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CS 325 - Fall 2021

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File Summary

SQL Files

sql_insert.cpp and sql_insert.h - Contain the declaration and definition for the sql_insert function, which creates SQL insert statements based on a csv text file. See 325misc.pdf for more information.

main.cpp - Calls the sql_insert function in order to create all SQL insert statements for the database. See 325misc.pdf for more information.

325design.sql - Includes drop table and create table statements for twelve tables: parameter, storm, stormwater_BMP, maintenance, sampling_location, BMP_sampling_location, sample, stormwater_sample, concentration, data_flag, soil_type, and soil_area.

325populate.sql - Deletes the contents of all twelve tables and inserts rows into the tables. Inserts 26 rows into parameter, 11 rows into storm, 7 rows into stormwater_BMP, 23 rows into maintenance, 14 rows into sampling_location, 9 rows into BMP_sampling_location, 176 rows into sample, 165 rows into stormwater_sample, 416 rows into concentration, 329 rows into data_flag, 4 rows into soil_type, and 14 rows into soil_area.

325show-contents.sql - Displays the contents of all twelve tables. Spools to 325result-contents.txt.

325queries.sql - Contains eight queries and query descriptions that demonstrate how the database may be used. Also contains the definition of the default_sample_id view. Spools to 325query-results.txt.

325report1.sql - Contains the definition of the conc_for_calculation view. Displays a report showing the processed concentration results for each parameter for each stormwater sample. Spools to 325report1-results.txt. Utilizes the default_sample_id view.

325report2.sql - Displays a report showing the processed concentration results for each stormwater sample at an outfall sampling location, and shows the average concentration result for each parameter. Spools to 325report2-results.txt. Utilizes the conc_for_calculation view.

325report3.sql - Displays a report showing the upstream and downstream concentration results and the percent difference for flow-through stormwater BMPs. Spools to 325report3-results.txt. Utilizes the conc_for_calculation view.

date-format.sql - Alters the session date format to 'mm-dd-yyyy'. This script is called within the 325queries.sql script.

time-format.sql - Alters the session date format to 'mm-dd-yyyy hh24:mi'. This script is called within the 325queries.sql script.

Database Setup Instructions

Note that the cpp files do not need to be re-run for database setup. However, if the user would like to automate the creation of more SQL insert statements, the main.cpp file may be edited and re-run. The database setup steps are as follows:

1. Run 325design.sql to create tables.
2. Run 325populate.sql to populate tables.
3. Run 325show_contents.sql to display the contents of the database.
4. Run 325queries.sql to generate query results and the conc_for_calculation view.
5. Run 325report1.sql to generate the first report.
6. Run 325report2.sql and 325report3.sql in any order to generate the second and third reports.