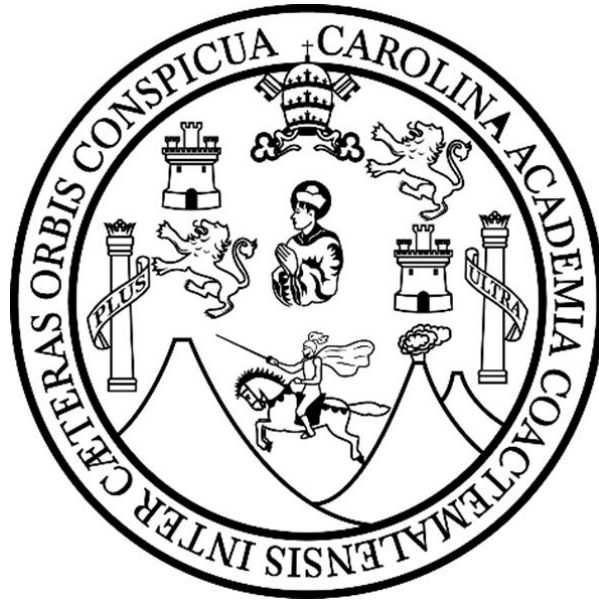


UNIVERSIDAD DE SAN CARLOS DE GUATEMALA

Facultad de Ingeniería
Escuela de Ciencias y Sistemas
Sistemas de Bases de Datos 1



Proyecto Fase 2 Backups

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Backups

Total

Creación de Contenedor para Backup

```
docker run -d `

--name postgres-pgbackrest-full `

-v C:\proyectos\GUIDE_TO_DATABASES_BD2_2S24\Clase4-Recuperacion_de_respalDOS_pgbackrest\src\pg1-path-full:/var/lib/postgresql/data `

-v "C:\Users\PC\Documents\Erick\2025 primer semestre\Sistemas de bases 2\Laboratorio\SBD2-S1-2025-Pareja4\backup\total\segundo/backups" `

-p 5432:5432 `

postgres-pgbackrest

docker exec -it postgres-pgbackrest-full /bin/bash

Python

python .\main_player.py

python .\main_team.py

python .\main_team_details.py
```

```
postgres@5fd2c64f375d:~$ pgbackrest --stanza=bd2_2s24 --type=full --log-level-console=info backup
2025-04-25 20:40:54.835 P00 INFO: backup command begin 2.54.2: --exec-id=222-82d7aad6 --log-level-console=info --pg1-path=/var/lib/postgresql/data -
--pg1-user=admin --repo1-path=/backups --repo1-retention-full=2 --stanza=bd2_2s24 --start-fast --type=full
2025-04-25 20:40:55.066 P00 INFO: execute non-exclusive backup start: backup begins after the requested immediate checkpoint completes
2025-04-25 20:40:55.863 P00 INFO: backup start archive = 000000010000000000000006, lsn = 0/6000028
2025-04-25 20:40:55.863 P00 INFO: check archive for prior segment 000000010000000000000005
2025-04-25 20:41:23.230 P00 INFO: execute non-exclusive backup stop and wait for all WAL segments to archive
2025-04-25 20:41:23.960 P00 INFO: backup stop archive = 000000010000000000000006, lsn = 0/6000158
2025-04-25 20:41:23.986 P00 INFO: check archive for segment(s) 000000010000000000000006:000000010000000000000006
2025-04-25 20:41:24.689 P00 INFO: new backup label = 20250425-204055F
2025-04-25 20:41:24.922 P00 INFO: full backup size = 31.3MB, file total = 1420
2025-04-25 20:41:24.922 P00 INFO: backup command end: completed successfully (30113ms)
2025-04-25 20:41:24.923 P00 INFO: expire command begin 2.54.2: --exec-id=222-82d7aad6 --log-level-console=info --repo1-path=/backups --repo1-retenti
on-full=2 --stanza=bd2_2s24
2025-04-25 20:41:24.936 P00 INFO: expire command end: completed successfully (14ms)
postgres@5fd2c64f375d:~$ exit
logout
root@5fd2c64f375d:/# ^C
root@5fd2c64f375d:/# exit
exit
PS C:\Users\PC\Documents\Erick\2025 primer semestre\Sistemas de bases 2\Laboratorio\SBD2-S1-2025-Pareja4\source\docker2> |
```

