COMP2411 Fall 2023 Class Exercise 3 (SQL)

Student Name: _____

Student ID: _____

SUPPLIER S(S#, SNAME, STATUS, CITY)
PART P(P#, PNAME, COLOR, WEIGHT, CITY)
JOB J(J#, JNAME, CITY)
WORK SPJ(S#, P#, J#, QTY)

1. Get the parts which are red in color.

```
SELECT *
FROM P
WHERE P.color = 'red'
```

$\sigma_{P.color = \text{'red'}}(P)$

SELECT [P.COLOR'red'] (P)

2. Get the status of the suppliers which have jobs in 'Hong Kong'.

```
SELECT DISTINCT S.status
FROM S JOIN SPJ USING S# JOIN J USING J#
WHERE J.city = 'Hong Kong'
```

```
PROJECT[S.STATUS] (
    SELECT [J.CITY = 'Hong Kong'] (
    (S JOIN SPJ WITH S#) JOIN J WITH J#)
    )
```

3. Get all pairs of city names such that a supplier located in the first city supplies a part stored in the second city.

```
SELECT DISTINCT S.CITY AS SCITY, P.CITY AS PCITY
FROM S JOIN SPJ USING S# JOIN P USING P#
```

```
PROJECT[S.CITY, P.CITY] (
    (S JOIN SPJ WITH S#) JOIN J WITH J#)
    )
```

4. Get supplier names for suppliers who do not supply part P2.

```
SELECT DISTINCT S.SNAME
FROM S
WHERE NOT EXISTS
          (SELECT *
           FROM SPJ
           WHERE SPJ.S# = S.S# AND SP.P# = 'P2')
```

```
PROJECT[S.SNAME] ( S JOIN
    (PROJECT[S.S#](S)
    MINUS
    PROJECT[S#] (
    SELECT [SPJ.P# = 'P2'] (SPJ))
    WITH S#)
```

5. Get supplier names for suppliers who supply all parts.

```
SELECT DISTINCT S.SNAME
FROM S
WHERE NOT EXISTS
(SELECT *
    FROM P
    WHERE NOT EXISTS
            (SELECT *
             FROM SPJ
             WHERE SPJ.S# = S.#
             AND SPJ.P# = P.P#))
```

```
PROJECT[S.SNAME] (S JOIN
                        (PROJECT[S#,P#] (SPJ) / PROJECT[P#](P))
                         WITH S#)
```

6. Get the total number of suppliers *

```
SELECT COUNT(*)
FROM S
```

7. For each part supplied, get the part number and the total shipment quantity *

```
SELECT SPJ.P#, SUM(SPJ.QTY) AS TOTQTY
FROM SPJ
GROUP BY SP.P#
```