Task 1.

**def** calculateResults(df: DataFrame): Dataset[Row] = {  
 df.filter(df(*SrchAdultsCnt*) === 2)  
 .groupBy(*HotelCountry*, *HotelMarket*, *HotelContinent*)  
 .agg(*count*(**"\*"**).alias(*Count*))  
 .orderBy(*desc*(*Count*))  
}

I first filter out the non-couples, then count the number of hotels in each unique hotel group, such that hotel = <Country,Market,Continent > and put this in descending order.

Task 2.

**def** calculateResults(df: DataFrame): Dataset[Row] = {  
 df.filter(df(*HotelCountry*) === df(*SrchDestinationId*))  
 .filter(df(*IsBooking*) === 1)  
 .groupBy(*HotelCountry*)  
 .agg(*count*(**"\*"**).alias(*Count*))  
 .orderBy(*desc*(*Count*))  
}

First I filter out the rows such that HotelCountry is not the same as SrchDestinationId in order to leave only the searches about a country that were made from that same exact country, such that the tickets were eventually booked. Then I count the number of searches per every country.

Task 3.

**def** calculateResults(df: DataFrame): Dataset[Row] = {  
 df.filter(df(*SrchAdultsCnt*) > 0)  
 .filter(df(*SrchChildrenCnt*) > 0)  
 .filter(df(*IsBooking*) === 0)  
 .groupBy(*HotelCountry*, *HotelMarket*, *HotelContinent*)  
 .agg(*count*(**"\*"**).alias(*Count*))  
 .orderBy(*desc*(*Count*))  
}

First I filter out the searches where there are 0 children and 0 adults (maybe they exist, who knows) as well as the searches where booking eventually happened. Then I count the number of such hotels, where hotel = <Country,Market,Continent >.