



UNIVERSIDAD AUTÓNOMA DE
CHIHUAHUA

UNIVERSIDAD AUTÓNOMA DE CHIHUAHUA
Facultad de Ingeniería



Ingeniería en Ciencias de la Computación

DESARROLLO BASADO EN PLATAFORMAS
Exámen del Primer Parcial

Trabajo de: ADRIAN ALEJANDRO GONZÁLEZ DOMÍNGUEZ [359834]
Asesor: LUIS ANTONIO RAMÍREZ MARTÍNEZ

9 de abril de 2024

- Ejecute un contenedor docker de la imagen mongo enlazando el puerto 27017 del contenedor al 21000 con nombre my-mongo-{{tu nombre}} y conectado un volumen de nombre data con la carpeta /data/db

```
pbd-exam-1 adrigoondo@MacBook-Pro-3:~/pbd-exam-1|168x24|tty003 - zsh - 168x24
└─[12:28:06]→ docker run -dti -p21000:27017 --name my-mongo-adrian --hostname my-mongo-adrian -v data:/data/db mongo
[Unable to find image 'mongo:latest' locally
latest: Pulling from library/mongo
f4bb4e8dc02: Pull complete
b52b73deb9ed: Pull complete
8d310f328ae0: Pull complete
c668bf4a0c23: Pull complete
9ed5a65e8998: Pull complete
eaefef376ca3e: Pull complete
acd67cbaf095: Pull complete
a9dbc794ae9a: Pull complete
Digest: sha256:5505a38a8c6644ace154376dfe4c94ac85f01c22585547efdd9483c4922dfa37
Status: Downloaded newer image for mongo:latest
e9992f4aeaf3eccf6e693b133e7f28b644c656c8dafff3892ed005a7293b2b557
└─[~/pbd-exam-1] adrigoondo MacBook-Pro-3:s003 └─(Tue, Apr 09)
└─[12:34:19a]→ docker ps
CONTAINER ID IMAGE COMMAND CREATED STATUS PORTS NAMES
[e9992f4aeaf3 mongo "docker-entrypoint.s..." About a minute ago Up About a minute 0.0.0.0:21000->27017/tcp my-mongo-adrian
17b2ec28e05f mysql:latest "docker-entrypoint.s..." 38 minutes ago Up 38 minutes 3306/tcp, 0.0.0.0:3000->3306/tcp mysql_pbd_2
└─[~/pbd-exam-1] adrigoondo MacBook-Pro-3:s003 └─(Tue, Apr 09)
└─[12:35:48]→ ┌─
```

2. Crea un repositorio remoto y sube el archivo grades.json (lo puedes descargar de <https://github.com/luis190991/data-examen.git>).

The screenshot shows a macOS terminal window with the following details:

- Terminal Title:** pbd-exam-1
- Content:** A git session for a MongoDB database named "grades.json". The session includes creating a new file, committing changes, and pushing to a remote repository.
- Log Output:**

```
{} grades.json 1, U x
{} grades.json > ...
75 { "_id" : { "$oid" : "50906d7fa3c412bb040eb5c1" }, "student_id" : 18, "type" : "h
76 { "_id" : { "$oid" : "50906d7fa3c412bb040eb5c2" }, "student_id" : 19, "type" : "h
77 [12:35:48] touch grades.json
78 [12:39:35] code .
79 [12:40:10] git status
Fatal: not a git repository (or any of the parent directories): .git
80 [12:42:46] git init
81 Initialized empty Git repository in /Users/adrigondo/pbd-exam-1/.git/
82 [12:42:57 on main +] git status
On branch main
83 No commits yet
84 Untracked files:
  (use "git add <file>..." to include in what will be committed)
  grades.json
85 nothing added to commit but untracked files present (use "git add" to track)
86 [12:43:00 on main +] git add grades.json
87 [12:43:03 on main +] 
88 { "_id" : { "$oid" : "50906d7fa3c412bb040eb5cf" }, "student_id" : 22, "type" : "e
89 { "_id" : { "$oid" : "50906d7fa3c412bb040eb5d0" }, "student_id" : 22, "type" : "q
90 { "_id" : { "$oid" : "50906d7fa3c412bb040eb5d1" }, "student_id" : 22, "type" : "h
91 { "_id" : { "$oid" : "50906d7fa3c412bb040eb5d2" }, "student_id" : 22, "type" : "h
92 { "_id" : { "$oid" : "50906d7fa3c412bb040eb5d3" }, "student_id" : 23, "type" : "e
93 { "_id" : { "$oid" : "50906d7fa3c412bb040eb5d4" }, "student_id" : 23, "type" : "q
94 { "_id" : { "$oid" : "50906d7fa3c412bb040eb5d5" }, "student_id" : 23, "type" : "h
95 { "_id" : { "$oid" : "50906d7fa3c412bb040eb5d6" }, "student_id" : 23, "type" : "h
96 { "_id" : { "$oid" : "50906d7fa3c412bb040eb5d7" }, "student_id" : 24, "type" : "e
97 }
```

