Question 1 (6 points)

The Wang Travel Agency sells tourism packages to customers. Please design a relational database to help it track its business. The database needs to track the following data.

1) Tourism packages for sale.
   A package may cover up to several destination cities.
2) Destination cities
   A destination may be featured in multiple packages.
3) Customers
4) Sale promotions
   Some promotions are applied to multiple packages.
5) Customer membership type.
   A customer belongs to only one membership type.
6) Package(s) purchased by a customer.
   Up to several promotions may be applied to a purchase.

Normalize the design to the 3<sup>rd</sup> Normal Form. Create the ERD in your design tool and submit the ERD.

Question 2 (2 points)

Use the embedding technique to design a single MongoDB document which contains the data below. Submit the design in JSON format.

| TerritoryID | Name | CustomerID | AccountNumber | OrderValue |
|---|---|---|---|---|
| 7 | France | 30103 | 10-4020-000638 | 166537 |
| 7 | France | 29940 | 10-4020-000193 | 140042 |
| 7 | France | 29923 | 10-4020-000085 | 137721 |

```
-- Question 3 (2 points)

/*
Write a query to retrieve all months of 2007 which had
products of more than 6 unique colors ordered in them.

For example, in a month if the following products were sold:
     Product 1 in red, quantity sold 205
        Product 2 in green, quantity sold 300
        Product 3 in yellow, quantity sold 250
        Product 4 in red, quantity sold 215

Then, the sold products had 3 unique colors.

Exclude the products which don't have a color specified.

Return the months and the number of the unique colors sold
in each month. Sort the returned data by the month.
*/




-- Question 4 (2 points)

/* Write a query to calculate the territory sale as
   a percentage of the overall sale for all territories.
   For example, if the territory sale is $100 and the overall
   Sale is $1,000, then it's 10%. Use the TotalDue column
   of SalesOrderHeader to calculate the sales.
   Sort the returned data by the percentage in DESC. */




-- Question 5 (3 points)

/*
Write a query to retrieve a year's most valuable order.
The most valuable order has the highest totaldue amount. The totaldue
amount is stored in the SalesOrderHeader table. If there is a tie,
the tie needs to be retrieved.

Return the year, the order id and totaldue value, and the total
order quantity for the order. Sort the returned data by the year.
*/
```