Appendix 1: Basic Operations in SQL and relational algebra.

SQL keywords: SELECT, FROM, WHERE, AS, DISTINCT, INTERSECT, UNION, EXCEPT, IN, EXISTS, UNIQUE, ANY, ALL, COUNT, SUM, AVG, MAX, MIN, GROUP BY, HAVING, NULL, CHECK, ASSERTION.

Relational Algebra operations:

Projection	π
Selection	σ
Union	$\cup$
Intersection	$\cap$
Set Difference	$-$
Cross Product, Cartesian Product	X
Division	/
Condition Join	$\bowtie_c$
Renaming	ρ

Appendix 2: Sample Queries

Find names of sailors who have reserved all red boats.

Relational Algebra:
$$\rho(\text{Tempsids}, (\pi_{sid,bid}\text{Reserves})/(\pi_{bid} (\sigma_{colour = \text{'red'}}\text{Boats})))$$

$$\pi_{sname}(\text{Tempsids} \bowtie \text{Sailors})$$

SQL:

```
SELECT  S.sname
FROM  Sailors S
WHERE  NOT EXISTS
          ((SELECT  B.bid
           FROM  Boats B
           WHERE B.colour = 'red')
           EXCEPT
           (SELECT  R.bid
           FROM  Reserves R
           WHERE  R.sid=S.sid))
```