

## Hibernate Optimization (HOP)

### Exercise HOP.1 – Data Fetching

#### *The Setup:*

In this exercise we will use `System.nanoTime()` to check how long it takes for MySQL and Hibernate to retrieve the same dataset with different fetching strategies.

Start this exercise by downloading the project from **Lab7Optimization** from Sakai and add the Hibernate dependencies to the `pom.xml`.

#### *The Application:*

The application has a `Populate.java` file that will insert 100,000 owner objects, each with 10 associated pet objects into the database. Run it once (will take a while).

Then change line 24 of the `persistence.xml` file to have the value of “none” instead of “drop-and-create”. This will stop the tables from being re-created every time and keeping you from having to recreate all the data.

Then run `App.java`, which will create an N+1 and tell you how long it took.

#### *The Exercise:*

Consider what the application does, and write down which strategy you think will perform best under these circumstances. To get a more accurate time you should probably run each test 3 times and take the average, but once is okay to get an idea.

- a) Add the `@LazyCollection` with option `EXTRA` to the association and run `App` again.
- b) Remove the `@LazyCollection`, and modify the mapping for **Owner.java** to use **batch fetching**, batch size 10. Also check the time when using sizes 5 and 50.
- c) Modify the mapping to use the **sub-select** strategy instead of batch fetching.
- d) Remove the sub-select strategy and use a **join fetch query** in `App.java` to retrieve everything. Also check the difference between using a named query, or just a query directly in code.
- e) Lastly modify the application to use an Entity Graph instead of a join fetch.

Check to see if the strategy you thought would perform best was indeed the best for this situation. Remember, just because a strategy performed well under these circumstances does not necessarily mean it will perform well under other circumstances.

