COMMAND FOR TERMINAL: ssh -N -L 7420:localhost:7420 -p 22 eeng8@128.226.29.139

```
groups: cannot find name for group ID 565400513
eeng8@CS415-39:~/project-1-implementation-yakult$ source env/dev/bin/activate
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker exec -it timescaledb
psql -U postgres
[sudo] password for eeng8:
psql (16.4 (Ubuntu 16.4-1.pgdg22.04+2))
Type "help" for help.

postgres=# sql database create
postgres-# exit
Use \q to quit.
postgres-# \q
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$
$env:FAKTORY_SERVER_URL="faktory://localhost:7419"
bash: :FAKTORY_SERVER_URL=faktory://localhost:7419: No such file or directory
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker ps
CONTAINER ID   IMAGE                     COMMAND               CREATED        STATUS
PORTS                                    NAMES
d9675d1c19a9   contribsys/faktory:latest     "/faktory -w 0.0.0.0…"  13 hours ago   Up About an
hour   0.0.0.0:7419-7420->7419-7420/tcp, :::7419-7420->7419-7420/tcp   faktory
24da312e89fe   timescale/timescaledb-ha:pg16   "/docker-entrypoint.…"   14 hours ago   Up 14
hours       8008/tcp, 127.0.0.1:5432->5432/tcp, 8081/tcp                 timescaledb
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker start timescaledb
timescaledb
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ export
FAKTORY_SERVER_URL="tcp://password@localhost:7419"
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ export
DATABASE_URL="postgres://postgres:testpassword@localhost:5432/reddit_crawler"
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker exec -it timescaledb
psql -U postgres
psql (16.4 (Ubuntu 16.4-1.pgdg22.04+2))
Type "help" for help.

postgres=# CREATE DATABASE reddit_crawler;
CREATE DATABASE
postgres=# \q
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker exec -it timescaledb
psql -U postgres reddit_crawler
psql (16.4 (Ubuntu 16.4-1.pgdg22.04+2))
Type "help" for help.
```

```
reddit_crawler=# \q
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sqlx migrate run
Command 'sqlx' not found, did you mean:
  command 'sqlc' from snap sqlc (1.27.0)
  command 'sqlt' from deb libsql-translator-perl (1.64-1)
  command 'silx' from deb silx (1.1.2+dfsg-2build1)
  command 'sql' from deb parallel (20231122+ds-1)
See 'snap info <snapname>' for additional versions.
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sqlx migrate add -r --source
./project-1-implementation-yakult/migrations "table"
Command 'sqlx' not found, did you mean:
  command 'sqlc' from snap sqlc (1.27.0)
  command 'sqlt' from deb libsql-translator-perl (1.64-1)
  command 'silx' from deb silx (1.1.2+dfsg-2build1)
  command 'sql' from deb parallel (20231122+ds-1)
See 'snap info <snapname>' for additional versions.
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sqlx --version
Command 'sqlx' not found, did you mean:
  command 'sqlc' from snap sqlc (1.27.0)
  command 'silx' from deb silx (1.1.2+dfsg-2build1)
  command 'sql' from deb parallel (20231122+ds-1)
  command 'sqlt' from deb libsql-translator-perl (1.64-1)
See 'snap info <snapname>' for additional versions.
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ curl --proto '=https' --tlsv1.2 -sSf
https://sh.rustup.rs | sh
info: downloading installer

Welcome to Rust!

This will download and install the official compiler for the Rust
programming language, and its package manager, Cargo.

Rustup metadata and toolchains will be installed into the Rustup
home directory, located at:

  /home/eeng8/.rustup

This can be modified with the RUSTUP_HOME environment variable.

The Cargo home directory is located at:

  /home/eeng8/.cargo
```

This can be modified with the CARGO_HOME environment variable.

The cargo, rustc, rustup and other commands will be added to
Cargo's bin directory, located at:

  /home/eeng8/.cargo/bin

This path will then be added to your PATH environment variable by
modifying the profile files located at:

  /home/eeng8/.profile
  /home/eeng8/.bashrc

You can uninstall at any time with rustup self uninstall and
these changes will be reverted.

Current installation options:

  default host triple: x86_64-unknown-linux-gnu
    default toolchain: stable (default)
            profile: default
  modify PATH variable: yes

1) Proceed with standard installation (default - just press enter)
2) Customize installation
3) Cancel installation
>

