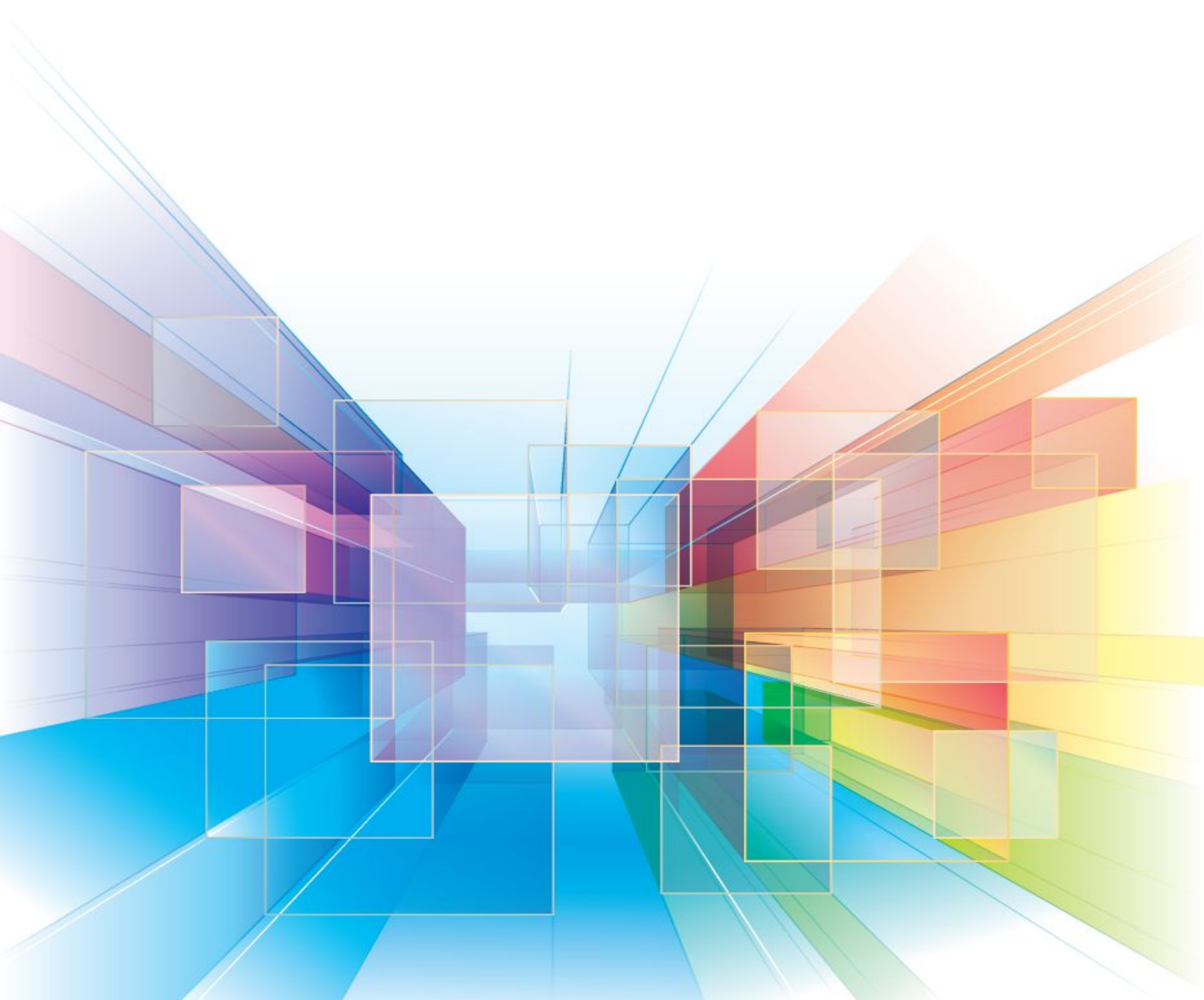


Respaldos de bases de datos

Por Jorge Said Serrano Soto



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Objetivo

La realización de este documento se debe a que se deben de poner en práctica todos los conocimientos prácticos y teóricos en cuanto al uso de respaldos de bases de datos relacionales.