- File Explorer:** Shows the file structure of "grades.json".
- Bottom Status Bar:** Includes icons for screenshots, file operations, and system status.

```
grades.json
nothing added to commit but untracked files present (use "git add" to track)
[~/pbdb-exam-1] [12:43:00 on main *] → git add grades.json
[~/pbdb-exam-1] [12:43:03 on main *] → git commit -m "First commit. Add grades.json"
[main (root-commit) ec88030] First commit. Add grades.json
1 file changed, 800 insertions(+)
create mode 100644 grades.json
[~/pbdb-exam-1] [12:44:00 on main *] → git remote add github git@github.com:Adrigondo/pbd-exam-1.git
[~/pbdb-exam-1] [12:45:10 on main *] → git push github main
* [new branch] main -> main
[~/pbdb-exam-1] [12:45:19 on main *] →
```

The screenshot shows a GitHub repository page for 'Adrigondo/pbd-exam-1'. The repository is public and contains one branch ('main') and one commit ('First commit. Add grades.json'). The commit was made by 'Adrigondo' at 12:43:03 on April 9, 2024, and includes the file 'grades.json'. The repository has 1 commit, 0 stars, 1 watching, and 0 forks. It also has 0 releases published. There is a button to 'Add a README'.

Examen del primer parcial

Adrigondo/pbd-exam-1

SSH and GPG keys | Generating a new SSH key | mongo - Official Image | how to exec a command | ¿Qué son los contendores | +

github.com/Adrigondo/pbd-exam-1

Adrigondo / pbd-exam-1

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

pbd-exam-1 Public

main Branch 1 Tags

Go to file Add file <> Code

Adrigondo First commit. Add grades.json ec88030 - 32 minutes ago 1 Commits

grades.json First commit. Add grades.json 32 minutes ago

README

Add a README

About

This is the practice of the exam of the Development Based Platform course

Activity 0 stars 1 watching 0 forks

Releases

No releases published Create a new release

Packages

No packages published Publish your first package

© 2024 GitHub, Inc. Terms Privacy Security Status Docs Contact Manage cookies Do not share my personal information