Creación de Contenedor para Recuperación

```
find /var/lib/postgresql/data -mindepth 1 -delete

docker run -d `

--name temporal-postgres `

-v C:\proyectos\GUIDE_TO_DATABASES_BD2_2S24\Clase4-Recuperacion_de_respalDOS_pgbackrest\src\pg1-path-full-
recuperacion:/var/lib/postgresql/data `

-v "C:\Users\PC\Documents\Erick\2025 primer semestre\Sistemas de bases 2\Laboratorio\SBD2-S1-2025-Pareja4\backup\total\segundo/backups" `

-p 5432:5432 `

postgres-pgbackrest `
```

```
bash -c "chown -R 999:999 /backups && chown -R 999:999 /var/lib/postgresql/data && su - postgres -c 'pgbackrest --stanza=bd2_2s24 -log-level-console=info --type=immediate restore' && exec su - postgres -c '/usr/lib/postgresql/17/bin/postgres -D /var/lib/postgresql/data'"
```

Cambiar de only-read a conexiones normales

```
SELECT pg_wal_replay_resume();
```

```
2025-04-25 14:56:18 2025-04-25 20:56:18.747 P00 INFO: restore command begin 2.54.2: --exec-id=10-b075ccac --log-level-console=info --pg1-path=/var/lib/postgresql/
data --repo1-path=/backups --stanza=bd2_2s24 --type=immediate
2025-04-25 14:56:18 2025-04-25 20:56:18.794 P00 INFO: repo1: restore backup set 20250425-204055F, recovery will start at 2025-04-25 20:40:55
2025-04-25 14:56:18 2025-04-25 20:56:18.794 P00 WARN: unknown group 'root' in backup manifest mapped to current group
2025-04-25 14:56:46 2025-04-25 20:56:46.234 P00 INFO: write updated /var/lib/postgresql/data/postgresql.auto.conf
2025-04-25 14:56:46 2025-04-25 20:56:46.339 P00 INFO: restore global/pg_control (performed last to ensure aborted restores cannot be started)
2025-04-25 14:56:46 2025-04-25 20:56:46.347 P00 INFO: restore size = 31.3MB, file total = 1420
2025-04-25 14:56:46 2025-04-25 20:56:46.348 P00 INFO: restore command end: completed successfully (27634ms)
2025-04-25 14:56:46 2025-04-25 20:56:46.536 UTC [13] LOG: starting PostgreSQL 17.4 (Debian 17.4-1.pgdg120+2) on x86_64-pc-linux-gnu, compiled by gcc (Debian 12.2.0
-14) 12.2.0, 64-bit
2025-04-25 14:56:46 2025-04-25 20:56:46.541 UTC [13] LOG: listening on IPv4 address "0.0.0.0", port 5432
2025-04-25 14:56:46 2025-04-25 20:56:46.541 UTC [13] LOG: listening on IPv6 address ":::", port 5432
2025-04-25 14:56:46 2025-04-25 20:56:46.557 UTC [13] LOG: listening on Unix socket "/var/run/postgresql/.s.PGSQL.5432"
2025-04-25 14:56:46 2025-04-25 20:56:46.618 UTC [17] LOG: database system was interrupted; last known up at 2025-04-25 20:40:55 UTC
2025-04-25 14:56:51 2025-04-25 20:56:51.142 UTC [17] LOG: starting backup recovery with redo LSN 0/6000028, checkpoint LSN 0/6000080, on timeline ID 1
2025-04-25 14:56:51 2025-04-25 20:56:51.485 UTC [17] LOG: restored log file "000000010000000000000000" from archive
2025-04-25 14:56:51 2025-04-25 20:56:51.562 UTC [17] LOG: starting point-in-time recovery to earliest consistent point
2025-04-25 14:56:51 2025-04-25 20:56:51.646 UTC [17] LOG: redo starts at 0/6000028
2025-04-25 14:56:51 2025-04-25 20:56:51.959 UTC [17] LOG: restored log file "000000010000000000000007" from archive
2025-04-25 14:56:52 2025-04-25 20:56:52.095 UTC [17] LOG: completed backup recovery with redo LSN 0/6000028 and end LSN 0/6000158
2025-04-25 14:56:52 2025-04-25 20:56:52.099 UTC [17] LOG: consistent recovery state reached at 0/6000158
2025-04-25 14:56:52 2025-04-25 20:56:52.099 UTC [17] LOG: recovery stopping after reaching consistency
2025-04-25 14:56:52 2025-04-25 20:56:52.099 UTC [17] LOG: pausing at the end of recovery
2025-04-25 14:56:52 2025-04-25 20:56:52.099 UTC [17] HINT: Execute pg_wal_replay_resume() to promote.
```