info: profile set to 'default'
info: default host triple is x86_64-unknown-linux-gnu
info: syncing channel updates for 'stable-x86_64-unknown-linux-gnu'
info: latest update on 2024-10-17, rust version 1.82.0 (f6e511eec 2024-10-15)
info: downloading component 'cargo'
info: downloading component 'clippy'
info: downloading component 'rust-docs'
info: downloading component 'rust-std'
info: downloading component 'rustc'
info: downloading component 'rustfmt'
info: installing component 'cargo'
info: installing component 'clippy'
info: installing component 'rust-docs'
 16.3 MiB / 16.3 MiB (100 %)   9.1 MiB/s in 1s ETA: 0s
info: installing component 'rust-std'

```
 26.0 MiB /  26.0 MiB (100 %)  18.6 MiB/s in  1s ETA:  0s
info: installing component 'rustc'
 70.8 MiB /  70.8 MiB (100 %)  20.4 MiB/s in  3s ETA:  0s
info: installing component 'rustfmt'
info: default toolchain set to 'stable-x86_64-unknown-linux-gnu'

  stable-x86_64-unknown-linux-gnu installed - rustc 1.82.0 (f6e511eec 2024-10-15)


Rust is installed now. Great!

To get started you may need to restart your current shell.
This would reload your PATH environment variable to include
Cargo's bin directory ($HOME/.cargo/bin).

To configure your current shell, you need to source
the corresponding env file under $HOME/.cargo.

This is usually done by running one of the following (note the leading DOT):
. "$HOME/.cargo/env"          # For sh/bash/zsh/ash/dash/pdksh
source "$HOME/.cargo/env.fish"  # For fish
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ cargo install sqlx-cli --features
postgres
Command 'cargo' not found, but can be installed with:
snap install rustup  # version 1.27.1, or
apt  install cargo   # version 1.75.0+dfsg0ubuntu1-0ubuntu7.1
apt  install rustup  # version 1.26.0-3
See 'snap info rustup' for additional versions.

eeng8@CS415-39:~/project-1-implementation-yakult$ source env/dev/bin/activate
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ cargo install sqlx-cli
--no-default-features --features postgres
    Updating crates.io index
  Installing sqlx-cli v0.8.2
    Updating crates.io index
     Locking 232 packages to latest compatible versions
      Adding bitflags v1.3.2 (latest: v2.6.0)
      Adding clipboard-win v4.5.0 (latest: v5.4.0)
      Adding encode_unicode v0.3.6 (latest: v1.0.0)
      Adding endian-type v0.1.2 (latest: v0.2.0)
      Adding error-code v2.3.1 (latest: v3.3.1)
      Adding fd-lock v3.0.13 (latest: v4.0.2)
      Adding generic-array v0.14.7 (latest: v1.1.0)
      Adding hashbrown v0.14.5 (latest: v0.15.0)
```