3. Entra en bash a tu contenedor e instala git (apt update, apt install git), verifica que git este instalado con git--version.

```
○ ● ● pbd-exam-1 — docker exec -ti my-mongo-adrian /bin/bash — docker — com.docker.cli - docker exec -ti my-mongo-adri...
[~/pbd-exam-1] (12:47:06 on main)→ docker exec -ti my-mongo-adrian /bin/bash
root@my-mongo-adrian:/# apt update
```

```
○ ● ● pbd-exam-1 — docker exec -ti my-mongo-adrian /bin/bash — docker — com.docker.cli - docker exec -ti my-mongo-adri...
Get:5 http://repo.mongodb.org/apt/ubuntu jammy/mongodb-org/7.0/multiverse arm64 Packages [33.9 kB]
Get:6 http://ports.ubuntu.com/ubuntu-ports jammy-updates InRelease [119 kB]
Get:7 http://ports.ubuntu.com/ubuntu-ports jammy-backports InRelease [109 kB]
Get:8 http://ports.ubuntu.com/ubuntu-ports jammy-security InRelease [110 kB]
Get:9 http://ports.ubuntu.com/ubuntu-ports jammy/universe arm64 Packages [17.2 MB]
Get:10 http://ports.ubuntu.com/ubuntu-ports jammy/multiverse arm64 Packages [224 kB]
Get:11 http://ports.ubuntu.com/ubuntu-ports jammy/restricted arm64 Packages [24.2 kB]
Get:12 http://ports.ubuntu.com/ubuntu-ports jammy/main arm64 Packages [1758 kB]
Get:13 http://ports.ubuntu.com/ubuntu-ports jammy-updates/restricted arm64 Packages [1546 kB]
Get:14 http://ports.ubuntu.com/ubuntu-ports jammy-updates/multiverse arm64 Packages [39.2 kB]
Get:15 http://ports.ubuntu.com/ubuntu-ports jammy-updates/universe arm64 Packages [1282 kB]
Get:16 http://ports.ubuntu.com/ubuntu-ports jammy-updates/main arm64 Packages [1689 kB]
Get:17 http://ports.ubuntu.com/ubuntu-ports jammy-backports/universe arm64 Packages [31.3 kB]
Get:18 http://ports.ubuntu.com/ubuntu-ports jammy-backports/main arm64 Packages [80.5 kB]
Get:19 http://ports.ubuntu.com/ubuntu-ports jammy-security/main arm64 Packages [1418 kB]
Get:20 http://ports.ubuntu.com/ubuntu-ports jammy-security/multiverse arm64 Packages [24.1 kB]
Get:21 http://ports.ubuntu.com/ubuntu-ports jammy-security/restricted arm64 Packages [1512 kB]
Get:22 http://ports.ubuntu.com/ubuntu-ports jammy-security/universe arm64 Packages [1011 kB]
Fetched 28.5 MB in 31s (919 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
13 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@my-mongo-adrian:/# apt install git
```

