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CREATE TABLE dairy_farm(
  dairy_farm_ID int primary key,
  name varchar(50),
  country varchar(50)
);

CREATE TABLE milking_station(
  milking_station_ID int primary key,
  GPS_coordinates DECIMAL(6,6)
);

CREATE TABLE sensor(
  sensor_ID int primary key,
  production_date DATE,
  last_fix_date DATE,
);

CREATE TABLE afi_tag(
  afi_tag_id int primary key,
  num_of_steps int,
  hours_of_chill int,
  FOREIGN KEY (afi_tag_id) REFERENCES sensor(sensor_ID)
);

CREATE TABLE afi_lab(
  afi_lab_id int primary key,
  milking_station_ID int,
  FOREIGN KEY (milking_station_ID) REFERENCES milking_station(milking_station_ID),
  FOREIGN KEY (afi_lab_id) REFERENCES sensor(sensor_ID)
);

CREATE TABLE afi_weight(
  afi_weight_id int primary key,
  milking_station_ID int,
  FOREIGN KEY (milking_station_ID) REFERENCES milking_station(milking_station_ID),
  FOREIGN KEY (afi_weight_id) REFERENCES sensor(sensor_ID)
);

CREATE TABLE iron_bracelet(
  afi_tag_id int primary key,
  activation_date DATE,
  km_avg_yearly float,
  production DATE
);

CREATE TABLE cow(
  afi_tag_id int primary key,
  FOREIGN KEY (afi_tag_id) REFERENCES afi_tag(afi_tag_id),
  date_of_birth DATE,
  num_children int,
  gynecologic_status varchar(50),
  num_of_milkings int,
  last_milk_date DATE
);

CREATE TABLE holshtein_cow(
  afi_tag_id int primary key,
  FOREIGN KEY (afi_tag_id) REFERENCES cow(afi_tag_id),
  generation int
);

CREATE TABLE angus_cow(
  afi_tag_id int primary key,
  FOREIGN KEY (afi_tag_id) REFERENCES cow(afi_tag_id),
  foot_size int
);

CREATE TABLE milking(
  milking_station_ID int,
  afi_tag_id int,
  PRIMARY KEY (milking_station_ID, afi_tag_id),
  cow_weight_after_milking int,
  milk_amount int,
  protein_amount int,
  fat_amount int,
  milk_conductivity float,
  milking_date DATE,
  milking_hour INT CHECK (milking_hour>0 and milking_hour<=24)
);

CREATE TABLE in_dairy_farm(
  afi_lab_id int,
  afi_weight_id int,
  milking_station_ID int,
  PRIMARY KEY (afi_lab_id, afi_weight_id, milking_station_ID),
  dairy_farm_ID int
);

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/* first view of milkings per cow with date */
CREATE VIEW milking_by_id
AS
    SELECT m.afi_tag_id,m.milking_date,
           m.cow_weight_after_milking, m.milk_amount,
           m.protein_amount, m.fat_amount, m.milk_conductivity
    FROM milking m
    WHERE m.milking_date=(select max(m2.milking_date)
                          from milking m2
                          where m.afi_tag_id=m2.afi_tag_id)

CREATE VIEW heat_map
AS
    SELECT milking_station_ID, milking_hour,
           SUM(milk_amount) as milk_amount,
           SUM(protein_amount)as protein_amount,
           SUM(fat_amount)as fat_amount,
           COUNT(*) as num_cows
    FROM milking
    GROUP BY milking_station_ID, milking_hour
```