CSE 111 – DATABASE SYSTEMS
Quiz 5 (30 points)

Consider the following relational schema and corresponding sample data:

Classes (*class*, *type*, *country*, *numGuns*, *bore*, *displacement*)
Ships (*name*, *class*, *launched*)
Battles (*name*, *date*)
Outcomes (*ship*, *battle*, *result*)

class	*type*	*country*	*numGuns*	*bore*	*displacement*
Bismarck	bb	Germany	8	15	42,000
Iowa	bb	USA	9	16	46,000
Kongo	bc	Japan	8	14	32,000
North Carolina	bb	USA	9	16	37,000
Renown	bc	Britain	6	15	32,000
Revenge	bb	Britain	8	15	29,000
Tennessee	bb	USA	12	14	32,000
Yamato	bb	Japan	9	18	65,000

name	*class*	*launched*
California	Tennessee	1915
Haruna	Kongo	1915
Hiei	Kongo	1915
Iowa	Iowa	1933
Kirishima	Kongo	1915
Kongo	Kongo	1913
Missouri	Iowa	1935
Musashi	Yamato	1942
New Jersey	Iowa	1936
North Carolina	North Carolina	1941
Ramillies	Revenge	1917
Renown	Renown	1916
Repulse	Renown	1916
Resolution	Revenge	1916
Revenge	Revenge	1916
Royal Oak	Revenge	1916
Royal Sovereign	Revenge	1916
Tennessee	Tennessee	1915
Washington	North Carolina	1941
Wisconsin	Iowa	1940
Yamato	Yamato	1941

name	*date*
Denmark Strait	1941-05-24
Guadalcanal	1942-11-15
North Cape	1943-12-26
Surigao Strait	1944-10-25

ship	*battle*	*result*
California	Surigao Strait	ok
Kirishima	Guadalcanal	sunk
Resolution	Denmark Strait	ok
Wisconsin	Guadalcanal	damaged
Tennessee	Surigao Strait	ok
Washington	Guadalcanal	ok
New Jersey	Surigao Strait	ok
Yamato	Surigao Strait	sunk
Wisconsin	Surigao Strait	damaged

Write `SQL` statements for the following tasks in the file `quiz-5.sql` provided to you:

1. Create the tables in the schema. Use the exact given names for the tables and their attributes. Declare the following constraints on the tables:

   - There are no two tuples in `Classes` with the same `class` value.
   - The possible values for `type` in `Classes` are {`bb`,`bc`}.

- The value of `country` in `Classes` cannot be `NULL`.
- There are no two `Ships` with the same `name`.
- There is a referential integrity constraint from `Ships.class` to `Classes.class` that is handled by `SET NULL` operations.
- There is a referential integrity constraint from `Outcomes.ship` to `Ships.name` that is handled by `CASCADE` operations.
- There is a referential integrity constraint from `Outcomes.battle` to `Battles.name` that is handled by `CASCADE` operations.
- The possible values for `result` in `Outcomes` are {`ok`, `sunk`, `damaged`}.

2. Populate every table with the corresponding sample data. Use the exact given values for all the attributes and pay close attention to how you handle the dates in order to support valid comparisons. (**10 points** for CREATE and POPULATE)
3. Delete all the `Classes` with a `displacement` smaller than `30,000` or with `numGuns` smaller than `8`. (**5 points**)
4. Delete "`Guadalcanal`" from `Battles`. (**5 points**)
5. Rename "`Surigao Strait`" to "`Strait of Surigao`" in `Battles`. (**5 points**)
6. Delete all the `Ships` with `class` equal to `NULL`. (**5 points**)

You have to turn in the `quiz-5.sql` file with your SQL statements. Write your statements only in the indicated locations. You can test your code by executing the command `./test.sh` in the terminal. This generates the output after every statement. It is important to notice that modification statements change the content of the database, thus, the result of subsequent queries.