Alcance

El alcance que llega a tener la aplicación de este conocimiento puede llegar a abarcar a proyectos de índole profesional pues la aplicación de todos estos conocimientos lleva al uso de las buenas prácticas basadas en respaldos.

Respaldos dump

Comando y ejecución de comando

```
>docker exec -i parcial2_db_1 mysqldump -u root -p123456 --default-character-set=utf8 --routines --skip-triggers --add-dr
C:\Users\p10531\Desktop\Universidad\quinto parcial\
op-table=false rincon_veracruzano > respaldos.sql
```

Evidencia de creación de respaldo

```
17
18 --
19 -- Table structure for table `antojitos`
20 --
21
22 /*!40101 SET @saved_cs_client      = @@character_set_client */;
23 /*!40101 SET character_set_client = utf8 */;
24 CREATE TABLE `antojitos` (
25   `id_Antojito` int(11) DEFAULT NULL,
26   `descripcion` varchar(50) DEFAULT NULL,
27   `precio` int(11) DEFAULT NULL
28 ) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;
29 /*!40101 SET character_set_client = @saved_cs_client */;
30
31 --
32 -- Dumping data for table `antojitos`
33 --
34
35 LOCK TABLES `antojitos` WRITE;
36 /*!40000 ALTER TABLE `antojitos` DISABLE KEYS */;
37 INSERT INTO `antojitos` VALUES (1,'picadas',25),(2,'empanadas',25),(3,'Tacos dorados',85),(4,'Enmoladas',85),(5,'Platanos fritos',30);
38 /*!40000 ALTER TABLE `antojitos` ENABLE KEYS */;
39 UNLOCK TABLES;
40
41 --
42 -- Dumping routines for database 'rincon_veracruzano'
43 --
44 /*!40103 SET TIME_ZONE=@OLD_TIME_ZONE */;
45
46 /*!40101 SET SQL_MODE=@OLD_SQL_MODE */;
47 /*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS */;
48 /*!40014 SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS */;
49 /*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
50 /*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
51 /*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
52 /*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;
53
54 -- Dump completed on 2020-11-07 21:32:45
55
```

Restauración

```
>docker exec -i parcial2_db_1 mysql rincon_veracruzano < respaldos.sql -p123456 -u root
```

Evidencia de restauración



HeidiSQL 11.0.0.3919

Host: 127.0.0.1 Base de datos: parcial

rincon_veracruzano.antojitos: 5 filas en total (aproximadamente 16.0 KiB)

id_Antojitos	descripcion	precio
1	empanadas	25
2	totopostes	25
3	emmoladas de pollo	25
4	tacos dorados	75
5	nergitas	25

Respaldos binarios

Respaldo binario completo

Comando

```
docker exec -i parcial2_db_1 mariabackup --backup --target-dir=dbbackups --user=root --password=123456
```

```
docker cp parcial2_db_1:/dbbackups dbbackups
```

