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675 – Databases HW2

All Work is My Own

1) Genres with at most one track
```
SELECT  G.Name
FROM   Genre G, Track T
WHERE G.Name
NOT IN
(
  SELECT G2.Name
  FROM   Genre G2, Track T2
  WHERE G2.GenreId = T2.GenreId
  AND T2.Name <> T.Name
);
```

2) Tracks purchased in CA or WA
```
SELECT DISTINCT T.Name
FROM Track T
WHERE T.TrackId IN
(
  SELECT DISTINCT IL.TrackId
  FROM InvoiceLine IL
  WHERE IL.InvoiceId IN
  (
    SELECT I.InvoiceId
    FROM Invoice I
    WHERE I.CustomerId IN
     (
       SELECT C.CustomerId
       FROM   Customer C
       WHERE C.State = "WA"
       OR C.State = "CA"
     )
  )
)
```

3) Tracks purchased in quantities greater than 5
```
SELECT DISTINCT T.Name
FROM Track T
WHERE T.TrackId IN
(
  SELECT DISTINCT IL.TrackId
  FROM InvoiceLine IL
  WHERE IL.Quantity > 5
)
```

4) Tracks costing less than 1.00 AND track length > average track length
I BELIEVE THE GIVEN COUNT FOR THE SOLUTION IN THE PDF IS WRONG. I get that solution (282) if I count the same track multiple times. The count should be 253 if distinct is used. Without distinct it returns 282, which is what the PDF says the solution is.

```
SELECT DISTINCT T.Name
FROM Track T
WHERE
  T.UnitPrice < 1.00
AND
    T.Milliseconds > ( SELECT AVG ( T2.Milliseconds )
                       FROM Track T2 )
```

5) Playlists with tracks that have never been purchased
```
SELECT DISTINCT P.Name, P.PlaylistId
FROM Playlist P
WHERE P.PlaylistID IN
(
  SELECT PT.PlaylistId
  FROM PlaylistTrack PT
  WHERE PT.TrackId IN
  (
    SELECT DISTINCT T.TrackId
    FROM Track T
    WHERE T.TrackId NOT IN
    (
      SELECT IL.TrackId
      FROM InvoiceLine IL
    )
  )
)
```

6) Composer not specified for 10 or more tracks
```
SELECT DISTINCT P.Name, P.PlaylistId
FROM Playlist P
WHERE P.PlaylistID IN
(
  SELECT PT.PlaylistId
  FROM PlaylistTrack PT
  WHERE PT.TrackId IN
  (
    SELECT DISTINCT T.TrackId
    FROM Track T
    WHERE T.Composer IS NULL
  )
  GROUP BY PlaylistId
  HAVING COUNT(*) > 10
)
```

7) All tracks by same composer

```
SELECT DISTINCT P.PlaylistId, P.Name
FROM Playlist P
WHERE P.PlaylistId IN
(
  SELECT DISTINCT PT.PlaylistId
  FROM PlaylistTrack PT, Track T
  WHERE PT.TrackId
  AND Composer NOT NULL
  GROUP BY Composer
  HAVING COUNT( DISTINCT T.Composer) = 1
)
```

8) Playlists 50 or more composers.

```
SELECT DISTINCT P.PlayLIstId, P.Name
FROM Playlist P
WHERE P.PlaylistId IN
(
  SELECT DISTINCT PT.PlaylistId
  FROM PlaylistTrack PT, Track T
  WHERE PT.TrackId = T.TrackId
  AND Composer NOT NULL
  GROUP BY PlayLIstId
  HAVING COUNT( DISTINCT T.Composer) > 49
)
```

9) Invoice > 5.65 //Why was the easiest one number 9?

```
SELECT DISTINCT C.FirstName, C.LastName, C.PostalCode, I.Total
FROM Customer C, Invoice I
WHERE C.CustomerId = I.CustomerId
AND I.Total > 5.65
```

10) All employees no other employee reports to

```
SELECT E.EmployeeId, E.FirstName, E.LastName
FROM Employee E
WHERE NOT EXISTS
(
  SELECT E.EmployeeId
  FROM Employee E2
  WHERE E.EmployeeId IN
  (
    SELECT E2.ReportsTo
  )
)
```