Homework - 4

Maximum points = 20 (10+5+5)
Push out the results in your git repository.

Question-1

```
db.widgetSales.insertMany( [
   { date: new ISODate("2018-12-01"), quantity: 2, unitPrice: new NumberDecimal("60") },
   { date: new ISODate("2018-12-02"), quantity: 5, unitPrice: new NumberDecimal("90") },
   { date: new ISODate("2018-12-02"), quantity: 10, unitPricet: new NumberDecimal("200") },
   { date: new ISODate("2018-12-04"), quantity: 20, unitPrice: new NumberDecimal("80") },
   { date: new ISODate("2018-12-04"), quantity: 1, unitPrice: new NumberDecimal("16") },
   { date: new ISODate("2018-12-05"), quantity: 3, unitPrice: new NumberDecimal("60") },
   { date: new ISODate("2019-01-25"), quantity: 2,unitPrice: new NumberDecimal("60") },
   { date: new ISODate("2019-01-25"), quantity: 1, unitPrice: new NumberDecimal("16") },
   { date: new ISODate("2019-01-26"), quantity: 5, unitPrice: new NumberDecimal("100") },
   { date: new ISODate("2019-01-26"), quantity: 12,unitPrice: new NumberDecimal("48") },
   { date: new ISODate("2019-01-26"), quantity: 2, unitPricet: new NumberDecimal("36") },
   { date: new ISODate("2019-01-26"), quantity: 5,unitPrice: new NumberDecimal("100") },
   { date: new ISODate("2019-01-27"), quantity: 1,unitPrice: new NumberDecimal("20") },
   { date: new ISODate("2019-01-27"), quantity: 5, unitPrice: new NumberDecimal("80") },
   { date: new ISODate("2019-01-27"), quantity: 3, unitPrice: new NumberDecimal("12") },
   { date: new ISODate("2019-01-27"), quantity: 12,unitPrice: new NumberDecimal("48") },
   { date: new ISODate("2019-01-27"), quantity: 5, unitPrice: new NumberDecimal("36") },
   { date: new ISODate("2019-01-27"), quantity: 5, unitPrice: new NumberDecimal("100") },
])
```

unitPrice is price-per-quantity.
Total sales = unitPrice * quantity

We need to save total sales per month in a collection called widgetSalesMonthlyAgg

The widgetSalesMonthlyAgg collection should look like:

```
[
  { _id: '2018-12', monthlySales: Decimal128("2366") },
  { _id: '2019-01', monthlySales: Decimal128("3424") }
]
```

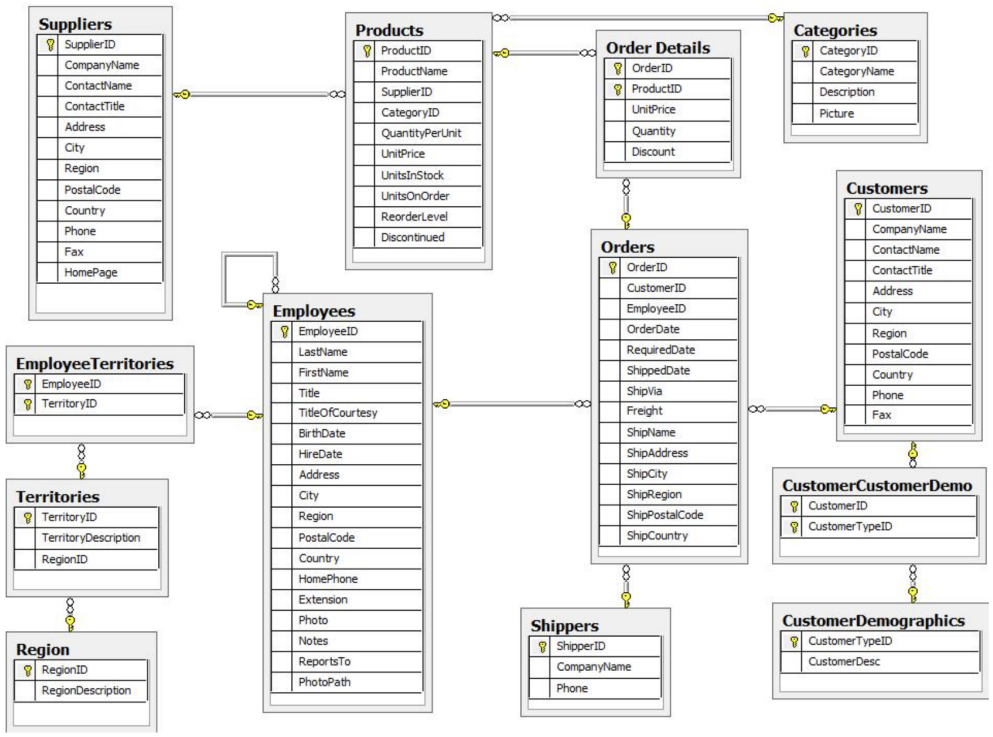
Question-2

```
db.orders.insertMany( [
   { _id: 0, productName: "Steel beam", status: "new", quantity: 10 },
   { _id: 1, productName: "Steel beam", status: "urgent", quantity: 20 },
   { _id: 2, productName: "Steel beam", status: "urgent", quantity: 30 },
   { _id: 3, productName: "Iron rod", status: "new", quantity: 15 },
   { _id: 4, productName: "Iron rod", status: "urgent", quantity: 50 },
   { _id: 5, productName: "Iron rod", status: "urgent", quantity: 10 }
] )
```

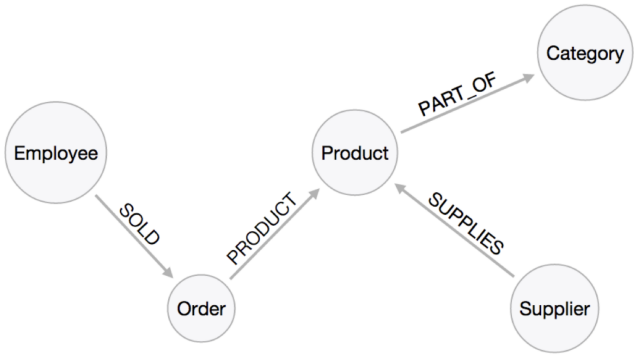
Let us assume we always want to filter by productName and see only productName and status in the output.
Can you show what a sample query would look like?
What kind of index would you advise for the *fastest* query response? Create it.
What is the index size?
Why do you think this index will be the fastest?

Question-3

In class, we looked at this ERD:



And generated a *part* of graph model:



Can you complete the missing nodes and relationships