Ejecución de comando

```

C:\Users\biosh\Desktop\Universidad\quinto parcial\Administración de base de datos\parcial2>docker exec -i parcial2_db_1 mariabackup --backup --target-dir=dbbackups --user=root --password=123456
[00] 2020-11-07 22:27:08 connecting to MySQL server host: localhost, user: root, password: set, port: not set, socket: /run/mysql/mysql.sock
[00] 2020-11-07 22:27:08 Using server version 10.5.5-MariaDB-1:10.5.5+maria-focal
mariabackup based on MariaDB server 10.5.5-MariaDB debian-linux-gnu (x86_64)
[00] 2020-11-07 22:27:08 cd to /var/lib/mysql/
[00] 2020-11-07 22:27:08 open files limit requested 0, set to 1048576
[00] 2020-11-07 22:27:08 mariabackup: using the following InnoDB configuration:
[00] 2020-11-07 22:27:08 innodb_data_home_dir =
[00] 2020-11-07 22:27:08 innodb_data_file_path = ibdata1:12M:autoextend
[00] 2020-11-07 22:27:08 innodb_log_group_home_dir = ./
[00] 2020-11-07 22:27:08 InnoDB: Using Linux native AIO
[00] 2020-11-07 22:27:08 [Note] InnoDB: Number of pools: 1
[00] 2020-11-07 22:27:08 mariabackup: Generating a list of tablespaces
[00] 2020-11-07 22:27:08 [Warning] InnoDB: Allocated tablespace ID 4 for mysql/gtid_slave_pos, old maximum was 0
[00] 2020-11-07 22:27:08 >> log scanned up to (70127)
[01] 2020-11-07 22:27:08 Copying ibdata1 to /dbbackups/ibdata1
[01] 2020-11-07 22:27:08 ...done
[01] 2020-11-07 22:27:08 Copying ./mysql/gtid_slave_pos.ibd to /dbbackups/mysql/gtid_slave_pos.ibd
[01] 2020-11-07 22:27:08 ...done
[01] 2020-11-07 22:27:08 Copying ./mysql/innodb_index_stats.ibd to /dbbackups/mysql/innodb_index_stats.ibd
[01] 2020-11-07 22:27:08 ...done
[01] 2020-11-07 22:27:08 Copying ./mysql/innodb_table_stats.ibd to /dbbackups/mysql/innodb_table_stats.ibd
[01] 2020-11-07 22:27:08 ...done
[01] 2020-11-07 22:27:08 Copying ./mysql/transaction_registry.ibd to /dbbackups/mysql/transaction_registry.ibd
[01] 2020-11-07 22:27:08 ...done
[01] 2020-11-07 22:27:08 Copying ./rincon_veracruzano/antojitos.ibd to /dbbackups/rincon_veracruzano/antojitos.ibd
[01] 2020-11-07 22:27:08 ...done
[00] 2020-11-07 22:27:08 >> log scanned up to (70127)
[00] 2020-11-07 22:27:09 Acquiring BACKUP LOCKS...
[00] 2020-11-07 22:27:09 Starting to backup non-InnoDB tables and files
[01] 2020-11-07 22:27:09 Copying ./myfirstdb/db.opt to /dbbackups/myfirstdb/db.opt
[01] 2020-11-07 22:27:09 ...done
[01] 2020-11-07 22:27:09 Copying ./mysql/column_stats.MAD to /dbbackups/mysql/column_stats.MAD
[01] 2020-11-07 22:27:09 ...done
[01] 2020-11-07 22:27:09 Copying ./mysql/column_stats.MAI to /dbbackups/mysql/column_stats.MAI
[01] 2020-11-07 22:27:09 ...done
[01] 2020-11-07 22:27:09 Copying ./mysql/column_stats.frm to /dbbackups/mysql/column_stats.frm
[01] 2020-11-07 22:27:09 ...done
[01] 2020-11-07 22:27:09 Copying ./mysql/columns_priv.MAD to /dbbackups/mysql/columns_priv.MAD
[01] 2020-11-07 22:27:09 ...done
[01] 2020-11-07 22:27:09 Copying ./mysql/columns_priv.MAI to /dbbackups/mysql/columns_priv.MAI
[01] 2020-11-07 22:27:09 ...done
[01] 2020-11-07 22:27:09 Copying ./mysql/columns_priv.frm to /dbbackups/mysql/columns_priv.frm
[01] 2020-11-07 22:27:09 ...done
[01] 2020-11-07 22:27:09 Copying ./mysql/db.MAD to /dbbackups/mysql/db.MAD
[01] 2020-11-07 22:27:09 ...done
[01] 2020-11-07 22:27:09 Copying ./mysql/db.MAI to /dbbackups/mysql/db.MAI
[01] 2020-11-07 22:27:09 ...done

```

Evidencia de Creación de respaldo

myFirstdb	07/11/2020 04:27 p. m.	Carpeta de archivos	
mysql	07/11/2020 04:27 p. m.	Carpeta de archivos	
performance_schema	07/11/2020 04:27 p. m.	Carpeta de archivos	
rincon_veracruzano	07/11/2020 04:27 p. m.	Carpeta de archivos	
aria_log.00000001	07/11/2020 04:27 p. m.	Archivo 00000001	32 KB
aria_log_control	07/11/2020 04:27 p. m.	Archivo	1 KB
backup-my.cnf	07/11/2020 04:27 p. m.	Archivo CNF	1 KB
ib_buffer_pool	07/11/2020 04:27 p. m.	Archivo	1 KB
ib_logfile0	07/11/2020 04:27 p. m.	Archivo	3 KB
ibdata1	07/11/2020 04:27 p. m.	Archivo	12,288 KB
xtrabackup_checkpoints	07/11/2020 04:27 p. m.	Archivo	1 KB
xtrabackup_info	07/11/2020 04:27 p. m.	Archivo	1 KB

