CS 387 - Spring 2022 - SQL Programming Exam

Schema:

```
athletes(id, name, sex, age, height, weight)
athlete_events(id, team, noc, games, sport, event, medal)
host_cities(games, year, season, city)
regions(noc, region, notes)
```

This dataset includes details about all athletes who competed in an Olympic event from Athens 1896 to Rio 2016. The database tables are:

- **athletes**: contains the id (unique to each athlete), name, sex, age when they competed in the Olympics for the first time, height (in centimeters), and weight (in kilograms) for each athlete who has participated in the Olympics.

- **host_cities**: contains the games (year and season, eg. “2016 Summer”), year, season (“Summer” or “Winter”), and city (host city) for each Olympic Games.

- **regions**: contains the noc (National Olympic Committee 3-letter code), region (country name), and notes for each country that has participated in the Olympics.

- **athlete_events**: contains id (athlete’s id), team (team name), noc (code of the NOC that the athlete represented), games (year and season of Olympics), sport, event, and medal (“Gold”, “Silver”, “Bronze”, or “NA”). Each row corresponds to an individual athlete competing in an Olympic event. Note that it is possible for any value in a non-primary key column to be NULL, so pay attention to whether a query may require you to filter out null values.

We have supplied a DDL file for you to use as well as a data insertion script.

Questions:

1. Find names of athletes who participated in an Olympic Games before they were 12. Select the **id**, **name**, and **age** of the athlete in the increasing order of **id**. **[5 points]**

2. Show the medals table for “2016 Summer” Olympic Games. Select the NOC of the country, number of gold, silver, bronze, and total medals won by each country. Sort them in the decreasing order of gold, silver, and then bronze medals. Use the NOC of the country in the increasing order as a tie-breaker. Show rows only for countries that participated in the 2016 Summer games. Display like ‘USA|10|20|30|60’. **[10 points]**

3. Find the number of athletes who participated in each Olympic Games. Select the games, host city, number of athletes in the increasing order of games. **[10 points]**

4. Find the athlete(s) with the most number of medals. Select the id, name and number of medals for each athlete. If there are multiple athletes, sort them in the increasing order of id. **[10 points]**

5. Find the number of Summer Olympic Games that athletes whose name starts with ‘X’ have played in Asia. Only 3 Summer Olympic Games were hosted in Asia -1964, 1988 and 2008. Select the id, name, and number of Summer Olympic Games in the increasing order of id. **[10 points]**

6. Find those countries that have won at least one gold medal at every Summer Olympic Games. Select the name of the countries in the increasing order. **[15 points]**

7. Find the first Summer Olympic Games with a female participant. The output is a single row with the games column. **[5 points]**

8. Find the number of Olympic Games in which all participating countries sent female athletes. Show a single integer with the count. **[15 points]**