Tutorial 6 & 7: Practice Material

Translate to RA and SQL (Exercise 4.5)

The relations you are given are the following:

- `Flights(`<u>`fino:integer`</u>`, from:string, to:string, distance:integer, departs:time, arrives:time)`
- `Aircraft(`<u>`aid:integer`</u>`, aname:string, cruisingrange:string)`
- `Certified(`<u>`eid:integer`</u>`, <u>`aid:integer`</u>`)`
- `Employees(`<u>`eid:integer`</u>`, ename:string, salary:integer)`

Note that the Employees relation describes pilots and other kinds of employees as well; every pilot is certified for some aircraft (otherwise, he or she would not qualify as a pilot), and only pilots are certified to fly.

Write the following queries in relational algebra:

1. Find the eids of pilots certified for some Boeing aircraft.

2. Find the names of pilots certified for some Boeing aircraft.

3. Find the aids of all aircraft that can be used on non-stop flights from Bonn to Madras.

4. Identify the flights that can be piloted by every pilot whose salary is more than $100,000$.

5. Find the names of pilots who can operate planes with a range greater than $3,000$ miles but are not certified on any Boeing aircraft.

6. Find the eids of employees who make the highest salary.

7. Find the eids of employees who make the second highest salary.

8. Find the eids of employees who are certified for the largest number of aircraft.

9. Find the eids of employees who are certified for exactly three aircraft.

10. Find the total amount paid to employees as salaries.