Incremental

Creación de Contenedor para Backup

```
docker run -d `
```

```
--name postgres-pgbackrest-incr `
```

```
-v C:\proyectos\GUIDE_TO_DATABASES_BD2_2S24\Cfase4-Recuperacion_de_respaldos_pgbackrest\src\pg1-path-incr:/var/lib/postgresql/data `
```

```
-v "C:\Users\PC\Documents\Erick\2025 primer semestre\Sistemas de bases 2\Laboratorio\SBD2-S1-2025-
```

```
Pareja4\backup\incremental:/backups" -p 5432:5432 `
```

```
postgres-pgbackrest
```

```
docker exec -it postgres-pgbackrest-incr /bin/bash
```

```
postgres@cc1ef558ee5:~$ pgbackrest --stanza=bd2_2s24 --type=incr --log-level-console=info backup
2025-04-25 22:54:49.764 P00 INFO: backup command begin 2.54.2: --exec-id=158-4f266c6f --log-level-console=info --pg1-path=/var/lib/postgresql/data
--pg1-user=admin --repo1-path=/backups --repo1-retention-full=2 --stanza=bd2_2s24 --start-fast --type=incr
2025-04-25 22:54:49.913 P00 INFO: last backup label = 20250425-222651F 20250425-224517I, version = 2.54.2
2025-04-25 22:54:49.913 P00 INFO: execute non-exclusive backup start: backup begins after the requested immediate checkpoint completes
2025-04-25 22:54:51.042 P00 INFO: backup start archive = 0000000100000000000000013, lsn = 0/13000028
2025-04-25 22:54:51.042 P00 INFO: check archive for prior segment 0000000100000000000000012
2025-04-25 22:54:56.656 P00 INFO: execute non-exclusive backup stop and wait for all WAL segments to archive
2025-04-25 22:54:57.459 P00 INFO: backup stop archive = 0000000100000000000000013, lsn = 0/13000120
2025-04-25 22:54:57.492 P00 INFO: check archive for segment(s) 0000000100000000000000013:0000000100000000000000013
2025-04-25 22:54:58.229 P00 INFO: new backup label = 20250425-222651F 20250425-225449I
2025-04-25 22:54:58.496 P00 INFO: incr backup size = 3.4MB, file total = 1430
2025-04-25 22:54:58.496 P00 INFO: backup command end: completed successfully (8751ms)
2025-04-25 22:54:58.496 P00 INFO: expire command begin 2.54.2: --exec-id=158-4f266c6f --log-level-console=info --repo1-path=/backups --repo1-retent
on-full=2 --stanza=bd2_2s24
2025-04-25 22:54:58.527 P00 INFO: expire command end: completed successfully (31ms)
postgres@cc1ef558ee5:~$ exit
logout
```

Python

```
python .\main_player.py
```

```
python .\main_team.py
```

```
python .\main_team_details.py
```

```
python .\main_draft_history.py

python .\main_common_player_info.py
```