Adding hermit-abi v0.3.9 (latest: v0.4.0)
Adding idna v0.5.0 (latest: v1.0.2)
Adding linux-raw-sys v0.4.14 (latest: v0.6.5)
Adding memoffset v0.6.5 (latest: v0.9.1)
Adding nix v0.23.2 (latest: v0.29.0)
Adding rustyline v9.1.2 (latest: v14.0.0)
Adding sqlformat v0.2.6 (latest: v0.3.0)
Adding str-buf v1.0.6 (latest: v3.0.3)
Adding unicode-width v0.1.14 (latest: v0.2.0)
Adding wasi v0.11.0+wasi-snapshot-preview1 (latest: v0.13.3+wasi-0.2.2)
Adding windows-core v0.52.0 (latest: v0.58.0)
Adding windows-sys v0.48.0 (latest: v0.59.0)
Adding windows-sys v0.52.0 (latest: v0.59.0)
Adding windows-targets v0.48.5 (latest: v0.52.6)
Adding windows_aarch64_gnullvm v0.48.5 (latest: v0.52.6)
Adding windows_aarch64_msvc v0.48.5 (latest: v0.52.6)
Adding windows_i686_gnu v0.48.5 (latest: v0.52.6)
Adding windows_i686_msvc v0.48.5 (latest: v0.52.6)
Adding windows_x86_64_gnu v0.48.5 (latest: v0.52.6)
Adding windows_x86_64_gnullvm v0.48.5 (latest: v0.52.6)
Adding windows_x86_64_msvc v0.48.5 (latest: v0.52.6)
Adding zerocopy v0.7.35 (latest: v0.8.7)
Adding zerocopy-derive v0.7.35 (latest: v0.8.7)
Compiling proc-macro2 v1.0.89
Compiling unicode-ident v1.0.13
Compiling autocfg v1.4.0
Compiling libc v0.2.161
Compiling cfg-if v1.0.0
Compiling serde v1.0.213
Compiling version_check v0.9.5
Compiling typenum v1.17.0
Compiling generic-array v0.14.7
Compiling quote v1.0.37
Compiling memchr v2.7.4
Compiling syn v2.0.85
Compiling byteorder v1.5.0
Compiling pin-project-lite v0.2.15
Compiling futures-core v0.3.31
Compiling slab v0.4.9
Compiling crossbeam-utils v0.8.20
Compiling once_cell v1.20.2
Compiling block-buffer v0.10.4
Compiling crypto-common v0.1.6
Compiling subtle v2.6.1

```
Compiling tinyvec_macros v0.1.1
Compiling tinyvec v1.8.0
Compiling digest v0.10.7
Compiling ahash v0.8.11
Compiling lock_api v0.4.12
Compiling num-traits v0.2.19
Compiling parking_lot_core v0.9.10
Compiling futures-sink v0.3.31
Compiling futures-channel v0.3.31
Compiling getrandom v0.2.15
Compiling unicode-normalization v0.1.24
Compiling mio v1.0.2
Compiling socket2 v0.5.7
Compiling pin-utils v0.1.0
Compiling log v0.4.22
Compiling bytes v1.8.0
Compiling unicode-bidi v0.3.17
Compiling thiserror v1.0.65
Compiling utf8parse v0.2.2
Compiling futures-io v0.3.31
Compiling scopeguard v1.2.0
Compiling serde_json v1.0.132
Compiling futures-task v0.3.31
Compiling bitflags v2.6.0
Compiling rand_core v0.6.4
Compiling memoffset v0.6.5
Compiling percent-encoding v2.3.1
Compiling allocator-api2 v0.2.18
Compiling itoa v1.0.11
Compiling serde_derive v1.0.213
Compiling zerocopy-derive v0.7.35
Compiling futures-macro v0.3.31
Compiling tokio-macros v2.4.0
Compiling zerocopy v0.7.35
Compiling futures-util v0.3.31
Compiling tokio v1.41.0
Compiling ppv-lite86 v0.2.20
Compiling thiserror-impl v1.0.65
Compiling paste v1.0.15
Compiling minimal-lexical v0.2.1
Compiling rustix v0.38.37
Compiling ryu v1.0.18
Compiling nom v7.1.3
Compiling rand_chacha v0.3.1
```

```
Compiling hashbrown v0.14.5
Compiling smallvec v1.13.2
Compiling tracing-attributes v0.1.27
Compiling parking_lot v0.12.3
Compiling form_urlencoded v1.2.1
Compiling idna v0.5.0
Compiling concurrent-queue v2.5.0
Compiling tracing-core v0.1.32
Compiling unicode_categories v0.1.1
Compiling equivalent v1.0.1
Compiling cpufeatures v0.2.14
Compiling crc-catalog v2.4.0
Compiling linux-raw-sys v0.4.14
Compiling parking v2.2.1
Compiling hashbrown v0.15.0
Compiling event-listener v5.3.1
Compiling crc v3.2.1
Compiling indexmap v2.6.0
Compiling sha2 v0.10.8
Compiling sqlformat v0.2.6
Compiling tracing v0.1.40
Compiling url v2.5.2
Compiling futures-intrusive v0.5.0
Compiling nibble_vec v0.1.0
Compiling hashlink v0.9.1
Compiling either v1.13.0
Compiling tokio-stream v0.1.16
Compiling rand v0.8.5
Compiling atoi v2.0.0
Compiling anstyle-parse v0.2.5
Compiling crossbeam-queue v0.3.11
Compiling hmac v0.12.1
Compiling dirs-sys-next v0.1.2
Compiling is_terminal_polyfill v1.70.1
Compiling anstyle-query v1.1.1
Compiling endian-type v0.1.2
Compiling hex v0.4.3
Compiling anstyle v1.0.8
Compiling bitflags v1.3.2
Compiling semver v1.0.23
Compiling unicode-properties v0.1.3
Compiling unicode-width v0.1.14
Compiling camino v1.1.9
Compiling colorchoice v1.0.2
```

```
   Compiling anstream v0.6.15
   Compiling stringprep v0.1.5
   Compiling nix v0.23.2
   Compiling sqlx-core v0.8.2
   Compiling radix_trie v0.2.1
   Compiling dirs-next v2.0.0
   Compiling hkdf v0.12.4
   Compiling fd-lock v3.0.13
   Compiling md-5 v0.10.6
   Compiling unicode-segmentation v1.12.0
   Compiling heck v0.5.0
   Compiling base64 v0.22.1
   Compiling anyhow v1.0.91
   Compiling dotenvy v0.15.7
   Compiling whoami v1.5.2
   Compiling strsim v0.11.1
   Compiling home v0.5.9
   Compiling clap_lex v0.7.2
   Compiling clap_builder v4.5.20
   Compiling sqlx-postgres v0.8.2
   Compiling rustyline v9.1.2
   Compiling clap_derive v4.5.18
   Compiling cargo-platform v0.1.8
   Compiling futures-executor v0.3.31
   Compiling instant v0.1.13
   Compiling lazy_static v1.5.0
   Compiling iana-time-zone v0.1.61
   Compiling console v0.15.8
   Compiling chrono v0.4.38
   Compiling backoff v0.4.0
   Compiling futures v0.3.31
   Compiling cargo_metadata v0.18.1
   Compiling clap v4.5.20
   Compiling sqlx v0.8.2
   Compiling promptly v0.3.1
   Compiling async-trait v0.1.83
   Compiling filetime v0.2.25
   Compiling glob v0.3.1
   Compiling sqlx-cli v0.8.2
    Finished `release` profile [optimized] target(s) in 33.11s
  Installing /home/eeng8/.cargo/bin/cargo-sqlx
  Installing /home/eeng8/.cargo/bin/sqlx
   Installed package `sqlx-cli v0.8.2` (executables `cargo-sqlx`, `sqlx`)
 (dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sqlx --version
```

```
sqlx-cli 0.8.2
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sqlx migrate add -r --source
./migrations "table"
Creating ./migrations/20241024164752_table.up.sql
Creating ./migrations/20241024164752_table.down.sql
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sqlx migrate run
Applied 20240926142828/migrate create posts table (7.883171ms)
Applied 20240926144046/migrate add thread number to posts (947.517µs)
Applied 20240926144240/migrate add board to posts (839.487µs)
Applied 20240926144816/migrate add indexes to posts (8.750648ms)
Applied 20240926150128/migrate add unique index for board thread post (3.409087ms)
Applied 20240926150232/migrate delete old board thread post index (4.073916ms)
Applied 20241024164752/migrate table (640.228µs)
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker run -it --name faktory \
  -v ~/projects/docker-disks/faktory-data:/var/lib/faktory/db \
  -e "FAKTORY_PASSWORD=password" \
  -p 127.0.0.1:7419:7419 \
  -p 127.0.0.1:7420:7420 \
  contribsys/faktory:latest \
  /faktory -b :7419 -w :7420
[sudo] password for eeng8:
docker: Error response from daemon: Conflict. The container name "/faktory" is already in use
by container "d9675d1c19a911482e52e44577eb02225ab5a1b8f95db69143c72da4a881cf45".
You have to remove (or rename) that container to be able to reuse that name.
See 'docker run --help'.
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker stop faktory
faktory
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker remove faktory
faktory
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker run -it --name faktory
-v ~/projects/docker-disks/faktory-data:/var/lib/faktory/db   -e
"FAKTORY_PASSWORD=password"   -p 127.0.0.1:7419:7419   -p 127.0.0.1:7420:7420
contribsys/faktory:latest   /faktory -b :7419 -w :7420
Faktory 1.9.1
Copyright © 2024 Contributed Systems LLC
Licensed under the GNU Affero Public License 3.0
I 2024-10-24T16:49:38.220Z Initializing redis storage at /root/.faktory/db, socket
/root/.faktory/db/redis.sock
I 2024-10-24T16:49:38.299Z PID 1 listening at :7419, press Ctrl-C to stop
I 2024-10-24T16:49:38.299Z Web server now listening at :7420
I 2024-10-24T16:49:49.792Z GET / 682.207µs
^CI 2024-10-24T16:51:51.358Z Faktory shutting down
```