Respaldo binario incremental

Comando

```
docker exec -i parcial2_db_1 mariabackup --backup --target-dir=inc --incremental-basedir=dbbackups --user=root --password=123456
```

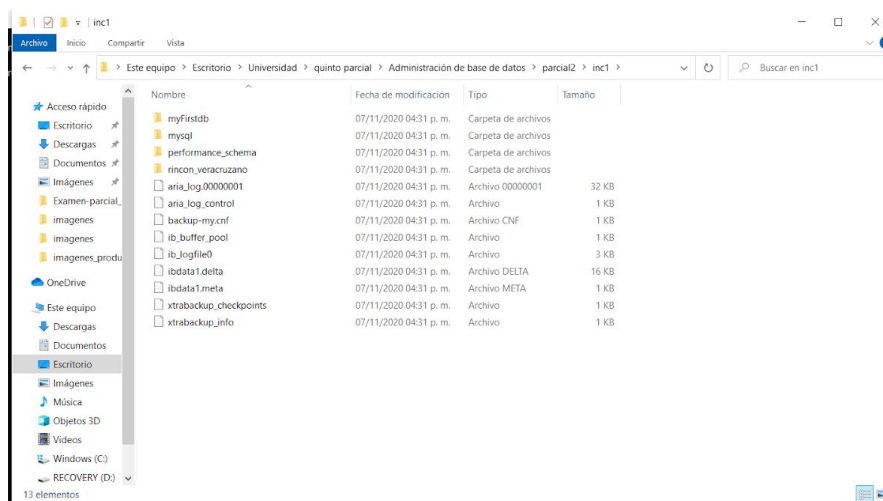
Ejecución de comando

```

C:\Users\biosh\Desktop\Universidad\quinto parcial\Administración de base de datos\parcial2-docker exec -i parcial2_db_1 mariabackup --backup --target-dir=inc --incremental-basedir=dbbackups --user=root --password=123456
[00] 2020-11-07 22:31:57 Connecting to MySQL server host: localhost, user: root, password: set, port: not set, socket: /run/mysqld/mysqld.sock
[00] 2020-11-07 22:31:57 Using server version 10.5.5-MariaDB-1:10.5.5-maria-focal
mariabackup based on MariaDB server 10.5.5-MariaDB debian-linux-gnu (x86_64)
[00] 2020-11-07 22:31:57 incremental backup from 70115 is enabled.
[00] 2020-11-07 22:31:57 uses posix_fadvise().
[00] 2020-11-07 22:31:57 cd to /var/lib/mysql/
[00] 2020-11-07 22:31:57 open files limit requested 0, set to 1048576
[00] 2020-11-07 22:31:57 mariabackup: using the following innodb configuration:
[00] 2020-11-07 22:31:57 innodb_data_home_dir =
[00] 2020-11-07 22:31:57 innodb_data_file_path = ibdata1:12M:autoextend
[00] 2020-11-07 22:31:57 innodb_log_group_home_dir = ./
[00] 2020-11-07 22:31:57 InnoDB: Using linux native AIO
2020-11-07 22:31:57 0 [Note] InnoDB: Number of pools: 1
[00] 2020-11-07 22:31:57 mariabackup: Generating a list of tablespaces
2020-11-07 22:31:57 0 [Warning] InnoDB: Allocated tablespace ID 4 for mysql/gtid_slave_pos, old maximum was 0
[00] 2020-11-07 22:31:57 >> log scanned up to (70127)
[01] 2020-11-07 22:31:57 copying ibdata1 to /inc/ibdata1.delta
...done
[01] 2020-11-07 22:31:57 copying ./mysql/gtid_slave_pos.ibd to /inc/mysql/gtid_slave_pos.ibd.delta
...done
[01] 2020-11-07 22:31:57 copying ./mysql/innodb_index_stats.ibd to /inc/mysql/innodb_index_stats.ibd.delta
...done
[01] 2020-11-07 22:31:57 copying ./mysql/innodb_table_stats.ibd to /inc/mysql/innodb_table_stats.ibd.delta
...done
[01] 2020-11-07 22:31:57 copying ./mysql/transaction_registry.ibd to /inc/mysql/transaction_registry.ibd.delta
...done
[01] 2020-11-07 22:31:57 copying ./rincon_veracruzano/antojitos.ibd to /inc/rincon_veracruzano/antojitos.ibd.delta
...done
[00] 2020-11-07 22:31:57 >> log scanned up to (70127)
[00] 2020-11-07 22:31:58 Acquiring BACKUP LOCKS...
[00] 2020-11-07 22:31:58 Starting to backup non-InnoDB tables and files
[01] 2020-11-07 22:31:58 copying ./myfirstdb/db.opt to /inc/myfirstdb/db.opt
...done
[01] 2020-11-07 22:31:58 copying ./mysql/column_stats.MAD to /inc/mysql/column_stats.MAD
...done
[01] 2020-11-07 22:31:58 copying ./mysql/column_stats.MAI to /inc/mysql/column_stats.MAI
...done
[01] 2020-11-07 22:31:58 copying ./mysql/column_stats.frm to /inc/mysql/column_stats.frm
...done
[01] 2020-11-07 22:31:58 copying ./mysql/columns_priv.MAD to /inc/mysql/columns_priv.MAD
...done
[01] 2020-11-07 22:31:58 copying ./mysql/columns_priv.MAI to /inc/mysql/columns_priv.MAI
...done
[01] 2020-11-07 22:31:58 copying ./mysql/columns_priv.frm to /inc/mysql/columns_priv.frm
...done
[01] 2020-11-07 22:31:58 copying ./mysql/db.MAD to /inc/mysql/db.MAD
...done
[01] 2020-11-07 22:31:58

