1) List all record labels with the number of records they offer sorted by this number in descending order.

```
SELECT DISTINCT a.label, count(*) as offeredRecords
FROM amaz.album a
GROUP BY a.label
ORDER BY 2 DESC
```

2) List all artists with the mean and variance of the sales ranks of their records.

```
SELECT DISTINCT a.artist,
    avg(a.salesrank) as mean,
    variance(a.salesrank) as var
FROM amaz.album a
GROUP BY a.artist
```
3) List all artists whose records are judged to be similar to an album by Metallica.
All albums by an artist in the result must by similar to an album by Metallica:

All artists who have recorded an album that is not similar to any Metallica album:

```
SELECT DISTINCT a.artist
FROM amaz.album a
WHERE
    NOT EXISTS (
        SELECT *
        FROM amaz.albumSimilar als, amaz.album adest
        WHERE
            (als.similarSource = a.ASIN) AND
            (als.similarDest = adest.ASIN) AND
            (adest.artist='Metallica')
    )
```

Therefore the query is:

```
SELECT DISTINCT alb.artist
FROM amaz.album alb
WHERE alb.artist NOT IN (  
    SELECT a.artist
    FROM amaz.album a
    WHERE
        NOT EXISTS (  
            SELECT *
            FROM amaz.albumSimilar als, amaz.album adest
            WHERE
                (als.similarSource = a.ASIN) AND
                (als.similarDest = adest.ASIN) AND
                (adest.artist='Metallica')
        )
    )
)
4) List all artists who recorded an album that occurs on the same ListMania list as a record by Sting.

```sql
SELECT DISTINCT a.artist
FROM
    amaz.album a, amaz.listmanialist l,
    amaz.listmaniaentry le1, amaz.listmaniaentry le2,
    amaz.album stingAlbum
WHERE
    (le1.listID = l.listID) AND (le2.listID = l.listID)
    AND
    (le2.album = stingAlbum.ASIN) AND
    (stingAlbum.artist='Sting') AND
    (le1.album = a.ASIN)
```

5) List the average user rating of records grouped by the number of tracks. Only records with track information should be taken into account.

**Average over user ratings grouped by number of tracks**

```sql
SELECT DISTINCT avg(rating) as avgRating, TrackCount
FROM (SELECT cr.rating AS rating,
    (SELECT count(*)
     FROM amaz.track t
     WHERE t.fromAlbum = a.ASIN) as TrackCount
FROM amaz.customerReview cr, amaz.album a
WHERE (cr.album = a.ASIN)
) WHERE TrackCount>0
GROUP BY TrackCount
```
6) List all albums that are judged to be similar to a record that they occur with on a ListMania list. Sort the result by the number of lists that show this co-occurrence.

```
SELECT a.ASIN, a.title, a.artist,
       count(DISTINCT lml.listID) AS numberOfLists
FROM
    amaz.album a, amaz.albumSimilar als,
    amaz.listManiaList lml,
    amaz.listManiaEntry lme1, amaz.listManiaEntry lme2
WHERE
    (a.ASIN = als.similarSource) AND
    (lme1.album = a.ASIN) AND
    (lme2.album = als.similarDest) AND
    (lme1.listID = lml.listID) AND
    (lme2.listID = lml.listID)
GROUP BY a.ASIN, a.title, a.artist
ORDER BY numberOfLists DESC
```