Creación de Contenedor para Recuperación

```
docker run -d `

    --name temporal-postgres-incr `

    -v C:\proyectos\GUIDE_TO_DATABASES_BD2_2S24\Clase4-Recuperacion_de_respalDOS_pgbackrest\src\pg1-path-temporal-
    incr:/var/lib/postgresql/data `

    -v "C:\Users\PC\Documents\Erick\2025 primer semestre\Sistemas de bases 2\Laboratorio\SBD2-S1-2025-
    Pareja4\backup\incremental:/backups" `

    -p 5432:5432 `

    postgres-pgbackrest `

    bash -c "chown -R 999:999 /backups && chown -R 999:999 /var/lib/postgresql/data && su - postgres -c 'pgbackrest --stanza=bd2_2s24 -
    -log-level-console=info --type=immediate restore' && exec su - postgres -c '/usr/lib/postgresql/17/bin/postgres -D /var/lib/postgresql/data'"

2025-04-25 17:09:25 2025-04-25 23:09:25.278 UTC [14] LOG:  listening on IPv4 address "0.0.0.0", port 5432
2025-04-25 17:09:25 2025-04-25 23:09:25.278 UTC [14] LOG:  listening on IPv6 address ":::", port 5432
2025-04-25 17:09:25 2025-04-25 23:09:25.288 UTC [14] LOG:  listening on Unix socket "/var/run/postgresql/.s.PGSQL.5432"
2025-04-25 17:09:25 2025-04-25 23:09:25.334 UTC [18] LOG:  database system was interrupted; last known up at 2025-04-25 22:54:50 UTC
2025-04-25 17:09:29 2025-04-25 23:09:29.940 UTC [18] LOG:  starting backup recovery with redo LSN 0/13000028, checkpoint LSN 0/13000080, on timeline ID 1
2025-04-25 17:09:30 2025-04-25 23:09:30.170 UTC [18] LOG:  restored log file "000000010000000000000000000013" from archive
2025-04-25 17:09:30 2025-04-25 23:09:30.231 UTC [18] LOG:  starting point-in-time recovery to earliest consistent point
2025-04-25 17:09:30 2025-04-25 23:09:30.296 UTC [18] LOG:  redo starts at 0/13000028
2025-04-25 17:09:30 2025-04-25 23:09:30.534 UTC [18] LOG:  restored log file "0000000100000000000000000014" from archive
2025-04-25 17:09:30 2025-04-25 23:09:30.616 UTC [18] LOG:  completed backup recovery with redo LSN 0/13000028 and end LSN 0/13000120
2025-04-25 17:09:30 2025-04-25 23:09:30.619 UTC [18] LOG:  consistent recovery state reached at 0/13000120
2025-04-25 17:09:30 2025-04-25 23:09:30.619 UTC [18] LOG:  recovery stopping after reaching consistency
2025-04-25 17:09:30 2025-04-25 23:09:30.619 UTC [14] LOG:  database system is ready to accept read-only connections
2025-04-25 17:09:30 2025-04-25 23:09:30.619 UTC [18] LOG:  pausing at the end of recovery
2025-04-25 17:09:30 2025-04-25 23:09:30.619 UTC [18] HINT:  Execute pg_wal_replay_resume() to promote.
2025-04-25 17:09:04 2025-04-25 23:09:04.444 P00 INFO: restore command begin 2.54.2: --exec-id=11-2dc8a8ae --log-level-console=info --pg1-path=/var/lib/postgresql/
data --repo1-path=/backups --stanza=bd2_2s24 --type=immediate
2025-04-25 17:09:04 2025-04-25 23:09:04.468 P00 INFO: repo1: restore backup set 20250425-222651F_20250425-225449I, recovery will start at 2025-04-25 22:54:49
2025-04-25 17:09:04 2025-04-25 23:09:04.468 P00 WARN: unknown group 'root' in backup manifest mapped to current group
2025-04-25 17:09:25 2025-04-25 23:09:25.038 P00 INFO: write updated /var/lib/postgresql/data/postgresql.auto.conf
2025-04-25 17:09:25 2025-04-25 23:09:25.126 P00 INFO: restore global/pg_control (performed last to ensure aborted restores cannot be started)
2025-04-25 17:09:25 2025-04-25 23:09:25.134 P00 INFO: restore size = 33.5MB, file total = 1430
2025-04-25 17:09:25 2025-04-25 23:09:25.134 P00 INFO: restore command end: completed successfully (20698ms)
```