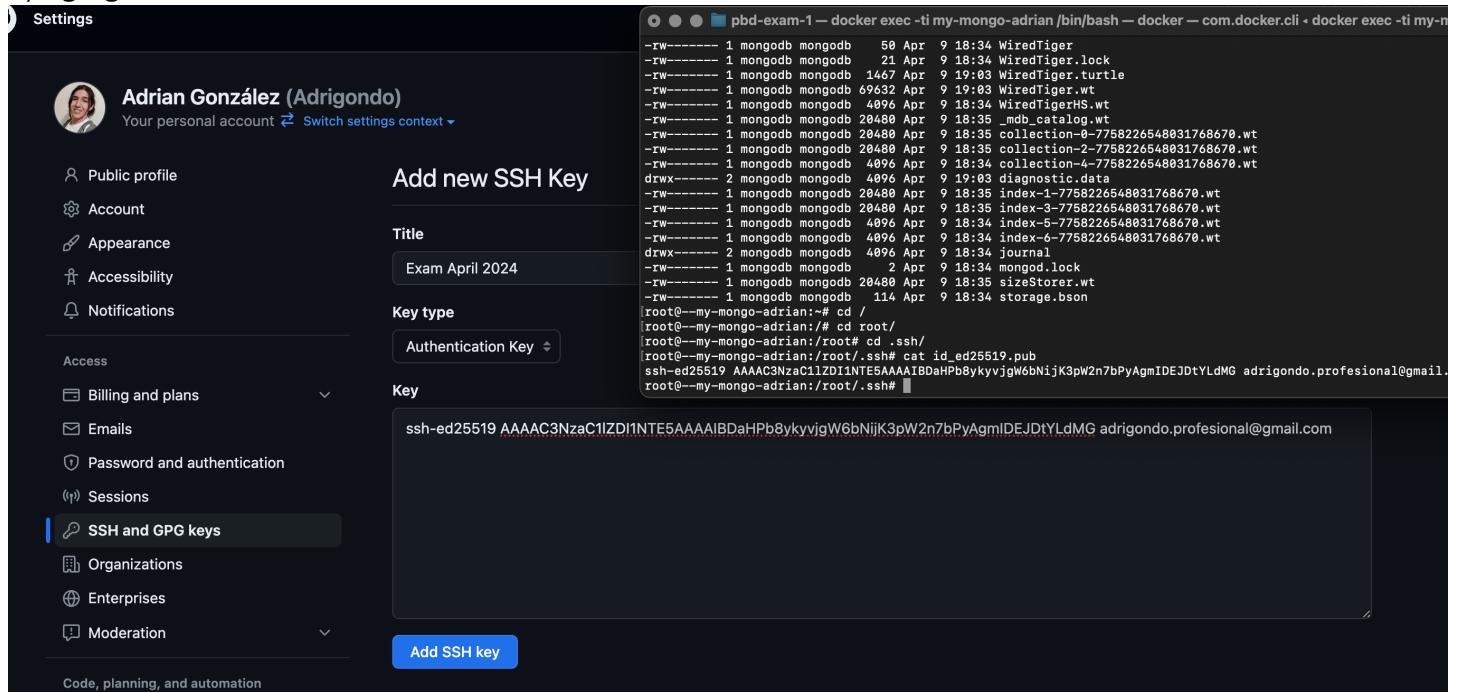
```
● ● ● pbd-exam-1 — docker exec -ti my-mongo-adrian /bin/bash — docker — com.docker.cli < docker exec -ti my-mongo-adr...
Setting up libedit2:arm64 (3.1-20210910-1build1) ...
Setting up libgdbm-compat4:arm64 (1.23-1) ...
Setting up libx11-6:arm64 (2:1.7.5-1ubuntu0.3) ...
Setting up libxmlui:arm64 (2:1.1.3-3) ...
Setting up libperl5.34:arm64 (5.34.0-3ubuntu1.3) ...
Setting up openssh-client (1:8.9p1-3ubuntu0.6) ...
update-alternatives: using /usr/bin/ssh to provide /usr/bin/rsh (rsh) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/rsh.1.gz because associated file /usr/share/man/man1/
ssh.1.gz (of link group rsh) doesn't exist
update-alternatives: using /usr/bin/slogin to provide /usr/bin/rlogin (rlogin) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/rlogin.1.gz because associated file /usr/share/man/ma
n1/slogin.1.gz (of link group rlogin) doesn't exist
update-alternatives: using /usr/bin/scp to provide /usr/bin/rcp (rcp) in auto mode
update-alternatives: warning: skip creation of /usr/share/man/man1/rcp.1.gz because associated file /usr/share/man/man1/
scp.1.gz (of link group rcp) doesn't exist
Setting up libxext6:arm64 (2:1.3.4-1build1) ...
Setting up perl (5.34.0-3ubuntu1.3) ...
Setting up xauth (1:1.1-1build2) ...
Setting up liberror-perl (0.17029-1) ...
Setting up git (1:2.34.1-1ubuntu1.10) ...
Processing triggers for libc-bin (2.35-0ubuntu3.6) ...
[root@--my-mongo-adrian:/# git --version
git version 2.34.1
root@--my-mongo-adrian:/# ]
```

4. Clona por ssh tu repositorio (debes generar las llaves en el contenedor antes).

a) Generar llave ssh

```
git version 2.34.1
root@--my-mongo-adrian:/# ssh-keygen -t ed25519 -C "adrigondo.profesional@gmail.com"
Generating public/private ed25519 key pair.
Enter file in which to save the key (/root/.ssh/id_ed25519):
Created directory '/root/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /root/.ssh/id_ed25519
Your public key has been saved in /root/.ssh/id_ed25519.pub
The key fingerprint is:
SHA256:VQYKXGB0qA/nM6hFEEqHtvqBnAAH8E6lVOpzEcf3Ns adrigondo.profesional@gmail.com
The key's randomart image is:
+--[ED25519 256]--+
|+++o++**.o.oo |
|**o+.**o...oo. |
|=.*... . . . o |
|.o .. . . . E |
|=.*. S
|o+oo=
|.o . o
|..
+---[SHA256]----+
root@--my-mongo-adrian:/#
```