eeng8@CS415-39:~/project-1-implementation-yakult$ cd ..
eeng8@CS415-39:~$ rmdir -rf project-1-implementation-yakult
rmdir: invalid option -- 'r'
Try 'rmdir --help' for more information.
eeng8@CS415-39:~$ rm -rf project-1-implementation-yakult
eeng8@CS415-39:~$ git clone
https://github.com/2024-Fall-CS-415-515/project-1-implementation-yakult.git
Cloning into 'project-1-implementation-yakult'...
remote: Enumerating objects: 64, done.
remote: Counting objects: 100% (64/64), done.
remote: Compressing objects: 100% (60/60), done.
remote: Total 64 (delta 30), reused 4 (delta 3), pack-reused 0 (from 0)
Receiving objects: 100% (64/64), 29.20 KiB | 29.21 MiB/s, done.
Resolving deltas: 100% (30/30), done.
eeng8@CS415-39:~$
 * History restored

groups: cannot find name for group ID 565400513
eeng8@CS415-39:~$ cd project-1-implementation-yakult
eeng8@CS415-39:~/project-1-implementation-yakult$ pip3 install pykfaktory
error: externally-managed-environment

× This environment is externally managed
╰─> To install Python packages system-wide, try apt install
    python3-xyz, where xyz is the package you are trying to
    install.

    If you wish to install a non-Debian-packaged Python package,
    create a virtual environment using python3 -m venv path/to/venv.
    Then use path/to/venv/bin/python and path/to/venv/bin/pip. Make
    sure you have python3-full installed.

    If you wish to install a non-Debian packaged Python application,
    it may be easiest to use pipx install xyz, which will manage a
    virtual environment for you. Make sure you have pipx installed.

    See /usr/share/doc/python3.12/README.venv for more information.

note: If you believe this is a mistake, please contact your Python installation or OS distribution
provider. You can override this, at the risk of breaking your Python installation or OS, by passing
--break-system-packages.
hint: See PEP 668 for the detailed specification.

```
eeng8@CS415-39:~/project-1-implementation-yakult$ python -m venv ./env/dev
Command 'python' not found, did you mean:
  command 'python3' from deb python3
  command 'python' from deb python-is-python3
eeng8@CS415-39:~/project-1-implementation-yakult$ python3 -m venv ./env/dev
eeng8@CS415-39:~/project-1-implementation-yakult$ source env/dev/bin/activate
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ pip3 install pykfaktory
ERROR: Could not find a version that satisfies the requirement pykfaktory (from versions: none)
ERROR: No matching distribution found for pykfaktory
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ pip3 install python-dotenv
Collecting python-dotenv
  Using cached python_dotenv-1.0.1-py3-none-any.whl.metadata (23 kB)
Using cached python_dotenv-1.0.1-py3-none-any.whl (19 kB)
Installing collected packages: python-dotenv
Successfully installed python-dotenv-1.0.1
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ pip3 install faktory
Collecting faktory
  Using cached faktory-1.0.0-py3-none-any.whl.metadata (794 bytes)
Using cached faktory-1.0.0-py3-none-any.whl (11 kB)
Installing collected packages: faktory
Successfully installed faktory-1.0.0
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ pip3 install pykfaktory
ERROR: Could not find a version that satisfies the requirement pykfaktory (from versions: none)
ERROR: No matching distribution found for pykfaktory
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ pip3 install requests
Collecting requests
  Using cached requests-2.32.3-py3-none-any.whl.metadata (4.6 kB)
Collecting charset-normalizer<4,>=2 (from requests)
  Using cached
charset_normalizer-3.4.0-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.m
etadata (34 kB)
Collecting idna<4,>=2.5 (from requests)
  Using cached idna-3.10-py3-none-any.whl.metadata (10 kB)
Collecting urllib3<3,>=1.21.1 (from requests)
  Using cached urllib3-2.2.3-py3-none-any.whl.metadata (6.5 kB)
Collecting certifi>=2017.4.17 (from requests)
  Using cached certifi-2024.8.30-py3-none-any.whl.metadata (2.2 kB)
Using cached requests-2.32.3-py3-none-any.whl (64 kB)
Using cached certifi-2024.8.30-py3-none-any.whl (167 kB)
Using cached
charset_normalizer-3.4.0-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl
(143 kB)
Using cached idna-3.10-py3-none-any.whl (70 kB)
Using cached urllib3-2.2.3-py3-none-any.whl (126 kB)
```

Installing collected packages: urllib3, idna, charset-normalizer, certifi, requests
Successfully installed certifi-2024.8.30 charset-normalizer-3.4.0 idna-3.10 requests-2.32.3
urllib3-2.2.3
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ pip3 install psycopg2-binary
Collecting psycopg2-binary
  Using cached
psycopg2_binary-2.9.10-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.me
tadata (4.9 kB)
Using cached
psycopg2_binary-2.9.10-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl
(3.0 MB)
Installing collected packages: psycopg2-binary
Successfully installed psycopg2-binary-2.9.10
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker exec -it timescaledb
psql -U postgres
[sudo] password for eeng8:
psql (16.4 (Ubuntu 16.4-1.pgdg22.04+2))
Type "help" for help.