Diferencial

Creación de Contenedor para Backup

```
docker run -d `

    --name postgres-pgbackrest-diff `

    -v C:\proyectos\GUIDE_TO_DATABASES_BD2_2S24\Clase4-Recuperacion_de_respalDOS_pgbackrest\src\pg1-path-diff:/var/lib/postgresql/data `

    -v "C:\Users\PC\Documents\Erick\2025 primer semestre\Sistemas de bases 2\Laboratorio\SBD2-S1-2025-
    Pareja4\backup\diferencial:/backups" `

    -p 5432:5432 postgres-pgbackrest

Python

python .\main_player.py

python .\main_team.py

python .\main_team_details.py
```

```

postgres@e4bca9117750:~$ pgbackrest --stanza=bd2_2s24 --log-level-console=info backup
2025-04-25 23:31:07.984 P00 INFO: backup command begin 2.54.2: --exec-id=119-1e55d689 --log-level-console=info --pg1-path=/var/lib/postgresql/data
--pg1-user=admin --repo1-path=/backups --repo1-retention-full=2 --stanza=bd2_2s24 --start-fast
2025-04-25 23:31:08.152 P00 WARN: no prior backup exists, incr backup has been changed to full
2025-04-25 23:31:08.153 P00 INFO: execute non-exclusive backup start: backup begins after the requested immediate checkpoint completes
2025-04-25 23:31:09.331 P00 INFO: backup start archive = 000000010000000000000005, lsn = 0/5000028
2025-04-25 23:31:09.331 P00 INFO: check archive for prior segment 000000010000000000000004
2025-04-25 23:31:36.684 P00 INFO: execute non-exclusive backup stop and wait for all WAL segments to archive
2025-04-25 23:31:37.564 P00 INFO: backup stop archive = 000000010000000000000005, lsn = 0/5000158
2025-04-25 23:31:37.601 P00 INFO: check archive for segment(s) 000000010000000000000005:000000010000000000000005
2025-04-25 23:31:38.378 P00 INFO: new backup label = 20250425-233108F
2025-04-25 23:31:38.904 P00 INFO: full backup size = 30.5MB, file total = 1416
2025-04-25 23:31:38.904 P00 INFO: backup command end: completed successfully (30927ms)
2025-04-25 23:31:38.988 P00 INFO: expire command begin 2.54.2: --exec-id=119-1e55d689 --log-level-console=info --repo1-path=/backups --repo1-retenti
on-full=2 --stanza=bd2_2s24
2025-04-25 23:31:38.939 P00 INFO: expire command end: completed successfully (34ms)
postgres@e4bca9117750:~$

```

```

postgres@e4bca9117750:~$ pgbackrest --stanza=bd2_2s24 --type=diff --log-level-console=info backup
2025-04-25 23:34:09.634 P00 INFO: backup command begin 2.54.2: --exec-id=148-8d195274 --log-level-console=info --pg1-path=/var/lib/postgresql/data
--pg1-user=admin --repo1-path=/backups --repo1-retention-full=2 --stanza=bd2_2s24 --start-fast --type=diff
2025-04-25 23:34:09.743 P00 INFO: last backup label = 20250425-233108F, version = 2.54.2
2025-04-25 23:34:09.743 P00 INFO: execute non-exclusive backup start: backup begins after the requested immediate checkpoint completes
2025-04-25 23:34:10.760 P00 INFO: backup start archive = 000000010000000000000009, lsn = 0/9000028
2025-04-25 23:34:10.761 P00 INFO: check archive for prior segment 000000010000000000000008
2025-04-25 23:34:13.984 P00 INFO: execute non-exclusive backup stop and wait for all WAL segments to archive
2025-04-25 23:34:14.531 P00 INFO: backup stop archive = 000000010000000000000009, lsn = 0/9000120
2025-04-25 23:34:14.555 P00 INFO: check archive for segment(s) 000000010000000000000009:000000010000000000000009
2025-04-25 23:34:15.446 P00 INFO: new backup label = 20250425-233108F_20250425-233409D
2025-04-25 23:34:15.447 P00 INFO: diff backup size = 2MB, file total = 1420
2025-04-25 23:34:15.447 P00 INFO: backup command end: completed successfully (5826ms)
2025-04-25 23:34:15.447 P00 INFO: expire command begin 2.54.2: --exec-id=148-8d195274 --log-level-console=info --repo1-path=/backups --repo1-retenti
on-full=2 --stanza=bd2_2s24
2025-04-25 23:34:15.471 P00 INFO: expire command end: completed successfully (24ms)

```

Creación de Contenedor para Recuperación

```

docker run -d `

--name temporal-postgres-diff `

-v C:\proyectos\GUIDE_TO_DATABASES_BD2_2S24\Clase4-Recuperacion_de_respalDOS_pgbackrest\src\pg1-path-temporal-
diff:/var/lib/postgresql/data `

-v "C:\Users\PC\Documents\Erick\2025 primer semestre\Sistemas de bases 2\Laboratorio\SBD2-S1-2025-
Pareja4\backup\diferencial:/backups" `

-p 5432:5432 `

postgres-pgbackrest `

bash -c "chown -R 999:999 /backups && chown -R 999:999 /var/lib/postgresql/data && su - postgres -c 'pgbackrest --stanza=bd2_2s24 -
--log-level-console=info --type=immediate restore' && exec su - postgres -c '/usr/lib/postgresql/17/bin/postgres -D /var/lib/postgresql/data'"

