

FIAP GRADUAÇÃO

TECNOLOGIA EM DESENVOLVIMENTO DE SISTEMAS

DevOps Tools & Cloud Computing

2º Checkpoint: 1º Semestre - Docker, File e Compose

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Projeto da disciplina: Dimdim



Esteves Jobs precisa mais uma vez da sua ajuda!



Projeto da Disciplina: Dimdim

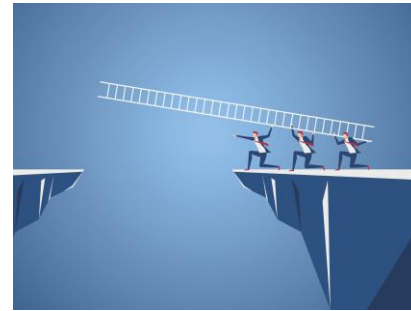
Objetivo



- 1) A fim de trazer dinamismo, rapidez e economia à Dim Dim, uma das oportunidades será modernizar o ambiente para um ambiente em containers .



Projeto da Disciplina: Dimdim



Desafio:

Atualmente já temos um ambiente virtualizado on-premises, mas seu novo desafio, **INDIVIDUAL**, será:

Utilize um projeto de sua escolha que tenha sido usado em aula e que contenha banco de dados.

A solução e a versão pode ser de acordo com o que você como Consultor, considera a melhor opção para o cliente Dim Dim.



Projeto da Disciplina: Dim Dim

Build

1. Entregáveis completos em um PDF (formatação simples com seu nome completo e RM) 2 Pontos

O PDF deve conter uma evidência do build feito (conforme exemplos nos slides posteriores):

- *Print da Image buildada no Docker Desktop;
- *Print do Container no Docker Desktop;
- *Print do Volume criado no Docker Desktop;
- *Script do Docker File + Print da Image e Compose no Docker Desktop;
- * Print da Tabela do Banco de Dados contendo: ("SEU RM", "SEU NOME", "DATA");
- *Script do Docker Compose contendo Api Python + Banco + Print da Tela criada no Docker Desktop;

CASO SEJAM ENTREGUES MAIS SOLUÇÕES, SERÃO CONSIDERADOS PONTOS EXTRAS AUXILIANDO NA NOTA!!!



Projeto da Disciplina: Dim Dim

Exemplo de Entregáveis

1. Pelo menos uma Docker Image; **1 Ponto**



```
PowerShell 7.3.3
PS C:\Users\thiag> docker image ls
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
out_stock-app  latest   93c49bae2849   3 weeks ago   1.07GB
mysql          latest   483a8bc460a9   3 weeks ago   530MB
ubuntu         20.04    1c5c8d0b973a   5 weeks ago   72.8MB
ubuntu         16.04    b6f507652425   19 months ago 135MB
PS C:\Users\thiag>
```

Images [Give feedback](#)

An image is a read-only template with instructions for creating a Docker container. [Learn more](#)

Local

Hub

1.6 GB / 1.6 GB in use

4 images

Last refresh: 5 minutes ago

Search

	Name	Tag	Status	Created	Size	Actions
<input type="checkbox"/>	out_stock-app 93c49bae2849	latest	In use	23 days ago	1.06 GB	▶ ⋮
<input type="checkbox"/>	mysql 483a8bc460a9	latest	In use	24 days ago	530.47 MB	▶ ⋮
<input type="checkbox"/>	ubuntu 1c5c8d0b973a	20.04	Unused	about 1 month ago	72.78 MB	▶ ⋮
<input type="checkbox"/>	ubuntu b6f507652425	16.04	Unused	over 1 year ago	134.82 MB	▶ ⋮

Showing 4 items

23 novas notificações

RAM 3.62 GB

CPU 0.11%

Connected to Hub



Projeto da Disciplina: Dim Dim

Exemplo de Entregáveis

2. Pelo menos um Docker Container; **1 Ponto**



```
PS C:\Users\thiag> docker container ls -a
CONTAINER ID   IMAGE      COMMAND                  CREATED    STATUS
US            ac94137ad180  ubuntu    "/bin/bash"            2 minutes ago    Exit
ed (0) 2 minutes ago
off           b2e0a5d9fcbc  out_stock-app  "python app.py"        3 weeks ago     Exit
ed (255) 9 minutes ago  0.0.0.0:5000->5000/tcp  outstock
3b7faf3619b4  mysql      "docker-entrypoint.s..." 3 weeks ago     Exit
ed (255) 9 minutes ago  0.0.0.0:3306->3306/tcp, 33060/tcp  db
PS C:\Users\thiag>
```

Containers

A container packages up code and its dependencies so the application runs quickly and reliably from one computing environment to another. [Learn more](#)

☐ Only running Delete ▶ ⏸ ⏹

	Name	Image	Status ↓	Port(s)	Started	Act
<input type="checkbox"/>	out_stock	-	Exited			▶
<input checked="" type="checkbox"/>	outstock b2e0a5d9fcbc	out_stock	Exited (255)	5000:5000		▶
<input type="checkbox"/>	db 3b7faf3619b4	mysql	Exited (255)	3306:3306		▶
<input type="checkbox"/>	infallible_wesci ac94137ad180	ubuntu	Exited			▶

Selected 1 of 4

RAM 3.80 GB CPU 0.11% Connected to Hub v4.16.2



Projeto da Disciplina: Dim Dim

Exemplo de Entregáveis

3. Pelo menos um Volume; **1 Ponto**



Windows PowerShell

PS C:\Users\thiag> docker volume ls
DRIVER VOLUME NAME
local out_stock_db_data
PS C:\Users\thiag>

Docker Desktop

Update to latest

Search

Ctrl+K

profthi...