```

Evidencia de Creación de respaldo



Proceso de importación de respaldo total ante una contingencia con evidencia

Preparar la base de datos

```

C:\Users\biosh\Desktop\Universidad\quinto parcial\Administración de base de datos\parcial2>docker exec -i parcial2_db_1 mariabackup --prepare --target-dir=/dbbackups/
mariabackup based on MariaDB server 10.5.5-MariaDB debian-linux-gnu (x86_64)
[00] 2020-11-07 23:23:49 cd to /dbbackups/
[00] 2020-11-07 23:23:49 This target seems to be not prepared yet.
[00] 2020-11-07 23:23:49 mariabackup: using the following InnoDB configuration for recovery:
[00] 2020-11-07 23:23:49 innodb_data_home_dir = .
[00] 2020-11-07 23:23:49 innodb_data_file_path = ibdata1:12M:autoextend
[00] 2020-11-07 23:23:49 innodb_log_group_home_dir = .
[00] 2020-11-07 23:23:49 InnoDB: Using Linux native AIO
[00] 2020-11-07 23:23:49 Starting InnoDB instance for recovery.
[00] 2020-11-07 23:23:49 mariabackup: Using 104857600 bytes for buffer pool (set by --use-memory parameter)
2020-11-07 23:23:49 0 [Note] InnoDB: Uses event mutexes
2020-11-07 23:23:49 0 [Note] InnoDB: Compressed tables use zlib 1.2.11
2020-11-07 23:23:49 0 [Note] InnoDB: Number of pools: 1
2020-11-07 23:23:49 0 [Note] InnoDB: Using SSE4.2 crc32 instructions
mariabackup: 0_TMPFILE is not supported on /tmp (disabling future attempts)
2020-11-07 23:23:49 0 [Note] InnoDB: Initializing buffer pool, total size = 104857600, chunk size = 104857600
2020-11-07 23:23:49 0 [Note] InnoDB: Completed initialization of buffer pool
2020-11-07 23:23:49 0 [Note] InnoDB: If the mysqld execution user is authorized, page cleaner thread priority can be changed. See the man page of setpriority().
2020-11-07 23:23:49 0 [Note] InnoDB: Starting crash recovery from checkpoint LSN=70115
[00] 2020-11-07 23:23:49 Last binlog file , position 0
[00] 2020-11-07 23:23:50 completed OK!