```

```

2025-04-25 18:02:22 2025-04-26 00:02:22.347 P00 INFO: repo1: restore backup set 20250425-233108F_20250425-235133D, recovery will start at 2025-04-25 23:51:33
2025-04-25 18:02:22 2025-04-26 00:02:22.347 P00 WARN: unknown group 'root' in backup manifest mapped to current group
2025-04-25 18:02:43 2025-04-26 00:02:43.744 P00 INFO: write updated /var/lib/postgresql/data/postgresql.auto.conf
2025-04-25 18:02:43 2025-04-26 00:02:43.832 P00 INFO: restore global/pg_control (performed last to ensure aborted restores cannot be started)
2025-04-25 18:02:43 2025-04-26 00:02:43.840 P00 INFO: restore size = 31.2MB, file total = 1420
2025-04-25 18:02:43 2025-04-26 00:02:43.841 P00 INFO: restore command end: completed successfully (21548ms)
2025-04-25 18:02:43 2025-04-26 00:02:43.977 UTC [13] LOG: starting PostgreSQL 17.4 (Debian 17.4-1.pgdg120+2) on x86_64-pc-linux-gnu, compiled by gcc (Debian 12.2.0
-14) 12.2.0, 64-bit
2025-04-25 18:02:43 2025-04-26 00:02:43.981 UTC [13] LOG: listening on IPv4 address "0.0.0.0", port 5432
2025-04-25 18:02:43 2025-04-26 00:02:43.982 UTC [13] LOG: listening on IPv6 address "::", port 5432
2025-04-25 18:02:43 2025-04-26 00:02:43.992 UTC [13] LOG: listening on Unix socket "/var/run/postgresql/.s.PGSQL.5432"
2025-04-25 18:02:44 2025-04-26 00:02:44.057 UTC [17] LOG: database system was interrupted; last known up at 2025-04-25 23:51:34 UTC
2025-04-25 18:02:49 2025-04-26 00:02:49.734 UTC [17] LOG: starting backup recovery with redo LSN 0/D000028, checkpoint LSN 0/D000080, on timeline ID 1
2025-04-25 18:02:50 2025-04-26 00:02:50.010 UTC [17] LOG: restored log file "000000010000000000000000" from archive
2025-04-25 18:02:50 2025-04-26 00:02:50.063 UTC [17] LOG: starting point-in-time recovery to earliest consistent point
2025-04-25 18:02:50 2025-04-26 00:02:50.135 UTC [17] LOG: redo starts at 0/D000028
2025-04-25 18:02:50 2025-04-26 00:02:50.373 UTC [17] LOG: restored log file "00000001000000000000000E" from archive
2025-04-25 18:02:50 2025-04-26 00:02:50.473 UTC [17] LOG: completed backup recovery with redo LSN 0/D000028 and end LSN 0/D000120
2025-04-25 18:02:50 2025-04-26 00:02:50.477 UTC [17] LOG: consistent recovery state reached at 0/D000120
2025-04-25 18:02:50 2025-04-26 00:02:50.478 UTC [17] LOG: recovery stopping after reaching consistency
2025-04-25 18:02:50 2025-04-26 00:02:50.478 UTC [17] LOG: pausing at the end of recovery
2025-04-25 18:02:50 2025-04-26 00:02:50.478 UTC [17] HINT: Execute pg_wal_replay_resume() to promote.
2025-04-25 18:02:50 2025-04-26 00:02:50.478 UTC [13] LOG: database system is ready to accept read-only connections

```

Total	Se puede generar en cualquier momento y se tiene limitaciones cada vez que se hace se consumen una gran cantidad de recursos por lo que se debe de usar de manera adecuada con planificación.
Incremental	No requiere de muchos recursos pero no realiza un copiado completo de todos los datos solo aquellos agregados y modificados que son nuevos desde el ultimo respaldo.
Diferencial	No requiere de muchos recursos pero no realiza un copiado completo de todos los datos solo aquellos agregados y modificados que son nuevos desde el ultimo respaldo completo.

https://github.com/Erick21Enrique99Gon/PROYECTO_BD2_G9.git