postgres=# sql database create
postgres-# \q
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$
$env:FAKTORY_SERVER_URL="faktory://localhost:7419"
bash: :FAKTORY_SERVER_URL=faktory://localhost:7419: No such file or directory
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker ps
CONTAINER ID   IMAGE   COMMAND   CREATED   STATUS
PORTS   NAMES
688ba0170ffc   contribsys/faktory:latest   "/faktory -b :7419 -…"   6 days ago   Up 32 minutes
127.0.0.1:7419-7420->7419-7420/tcp   faktory
24da312e89fe   timescale/timescaledb-ha:pg16   "/docker-entrypoint.…"   7 days ago   Up 7
days   8008/tcp, 127.0.0.1:5432->5432/tcp, 8081/tcp   timescaledb
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker pull contribsys/faktory
Using default tag: latest
latest: Pulling from contribsys/faktory
Digest: sha256:1f21409836ae280da24c0fea73213d4a56c8b32a4c0f27f4236caff315db3b18
Status: Image is up to date for contribsys/faktory:latest
docker.io/contribsys/faktory:latest
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker run -it --name faktory \
  -v ~/projects/docker-disks/faktory-data:/var/lib/faktory/db \
  -e "FAKTORY_PASSWORD=password" \
  -p 127.0.0.1:7419:7419 \
  -p 127.0.0.1:7420:7420 \
  contribsys/faktory:latest \
  /faktory -b :7419 -w :7420

docker: Error response from daemon: Conflict. The container name "/faktory" is already in use by container "688ba0170ffc5e3f5e2f1160b07aa08dc12dfa8ece72f32e9a12308c05dda07d". You have to remove (or rename) that container to be able to reuse that name.
See 'docker run --help'.
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ export FAKTORY_SERVER_URL="tcp://password@localhost:7419"
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ export DATABASE_URL="postgres://postgres:testpassword@localhost:5432/reddit_crawler"
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker exec -it timescaledb psql -U postgres
psql (16.4 (Ubuntu 16.4-1.pgdg22.04+2))
Type "help" for help.

postgres=# CREATE DATABASE reddit_crawler
postgres-# CREATE DATABASE reddit_crawler;
ERROR: syntax error at or near "CREATE"
LINE 2: CREATE DATABASE reddit_crawler;
        ^
postgres=# \q
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sqlx migrate run
error: migration 20241024164752 was previously applied but is missing in the resolved migrations
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py
Traceback (most recent call last):
  File "/home/eeng8/project-1-implementation-yakult/reddit_crawler.py", line 4, in <module>
    from pyfaktory import Client, Producer, Consumer, Job
ModuleNotFoundError: No module named 'pyfaktory'
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ pip3 install pyfaktory
Collecting pyfaktory
  Using cached pyfaktory-0.2.6-py3-none-any.whl.metadata (12 kB)
Collecting Pebble<6.0.0,>=5.0.5 (from pyfaktory)
  Using cached Pebble-5.0.7-py3-none-any.whl.metadata (3.6 kB)
Collecting pydantic<3.0.0,>=2.5.2 (from pyfaktory)
  Using cached pydantic-2.9.2-py3-none-any.whl.metadata (149 kB)
Collecting rfc3339-validator<0.2.0,>=0.1.4 (from pyfaktory)
  Using cached rfc3339_validator-0.1.4-py2.py3-none-any.whl.metadata (1.5 kB)
Collecting annotated-types>=0.6.0 (from pydantic<3.0.0,>=2.5.2->pyfaktory)
  Using cached annotated_types-0.7.0-py3-none-any.whl.metadata (15 kB)
Collecting pydantic-core==2.23.4 (from pydantic<3.0.0,>=2.5.2->pyfaktory)
  Using cached pydantic_core-2.23.4-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (6.6 kB)
Collecting typing-extensions>=4.6.1 (from pydantic<3.0.0,>=2.5.2->pyfaktory)
  Using cached typing_extensions-4.12.2-py3-none-any.whl.metadata (3.0 kB)

