

COP4342 - Fall 2012
Exercise: Performing a Database Query

This exercise is to write a shell script called *dq.sh* that produces a database from another text database by performing a query. The usage is:

```
dq.sh olddb newdb [ field relop val [logop field relop val]* ]
```

The *olddb* must be the name of a database that has already been created. The *newdb* should not exist as a database name. The *field* must exist as a field name in the schema for the existing database. The *relop* can be one of the following relational operators: "<", "<=", ">", ">=", "!=", or "==". The *val* can be a string or a number. If there are no arguments after the *newdb*, then the entire existing database is copied to the new database.

Assume for this example that *cop4342* is a valid database name (i.e. it is in the *databases.txt* file), it has a schema called *grades* (i.e. defined in the *databases.txt* file), *grades* has fields called *name*, *exam1*, *exam2*, and *exam3* (i.e. defined in the *schemas.txt* file), and that a file exists called *cop4342.db* and it contains the following data:

```
Smith 84 72 93
Jones 85 73 94
Ford 92 64 93
Miller 93 73 87
Green 72 72 72
White 92 72 86
Johnson 90 85 80
Douglas 90 60 70
Lewis 80 64 70
Brown 92 70 93
Daniels 85 80 80
```

Below is an example invocation of the *dq.sh* script.

```
% dq.sh cop4342 new exam2 ">=" 70 "&&" exam2 "<" 76
```

The *dq.sh* script should produce a *new.db* file that would contain the following lines.

```
Smith 84 72 93
Green 72 72 72
White 92 72 86
Brown 92 70 93
Jones 85 73 94
Miller 93 73 87
```

For this exercise you can assume that the *olddb* represents a valid database name (it is in the *databases.txt* file), the *newdb* represents a database name that does not exist (it is not in the *databases.txt* file) and the remaining arguments are valid if they are used. You can assume that *field* if used will represent a valid field name for the *existing_database*'s schema, *relop* if used will represent a valid relational operator, *val* if used will represent a valid string or number, and *logop* if used will represent a valid logical operator.