b) Agregar llave ssh



The screenshot shows the GitHub user settings page for 'Adrian González (Adrigondo)'. The left sidebar is collapsed. The main area displays the 'Add new SSH Key' form. The 'Title' field contains 'Exam April 2024'. The 'Key type' dropdown is set to 'Authentication Key'. The 'Key' field contains the generated SSH key:

```
ssh-ed25519 AAAAC3NzaC1ZD1NTESAAAIBDaHPb8ykyvJgW6bNijK3pW2n7bPyAgmIDEJDtYldMG adrigondo.profesional@gmail.com
```

Below the key field is a blue 'Add SSH key' button.

On the right side of the screenshot, there is a terminal window titled 'pbd-exam-1 — docker exec -ti my-mongo-adrian /bin/bash — docker — com.docker.cli • docker exec -ti my-mongo-adrian'. It shows the command to generate the SSH key and the resulting key content:

```
-rw----- 1 mongodb mongod 50 Apr 9 18:34 WiredTiger
-rw----- 1 mongodb mongod 21 Apr 9 18:34 WiredTiger.lock
-rw----- 1 mongodb mongod 1467 Apr 9 19:03 WiredTiger.turtle
-rw----- 1 mongodb mongod 69632 Apr 9 19:03 WiredTiger.wt
-rw----- 1 mongodb mongod 4096 Apr 9 18:34 WiredTigerHS.wt
-rw----- 1 mongodb mongod 20480 Apr 9 18:35 _mdb_catalog.wt
-rw----- 1 mongodb mongod 20480 Apr 9 18:35 collection-0-7758226548031768670.wt
-rw----- 1 mongodb mongod 20480 Apr 9 18:35 collection-2-7758226548031768670.wt
-rw----- 1 mongodb mongod 4096 Apr 9 18:34 collection-4-7758226548031768670.wt
drwx--- 2 mongodb mongod 4096 Apr 9 19:03 diagnostic.data
-rw----- 1 mongodb mongod 20480 Apr 9 18:35 index-1-7758226548031768670.wt
-rw----- 1 mongodb mongod 20480 Apr 9 18:35 index-3-7758226548031768670.wt
-rw----- 1 mongodb mongod 4096 Apr 9 18:34 index-5-7758226548031768670.wt
-rw----- 1 mongodb mongod 4096 Apr 9 18:34 index-6-7758226548031768670.wt
drwx--- 2 mongodb mongod 4096 Apr 9 18:34 journal
-rw----- 1 mongodb mongod 2 Apr 9 18:34 mongod.lock
-rw----- 1 mongodb mongod 20480 Apr 9 18:35 sizeStorer.wt
-rw----- 1 mongodb mongod 114 Apr 9 18:34 storage.bson
root@--my-mongo-adrian:~# cd /
root@--my-mongo-adrian:/# cd root/
root@--my-mongo-adrian:/root# cd .ssh/
root@--my-mongo-adrian:/root/.ssh# cat id_ed25519.pub
ssh-ed25519 AAAAC3NzaC1ZD1NTESAAAIBDaHPb8ykyvJgW6bNijK3pW2n7bPyAgmIDEJDtYldMG adrigondo.profesional@gmail.com
root@--my-mongo-adrian:/root/.ssh#
```