Collecting six (from rfc3339-validator<0.2.0,>=0.1.4->pyfaktory)
  Using cached six-1.16.0-py2.py3-none-any.whl.metadata (1.8 kB)
Using cached pyfaktory-0.2.6-py3-none-any.whl (17 kB)
Using cached Pebble-5.0.7-py3-none-any.whl (30 kB)
Using cached pydantic-2.9.2-py3-none-any.whl (434 kB)
Using cached
pydantic_core-2.23.4-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (2.1
MB)
Using cached rfc3339_validator-0.1.4-py2.py3-none-any.whl (3.5 kB)
Using cached annotated_types-0.7.0-py3-none-any.whl (13 kB)
Using cached typing_extensions-4.12.2-py3-none-any.whl (37 kB)
Using cached six-1.16.0-py2.py3-none-any.whl (11 kB)
Installing collected packages: typing-extensions, six, Pebble, annotated-types, rfc3339-validator,
pydantic-core, pydantic, pyfaktory
Successfully installed Pebble-5.0.7 annotated-types-0.7.0 pydantic-2.9.2 pydantic-core-2.23.4
pyfaktory-0.2.6 rfc3339-validator-0.1.4 six-1.16.0 typing-extensions-4.12.2
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py
Traceback (most recent call last):
  File "/home/eeng8/project-1-implementation-yakult/reddit_crawler.py", line 5, in <module>
    from reddit_client import RedditClient
  File "/home/eeng8/project-1-implementation-yakult/reddit_client.py", line 37
    "username": os.environ.get("REDDIT_USERNAME")
                ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
SyntaxError: invalid syntax. Perhaps you forgot a comma?
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ pip3 install pyfaktory
Requirement already satisfied: pyfaktory in ./env/dev/lib/python3.12/site-packages (0.2.6)
Requirement already satisfied: Pebble<6.0.0,>=5.0.5 in ./env/dev/lib/python3.12/site-packages
(from pyfaktory) (5.0.7)
Requirement already satisfied: pydantic<3.0.0,>=2.5.2 in ./env/dev/lib/python3.12/site-packages
(from pyfaktory) (2.9.2)
Requirement already satisfied: rfc3339-validator<0.2.0,>=0.1.4 in
./env/dev/lib/python3.12/site-packages (from pyfaktory) (0.1.4)
Requirement already satisfied: annotated-types>=0.6.0 in
./env/dev/lib/python3.12/site-packages (from pydantic<3.0.0,>=2.5.2->pyfaktory) (0.7.0)
Requirement already satisfied: pydantic-core==2.23.4 in ./env/dev/lib/python3.12/site-packages
(from pydantic<3.0.0,>=2.5.2->pyfaktory) (2.23.4)
Requirement already satisfied: typing-extensions>=4.6.1 in
./env/dev/lib/python3.12/site-packages (from pydantic<3.0.0,>=2.5.2->pyfaktory) (4.12.2)
Requirement already satisfied: six in ./env/dev/lib/python3.12/site-packages (from
rfc3339-validator<0.2.0,>=0.1.4->pyfaktory) (1.16.0)
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py
Python-dotenv could not parse statement starting at line 3
Python-dotenv could not parse statement starting at line 3
Traceback (most recent call last):

```
  File "/home/eeng8/project-1-implementation-yakult/reddit_crawler.py", line 25, in <module>
    register_adapter(dict, Json)
                           ^^^^
NameError: name 'Json' is not defined. Did you mean: 'json'?
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py
Python-dotenv could not parse statement starting at line 3
Python-dotenv could not parse statement starting at line 3
Usage: python reddit_crawler.py [produce|consume]
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py produce
Python-dotenv could not parse statement starting at line 3
Python-dotenv could not parse statement starting at line 3
2024-10-31 12:10:17,551 - RedditCrawler - INFO - Starting continuous job production . . .
2024-10-31 12:10:17,552 - RedditCrawler - ERROR - Error in producer loop: Password required
but not provided
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py produce
2024-10-31 12:13:50,868 - RedditCrawler - INFO - Starting continuous job production . . .
2024-10-31 12:13:50,869 - RedditCrawler - ERROR - Error in producer loop: Password required
but not provided
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py produce
2024-10-31 12:14:22,608 - RedditCrawler - INFO - Starting continuous job production . . .
2024-10-31 12:14:22,609 - RedditCrawler - ERROR - Error in producer loop: Password required
but not provided
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py produce
2024-10-31 12:15:40,679 - RedditCrawler - INFO - Starting continuous job production . . .
2024-10-31 12:15:40,679 - RedditCrawler - ERROR - Error in producer loop: Password required
but not provided
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$
$env:DATABASE_URL="postgres://postgres:testpassword@localhost:5432/reddit_crawler"
bash: :DATABASE_URL=postgres://postgres:testpassword@localhost:5432/reddit_crawler: No
such file or directory
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py produce
2024-10-31 12:16:31,145 - RedditCrawler - INFO - Starting continuous job production . . .
2024-10-31 12:16:31,146 - RedditCrawler - ERROR - Error in producer loop: Password required
but not provided
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker run -it --name faktory \
  -v ~/projects/docker-disks/faktory-data:/var/lib/faktory/db \
  -e "FAKTORY_PASSWORD=password" \
  -p 127.0.0.1:7419:7419 \
  -p 127.0.0.1:7420:7420 \
  contribsys/faktory:latest \
  /faktory -b :7419 -w :7420
docker: Error response from daemon: Conflict. The container name "/faktory" is already in use
by container "688ba0170ffc5e3f5e2f1160b07aa08dc12dfa8ece72f32e9a12308c05dda07d". You
have to remove (or rename) that container to be able to reuse that name.
```

