Test Data:

1) Schemas of the underlying relations;

    a. Sailors(<u>sid:integer</u>, sname:string, rating:integer, age:real)
    b. Boats(<u>bid:integer</u>, bname:string, color:string)
    c. Reserves(<u>sid:integer, bid:integer, day:date</u>)

2) SQL queries
    a. SELECT   S.sname
       FROM   Sailors AS S, Reserves AS R
       WHERE   S.sid=R.sid AND R.bid=103

    b. SELECT   S.sname
       FROM   Sailors AS S, Reserves AS R, Boats AS B
       WHERE   S.sid=R.sid AND R.bid=B.bid AND B.color='red'

    c. SELECT   sname
       FROM   Sailors, Boats, Reserves
       WHERE   Sailors.sid=Reserves.sid AND Reserves.bid=Boats.bid AND
       Boats.color='red'
       UNION
       SELECT   sname
       FROM   Sailors, Boats, Reserves
       WHERE   Sailors.sid=Reserves.sid AND Reserves.bid=Boats.bid AND
       Boats.color='green'

    d. SELECT   S.sname
       FROM   Sailors AS S, Reserves AS R
       WHERE   R.sid = S.sid AND R.bid = 100 AND R.rating > 5 AND R.day =
       '8/9/09'

    e. SELECT   sname
       FROM   Sailors, Boats, Reserves
       WHERE   Sailors.sid=Reserves.sid AND Reserves.bid=Boats.bid AND
       Boats.color='red'
       INTERSECT
       SELECT   sname
       FROM   Sailors, Boats, Reserves

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        WHERE    Sailors.sid=Reserves.sid AND Reserves.bid=Boats.bid AND
        Boats.color='green'

f.    SELECT    S.sid
      FROM       Sailors AS S,  Reserves AS R, Boats AS B
      WHERE     S.sid=R.sid AND R.bid=B.bid AND B.color='red'
      EXCEPT
      SELECT    S2.sid
      FROM       Sailors AS S2,  Reserves AS R2, Boats AS B2
      WHERE     S2.sid=R2.sid AND R2.bid=B2.bid AND B.2color='green'

g.    SELECT    S.sname
      FROM       Sailors AS S
      WHERE     S.sid IN ( SELECT   R.sid
                           FROM    Reserve AS R
                           WHERE   R.bid = 103)

h.    SELECT    S.sname
      FROM       Sailors AS S
      WHERE     S.sid IN ((SELECT   R.sid
                           FROM    Reserve AS R, Boats AS B
                           WHERE   R.bid = B.bid AND B.color = 'red')
                           INTERSECT
                           (SELECT  R2.sid
                           FROM    Reserve AS R2, Boats AS B2
                           WHERE   R2.bid = B2.bid AND B2.color = 'green'))

i.    SELECT   S.sname
      FROM       Sailors AS S
      WHERE    S.age > (SELECT   MAX (S2.age)
                        FROM     Sailors S2
                        WHERE    R.sid = S2.rating = 10)

j.    SELECT    B.bid, Count (*) AS reservationcount
      FROM       Boats B, Reserves R
      WHERE     R.bid=B.bid AND B.color = 'red'
      GROUP BY B.bid
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k. SELECT   B.bid, Count (*) AS reservationcount
    FROM   Boats B, Reserves R
    WHERE   R.bid=B.bid AND B.color = 'red'
    GROUP BY B.bid
    HAVING   B.color = 'red'

l. SELECT   Sname
    FROM   Sailors
    WHERE   Sailor.sid   IN (SELECT   Reserves.bid, Reserves.sid
                                FROM   Reserves
                                CONTAINS
                                        (SLECT Boats.bid
                                         FROM Boats
                                         WHERE   Boats.name = 'interlake'))

m. SELECT   S.rating, Ave (S.age) As average
    FROM   Sailors S
    WHERE   S.age > 18
    GROUP BY S.rating
    HAVING   Count (*) > 1