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## CSCD 327 Lab #2 (20 points)

### Due: 11:59pm on October 12, 2020

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1. (8 points) Write the following queries in **relational algebra**, using the schema below, where the primary keys are underlined.  
Sailors(sid, sname, rating, age)  
Reserves(sid, bid, day)  
Boats(bid, bname, color)
  - a. Find sids and snames of sailors who have reserved boat 103 (i.e., bid = 103).
  - b. Find sids and snames of sailors who have reserved a red boat.
  - c. Find sids and snames of sailors who have reserved a red or a green boat.
  - d. Find sids and snames of sailors who have reserved a red and a green boat.
2. (4 points) Write the following queries in **relational algebra**, using the university schema I gave you in class.
  - a. Find the ids and names of all students who have taken at least one Comp. Sci. course.
  - b. Find the ids and names of all students who have not taken any courses before 2019.
3. (8 points) Write the following queries in **relational algebra**, using the schema below, where the primary keys are underlined.  
employee (eid, ename, street, city)  
company (cid, cname, city)  
works (eid, cid, salary)  
manages (eid, manager\_id) (note: *manager\_id* is a foreign key referencing *eid* in *employee* relation. In other words, managers are also employees.)
  - a. Find the eids, enames, street, and cities of residence of all employees who work for “First Bank Corporation” and earn more than \$10,000.
  - b. Find the eids and enames of all employees who live in the same city as the company for which they work.
  - c. Find the pairs of employees who live on the same street and in the same city.
  - d. Find the ename of Peter Parker’s manager.