See 'docker run --help'.
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py produce
2024-10-31 12:16:54,743 - RedditCrawler - INFO - Starting continuous job production . . .
2024-10-31 12:16:54,744 - RedditCrawler - ERROR - Error in producer loop: Password required
but not provided
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker pull
timescale/timescaledb-ha:pg16
pg16: Pulling from timescale/timescaledb-ha
5e2f388c98d3: Pull complete
4f4fb700ef54: Pull complete
Digest: sha256:2f1a203a066a2199c9ba4c50a55383a899231663d6d725d44f94b3631bbe917f
Status: Downloaded newer image for timescale/timescaledb-ha:pg16
docker.io/timescale/timescaledb-ha:pg16
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker run -d --name
timescaledb -p 5432:5432 -e POSTGRES_PASSWORD=testpassword
timescale/timescaledb-ha:pg16
docker: Error response from daemon: Conflict. The container name "/timescaledb" is already in
use by container
"24da312e89fe085c72ab1baa296021e77fefac58676c959e36beee588f983d54". You have to
remove (or rename) that container to be able to reuse that name.
See 'docker run --help'.
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker ps
CONTAINER ID   IMAGE   COMMAND   CREATED   STATUS
PORTS   NAMES
688ba0170ffc   contribsys/faktory:latest   "/faktory -b :7419 -…"   6 days ago   Up 47 minutes
127.0.0.1:7419-7420->7419-7420/tcp   faktory
24da312e89fe   13ec8f0d8670   "/docker-entrypoint.…"   7 days ago   Up 7 days
8008/tcp, 127.0.0.1:5432->5432/tcp, 8081/tcp   timescaledb
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker stop timescalesb
Error response from daemon: No such container: timescalesb
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker remove timescalesb
Error response from daemon: No such container: timescalesb
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker remove timescaledb
Error response from daemon: cannot remove container "/timescaledb": container is running:
stop the container before removing or force remove
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker stop timescaledb
timescaledb
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker remove timescaledb
timescaledb
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker run -d --name
timescaledb -p 5432:5432 -e POSTGRES_PASSWORD=testpassword
timescale/timescaledb-ha:pg16
0108903db7792c95663759586aaa03f17efda1f941419a492421702eeee9693b
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker ps

```
CONTAINER ID   IMAGE                      COMMAND             CREATED        STATUS
PORTS                                     NAMES
0108903db779   timescale/timescaledb-ha:pg16   "/docker-entrypoint.…"   3 seconds ago   Up 3
seconds    8008/tcp, 0.0.0.0:5432->5432/tcp, :::5432->5432/tcp, 8081/tcp   timescaledb
688ba0170ffc   contribsys/faktory:latest       "/faktory -b :7419 -…"   6 days ago      Up 48
minutes    127.0.0.1:7419-7420->7419-7420/tcp                             faktory
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py producer
Usage: python reddit_crawler.py [produce|consume]
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py produce
2024-10-31 12:18:51,500 - RedditCrawler - INFO - Starting continuous job production . . .
2024-10-31 12:18:51,504 - RedditCrawler - ERROR - Error in producer loop: Password required
but not provided
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 test.py
postgres://postgres:testpassword@localhost:5432/reddit_crawler
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 test.py
postgres://postgres:testpassword@localhost:5432/reddit_crawler
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 test.py
postgres://postgres:testpassword@localhost:5432/reddit_crawler
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 test.py
postgres://postgres:testpassword@localhost:5432/reddit_crawler
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ psql
postgres://postgres:testpassword@localhost:5432/reddit_crawler
psql: error: connection to server at "localhost" (127.0.0.1), port 5432 failed: FATAL:  database
"reddit_crawler" does not exist
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker exec -it timescaledb
psql -U postgres
psql (16.4 (Ubuntu 16.4-1.pgdg22.04+2))
Type "help" for help.

postgres=# CREATE DATABASE reddit_crawler;
CREATE DATABASE
postgres=# \q
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sudo docker exec -it timescaledb
psql -U postgres reddit_crawler
psql (16.4 (Ubuntu 16.4-1.pgdg22.04+2))
Type "help" for help.

reddit_crawler=# \q
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sqlx migrate run
Applied 20240926142828/migrate create posts table (5.395322ms)
Applied 20240926144046/migrate add thread number to posts (1.614494ms)
Applied 20240926144240/migrate add board to posts (2.178573ms)
Applied 20240926144816/migrate add indexes to posts (7.582695ms)
Applied 20240926150128/migrate add unique index for board thread post (2.98621ms)
```

Applied 20240926150232/migrate delete old board thread post index (4.713024ms)
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ sqlx migrate add -r --source
./project-1-implementation-yakult/migrations "table"
Creating ./project-1-implementation-yakult/migrations/20241031162404_table.up.sql
Creating ./project-1-implementation-yakult/migrations/20241031162404_table.down.sql
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ psql
postgres://postgres:testpassword@localhost:5432/reddit_crawler
psql (16.4 (Ubuntu 16.4-0ubuntu0.24.04.2))
Type "help" for help.

reddit_crawler=# \q
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py
Usage: python reddit_crawler.py [produce|consume]
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py produce
2024-10-31 12:24:46,929 - RedditCrawler - INFO - Starting continuous job production . . .
2024-10-31 12:24:46,930 - RedditCrawler - ERROR - Error in producer loop: Password required
but not provided
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$

```
groups: cannot find name for group ID 505406515
eeng8@CS415-39:~/project-1-implementation-yakult$ source env/dev/bin/activate
(dev) eeng8@CS415-39:~/project-1-implementation-yakult$ python3 reddit_crawler.py con
sume
2024-11-01 15:23:39,652 - RedditCrawler - INFO - Starting continuous Faktory consumer
...
No worker id has been given, a random id will be used
Task (job a7649e112758434c8d437a93bef8d8e2) raised <class 'NameError'>: name 'TOKEN_U
RL' is not defined
Task (job a7649e112758434c8d437a93bef8d8e2) raised <class 'NameError'>: name 'TOKEN_U
RL' is not defined
Task (job a7649e112758434c8d437a93bef8d8e2) raised <class 'NameError'>: name 'TOKEN_U
RL' is not defined
Task (job a7649e112758434c8d437a93bef8d8e2) raised <class 'NameError'>: name 'TOKEN_U
RL' is not defined
Task (job fab1def037664539af81d70342428ae0) raised <class 'NameError'>: name 'TOKEN_U
RL' is not defined
Task (job a7649e112758434c8d437a93bef8d8e2) raised <class 'NameError'>: name 'TOKEN_U
RL' is not defined
```

Task (job a7649e112758434c8d437a93bef8d8e2) raised <class 'NameError'>: name
'TOKEN_URL' is not defined

2. Use `screen` or `tmux`

`screen` and `tmux` are terminal multiplexers that let you create detachable terminal sessions. You can start your crawler inside one of these sessions and detach it without stopping the program.