Volumes

Give feedback

Create +

Volumes are the preferred mechanism for persisting data generated by and used by Docker containers. [Learn more](#)

Search

EXT

	Name	Status	Created	Size	Actions
<input type="checkbox"/>	out_stock_db_data	in use	23 days ago	200 MB	

Showing 1 items

RAM 3.82 GB

Connected to Hub

v4.16.2



Projeto da Disciplina: Dim Dim

Exemplo de Entregáveis

4. Pelo menos um Docker File; **1 Ponto**



```
PS C:\Users\thiag> docker build .
[+] Building 13.9s (11/11) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 329B
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load metadata for docker.io/library/node:alpine
=> [auth] library/node:pull token for registry-1.docker.io
=> [1/6] FROM docker.io/library/node:alpine@sha256:53741c7511b1836b5
=> => resolve docker.io/library/node:alpine@sha256:53741c7511b1836b5
=> => sha256:adb3ed8bc61ee6fb46e5ece58f9821faf5fe5be 6.48kB / 6.48kB
=> => sha256:f56be85fc22e46face30e2c3de3f7fe7c15f8fd 3.37MB / 3.37MB
=> => sha256:62f73f92a48b45933d543f6852c1ad59f15d5 48.15MB / 48.15MB
=> => sha256:682168483616c38739cbff47152f7fe6a49eb19 2.35MB / 2.35MB
=> => sha256:537741c7511b1836b5eb7e788a7b399c058b0b54 1.43kB / 1.43kB
=> => sha256:0e9961345f0ef2ea3e132990e814a26cb9fa8f8 1.16kB / 1.16kB
=> => extracting sha256:f56be85fc22e46face30e2c3de3f7fe7c15f8fd7c4e5
=> => sha256:f8910f76fdbc8bd7827fe470eefe39ad8b979fbba64 448B / 448B
=> => extracting sha256:62f73f92a48b45933d543f6852c1ad59f15d5490ea0c
=> => extracting sha256:682168483616c38739cbff47152f7fe6a49eb19f537f
=> => extracting sha256:f8910f76fdbc8bd7827fe470eefe39ad8b979fbba64d
=> [2/6] RUN adduser -h /home/menk -s /bin/bash -D menk
=> [3/6] RUN whoami
=> [4/6] RUN touch /home/menk/teste.txt
=> [5/6] RUN whoami
=> [6/6] RUN touch /home/node/teste.txt
=> exporting to image
=> => exporting layers
=> => writing image sha256:7afa7ed405120996f42740aac373eb4b51123d546
PS C:\Users\thiag> docker build -t ubuntu_python .
[+] Building 0.7s (10/10) FINISHED
=> [internal] load build definition from Dockerfile
=> => transferring dockerfile: 32B
=> [internal] load .dockerignore
=> => transferring context: 2B
=> [internal] load metadata for docker.io/library/node:alpine
=> [1/6] FROM docker.io/library/node:alpine@sha256:53741c7511b1836b5
=> CACHED [2/6] RUN adduser -h /home/menk -s /bin/bash -D menk
=> CACHED [3/6] RUN whoami
```

Images [Give feedback](#)

An image is a read-only template with instructions for creating a Docker container. [Learn more](#)

Local

Hub

1.67 GB / 1.6 GB in use

6 images

Last refresh: 16 minutes ago

<input type="checkbox"/>	Name	Tag	Status	Created	Size	A
<input type="checkbox"/>	ubuntu_python	latest	Unused	1 minute ago	176.46 MB	
<input type="checkbox"/>	out_stock-app	latest	In use	23 days ago	1.06 GB	
<input type="checkbox"/>	mysql	latest	In use	24 days ago	530.47 MB	
<input type="checkbox"/>	ubuntu	latest	In use	about 1 month ago	77.81 MB	
<input type="checkbox"/>	ubuntu	20.04	Unused	about 1 month ago	72.78 MB	
<input type="checkbox"/>	ubuntu	16.04	Unused	over 1 year ago	134.82 MB	