c) Clonar repositorio

```
● ● ● pbd-exam-1 — docker exec -ti my-mongo-adrian /bin/bash — docker — com.docker.cli • docker exec -ti my-mongo-adrian
dr-xr-xr-x 223 root root 0 Apr 9 18:34 proc
drwx----- 1 root root 4096 Apr 9 18:59 root
drwxr-xr-x 5 root root 4096 Feb 27 16:08 run
lrwxrwxrwx 1 root root 8 Feb 27 16:01 sbin -> usr/sbin
drwxr-xr-x 2 root root 4096 Feb 27 16:01 srv
dr-xr-xr-x 11 root root 0 Apr 9 18:34 sys
drwxrwxrwt 1 root root 4096 Apr 9 18:54 tmp
drwxr-xr-x 1 root root 4096 Feb 27 16:01 usr
drwxr-xr-x 1 root root 4096 Feb 27 16:08 var
[root@--my-mongo-adrian:/# cd root/
[root@--my-mongo-adrian:/root# git clone git@github.com:Adrigondo/pbd-exam-1.git
Cloning into 'pbd-exam-1'...
The authenticity of host 'github.com (140.82.114.3)' can't be established.
ED25519 key fingerprint is SHA256:+DiY3wvvV6TuJJhbpZisF/zLDA0zPMsvHdkr4UvC0qU.
This key is not known by any other names
[Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
[Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added 'github.com' (ED25519) to the list of known hosts.
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), 13.85 KiB | 4.62 MiB/s, done.
root@--my-mongo-adrian:/root# ]
```

5. Entra a la carpeta donde esta el archivo y ejecuta el siguiente comando: mongoimport -d students -c grades < grades.json

```
● ● ● pbd-exam-1 — docker exec -ti my-mongo-adrian /bin/bash — docker — com.docker.cli • docker exec -ti my-mongo-adrian
drwxrwxrwt 1 root root 4096 Apr 9 18:54 tmp
drwxr-xr-x 1 root root 4096 Feb 27 16:01 usr
drwxr-xr-x 1 root root 4096 Feb 27 16:08 var
[root@--my-mongo-adrian:/# cd root/
[root@--my-mongo-adrian:/root# git clone git@github.com:Adrigondo/pbd-exam-1.git
Cloning into 'pbd-exam-1'...
The authenticity of host 'github.com (140.82.114.3)' can't be established.
ED25519 key fingerprint is SHA256:+DiY3wvvV6TuJJhbpZisF/zLDA0zPMsvHdkr4UvC0qU.
This key is not known by any other names
[Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
[Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added 'github.com' (ED25519) to the list of known hosts.
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), 13.85 KiB | 4.62 MiB/s, done.
[root@--my-mongo-adrian:/root# cd .bashrc .profile .ssh/.wget-hsts pbd-exam-1/
[root@--my-mongo-adrian:/root# cd pbd-exam-1/
[root@--my-mongo-adrian:/root/pbd-exam-1# mongoimport -d students -c grades < grades.json
2024-04-09T19:09:28.666+0000 connected to: mongodb://localhost/
2024-04-09T19:09:28.696+0000 800 document(s) imported successfully. 0 document(s) failed to import.
root@--my-mongo-adrian:/root/pbd-exam-1# ]
```

6. Contesta las siguientes preguntas ejecutando el comando mongosh:

- A) Ejecuta el comando use students; db.grades.count(); ¿Cuántos registros arroja el comando count?

800

- B) Ejecuta el siguiente comando db.grades.count({"student_id":0}), ¿Qué resultado arrojó?.

4

```
pbd-exam-1 — mongosh mongodb://127.0.0.1:27017/?directConnection=true&serverSelectionTimeoutMS=2000 — co...
To help improve our products, anonymous usage data is collected and sent to MongoDB periodically (https://www.mongodb.com/legal/privacy-policy).
You can opt-out by running the disableTelemetry() command.

-----
The server generated these startup warnings when booting
2024-04-09T18:34:04.970+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem
2024-04-09T18:34:05.871+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2024-04-09T18:34:05.871+00:00: /sys/kernel/mm/transparent_hugepage/enabled is 'always'. We suggest setting it to 'never' in this binary version
2024-04-09T18:34:05.871+00:00: vm.max_map_count is too low
-----

[test> use students;
switched to db students
[students> db.grades.count();
DeprecationWarning: Collection.count() is deprecated. Use countDocuments or estimatedDocumentCount.
800
[students> db.grades.count({"student_id":0})
4
students> ]]
```