1. Start a new screen session:

```bash
screen -S reddit_crawler
```

2. Run your crawler:

```bash
python reddit_crawler.py produce
```

3. Detach the session by pressing `Ctrl+A`, then `D`. You can reattach it anytime with:

```bash
screen -r reddit_crawler
```
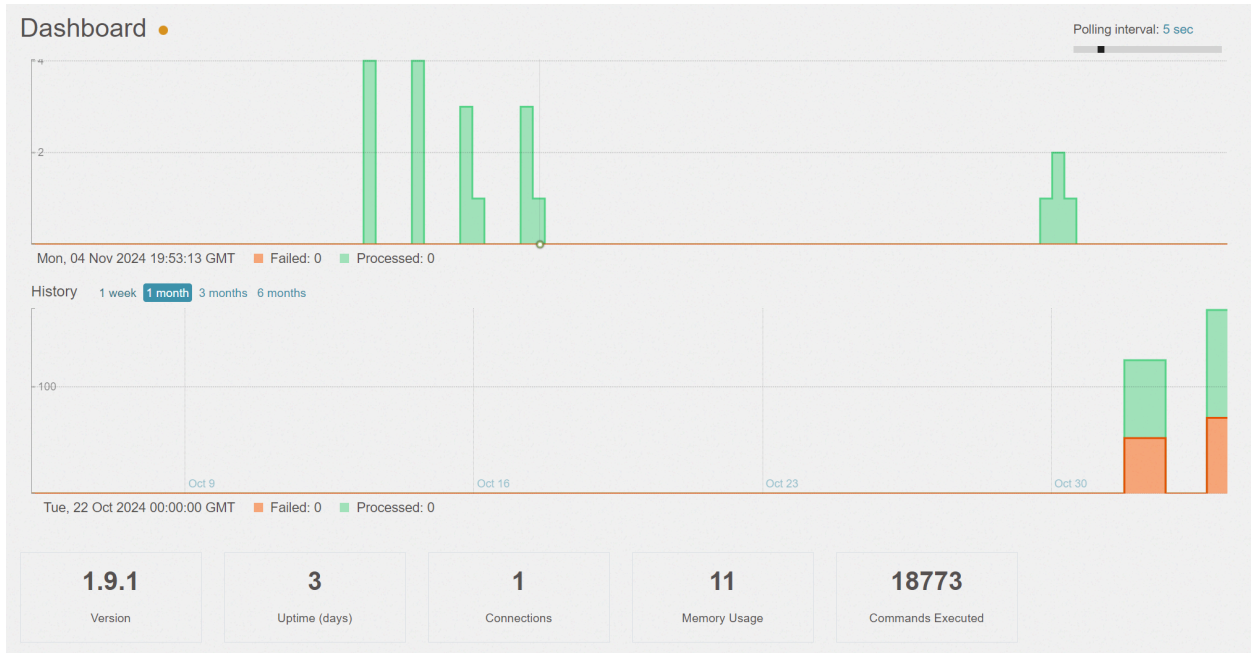
Using screen:
1. Start new session
   `screen -S reddit_crawler`
2. Run crawler
   `python3 reddit_crawler.py produce`
   `python3 reddit_crawler.py consume`
3. Detach session, reattach session
   Detach: ctrl A + D
   Reattach: `screen -r reddit_crawler`

Screen started after 2024-11-04 15:02 … check back to see if there are more posts
I think it works

Dashboard ●

Polling interval: 5 sec

Mon, 04 Nov 2024 19:53:13 GMT ■ Failed: 0 ■ Processed: 0

History   1 week [1 month] 3 months 6 months

Oct 9   Oct 16   Oct 23   Oct 30

Tue, 22 Oct 2024 00:00:00 GMT ■ Failed: 0 ■ Processed: 0

1.9.1	3	1	11	18773
Version	Uptime (days)	Connections	Memory Usage	Commands Executed

---

Current problems:
- Post data is way too large, want to see only post_title

```python
def store_post(subreddit, post):
    conn = psycopg2.connect(dsn=DATABASE_URL)
    cur = conn.cursor()

    post_id = post["data"]["id"]
    post_title = post["data"]["title"]
    post_data = post["data"]

    cur.execute("SELECT 1 FROM posts WHERE subreddit = %s AND post_id = %s", (subreddit, post_id),)
    if cur.fetchone():
        logger.info(f"Post already exists: {subreddit}/{post_id}")
    else:
        query = "INSERT INTO posts (subreddit, post_id, data) VALUES (%s, %s, %s) RETURNING post_id"
        cur.execute(query, (subreddit, post_id, post_data))
        conn.commit()
        db_id = cur.fetchone()[0]
        logger.info(f"Inserted DB id: {db_id} for post {subreddit}/{post_id}")

    cur.close()
    conn.close()
```

Create a new row in the "posts" table called post_title
Change the cur.execute params
- KeyError: 1

---

uvicorn main:app --reload (start FastAPI server)

```sql
SELECT subreddit, post_title, toxicity_score, data::json->>'selftext' AS selftext FROM posts
WHERE (post_title ILIKE '%climate%' AND post_title ILIKE '%election%') OR
(data::json->>'selftext' ILIKE '%climate%' AND data::json->>'selftext' ILIKE '%election%') LIMIT
5
```
(sample query to find posts that include the words 'climate' and 'election' in either the post title
or the post data selftext [the body])

```sql
SELECT comment_body, toxicity_score FROM comments WHERE toxicity_score = 'flag'
```

```sql
SELECT comment_body, toxicity_score FROM comments WHERE (comment_body ILIKE
'%climate%' AND comment_body ILIKE '%election%') LIMIT 5
```

```sql
SELECT comment_body, toxicity_score FROM comments WHERE (comment_body ILIKE
'%climate%' AND comment_body ILIKE '%trump%') LIMIT 5
```

```sql
SELECT board, thread_number, post_number, toxicity_score FROM posts WHERE
toxicity_score = 'normal' LIMIT 5
```

```sql
SELECT board, thread_number, data, toxicity_score FROM posts WHERE toxicity_score = 'flag'
LIMIT 5
```