Showing 6 items

RAM 4.10 GB

CPU 0.11%

Connected to Hub

OneDrive - Pessoal Atualizado

v4.16.2



Projeto da Disciplina: Dim Dim

Exemplo de Entregáveis

5. Pelo menos um Banco de Dados. **2 Pontos**

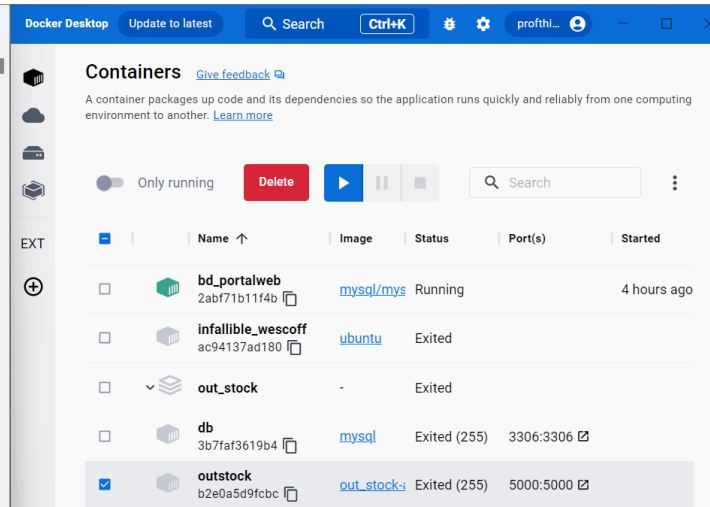
Obs: A Tabela do banco de dados deve conter ("SEU RM", "SEU NOME", "DATA");



```
Administrator: PowerShell 7 (x64)
mysql>
mysql> insert into t_aluno (rm_aluno, nm_aluno, dt_nascimento) values ("RM12345", "Prof Thiago Rocha", "2023-04-15");
Query OK, 1 row affected (0.02 sec)

mysql>
mysql>
mysql> select * from t_aluno;
+-----+-----+-----+
| rm_aluno | nm_aluno | dt_nascimento |
+-----+-----+-----+
| RM12345 | Prof Thiago Rocha | 2023-04-15 |
+-----+-----+-----+
1 row in set (0.00 sec)

mysql> _
```



```
mysql> select * from t_aluno;
+-----+-----+-----+
| rm_aluno | nm_aluno | dt_nascimento |
+-----+-----+-----+
| RM12345 | Prof Thiago Rocha | 2023-04-15 |
+-----+-----+-----+
1 row in set (0.00 sec)

mysql> _
```



Projeto da Disciplina: Dim Dim

Exemplo de Entregáveis

6. Pelo menos um Docker Compose. **2 Pontos**

Obs: Contendo uma Api Python + Banco Mysql (Pode reproduzir o mesmo material disponibilizado em apostila apresentado em aula)



The screenshot displays a development environment with Visual Studio Code on the left and Docker Desktop on the right.

Visual Studio Code (Left):

- EXPLORADOR:** Shows a project named `OUT_STOCK` with files `app.py`, `docker-compose.yml`, `Dockerfile`, and `requirements.txt`.
- docker-compose.yml:** The file content is as follows:

```
18 - db_data:/var/lib/mysql
19
20 app:
21   container_name: outstock
22   build: .
23   ports:
24     - "5000:5000"
25   environment:
26     DB_HOST: db
27     DB_PORT: 3306
28     DB_NAME: out_stock
29     DB_USER: admindim
30     DB_PASSWORD: admindim
31     AUTH_PLUGIN: mysql_native_password
32   depends_on:
33     - db
34   networks:
35     - outstock_network
```
- TERMINAL:** Shows a shell prompt `PS C:\Users\thiag\OneDrive\Documents\Github\out_stock>` and a command `pwsh`.

Docker Desktop (Right):

- Containers:** A table listing running and exited containers.
- Table:**

	Name	Image	Status	Port(s)	Started	Act
<input checked="" type="checkbox"/>	out_stock	-	Running (1/2)			
<input checked="" type="checkbox"/>	infallible_wesci	ubuntu	Exited			
<input checked="" type="checkbox"/>	bd_portalweb	mysql/mysql	Running		13 seconds ago	

Bottom Bar: Shows system information: RAM 5.65 GB, CPU 0.22%, Connected to Hub, and a date/time indicator: sábado, 15 de abril de 2023.



Selected 3 of 3
sábado, 15 de abril de 2023



2º Checkpoint



REFERÊNCIAS:

DockerHub: <https://hub.docker.com/>

Docker Desktop for Windows: <https://docs.docker.com/desktop/install/windows-install/>

Docker Desktop for Mac: <https://docs.docker.com/desktop/install/mac-install/>

Docker Desktop for Linux: <https://docs.docker.com/desktop/install/linux-install/>

APOSTILAS:

- Aula 04 01 Docker
- Aula 05 01 Docker File e Docker Compose
- HowTo Instalação Docker Desktop – Mac
- HowTo Instalação Docker Desktop - Windows



2º checkpoint



Dockerfile



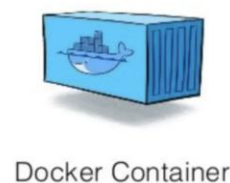
→ Build →

Image



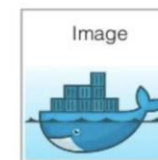
→ Run →

Container



Docker Container

→ commit →



Docker Image

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