-01:~# tar -xvzf bootcamp-node-project-1.0.0.tgz
package/index.html
package/images/profile-ari.jpeg
package/images/profile-andrea.jpg
package/server.js
package/server.test.js
package/package.json
root@debian-s-1vcpu-512mb-10gb-fra1-01:~# cd package/
root@debian-s-1vcpu-512mb-10gb-fra1-01:~/package# nodejs server.js
app listening on port 3000!
```

▶ Solution 6: Access from browser - configure firewall

> EXERCISE 6: Access from browser - configure firewall You see that the application is not accessible through the browser, because all ports are closed on the server. So you:

- Open the correct port on Droplet
- and access the UI from browser

List of projects team is working on

Name: **Andrea Hill**

Role: **DevOps engineer**

Projects: **AWS migration, Backup Automation**

Name: **Ari Baker**

Role: **Software developer**

Projects: **Online Shop, ERP Software**