```

Se ejecuta el comando de restauración incremental

```
docker exec -i parcial2_db_1 mariabackup --prepare --target-dir=/dbbackups/ --incremental-dir=inc
```

Se ejecuta el comando de copyback

```

root@17bd7d22a42b: /
root@17bd7d22a42b: /# mariabackup --copy-back --target-dir=/dbbackups/

```

Damos el permiso que necesitamos para ver la base de datos

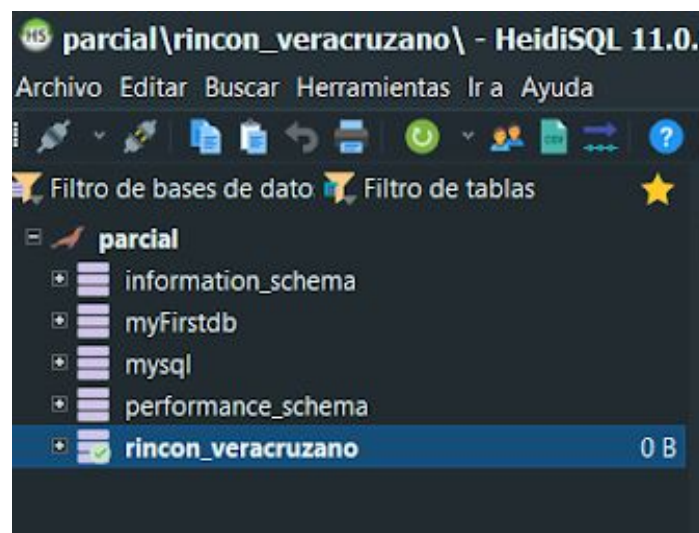
```

root@17bd7d22a42b: /
root@17bd7d22a42b: /# chown -R mysql:mysql /var/lib/mysql/

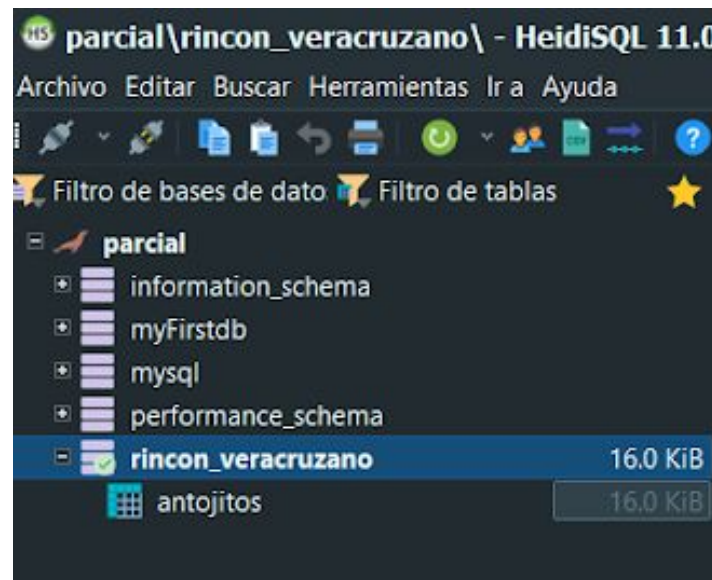
```

Resultados

Antes



Ahora



Conclusiones

En esta materia se me logro recalcar la importancia de la seguridad de la integridad de los datos, pues cuando se logra tener un nivel de conciencia alto con respecto a este tema se logra entender la razón del uso de los respaldos en las bases de datos, pues su uso logra hacer que ante cualquier contingencia o emergencia se logre recuperar todo lo dañado en el suceso, dando la posibilidad de contrarrestar todos los posibles escenarios que puedan llegar a darse en cuanto a la pérdida, secuestro o destrucción de la información que se encuentre en las bases de datos.