

# Advanced Databases Exam 2022

January 23, 2023

## 1 Graph DB

1) All measures for stores in the states of California and Washington summarized at the state level.

```
1 MATCH (s:Store)<-[:HasStore]-(sa:Sales)
2 WHERE s.StoreState = 'CA' OR s.StoreState = 'WA'
3 RETURN s.StoreState, SUM(sa.StoreSales) as TotalSales, SUM(sa.StoreCost) as TotalCost, SUM(sa.
  UnitSales) as TotalUnits
```

2) All measures for the top-five store cities based on sales count.

```
1 MATCH (s:Store)<-[:HasStore]-(sa:Sales)
2 WITH s.StoreCity as city, COUNT(sa) as salesCount, SUM(sa.StoreSales) as TotalSales, SUM(sa.
  StoreCost) as TotalCost, SUM(sa.UnitSales) as TotalUnits
3 RETURN city, salesCount, TotalSales, TotalCost, TotalUnits
4 ORDER BY salesCount desc LIMIT 5
```

3) Unit sales and number of customers by product subcategory

```
1 MATCH (pc:ProductClass)<-[:HasProductClass]-(p:Product)<-[:HasProduct]-(s:Sales)-[:HasCustomer
  ]->(c:Customer)
2 RETURN pc.ProductSubcategory as ProdSubCat, SUM(s.UnitSales), COUNT(c)
```

4) Unit sales by customer city and percentage of the unit sales of the city with respect to its state.

```
1 MATCH (c:Customer)<-[:HasCustomer]-(s:Sales)
2 WITH c.CustomerCity as city, SUM(s.UnitSales) as UnitsCity
3 WITH c.CustomerState as state, SUM(s.UnitSales) as UnitsState
4 RETURN city, state, UnitsCity/UnitsState
```

5) Sales profit in 2017 by store type and store city, for cities whose unit sales in 2017 exceeded 25000

```
1 MATCH (st:store)<-[:HasStore]-(s:sales)-[:HasDate]->(d:Date)
2 WHERE d.Year = 2017
3 WITH st.StoreType as type, st.StoreCity as city, SUM(s.StoreSales) as StoreSales, SUM(s.
  StoreCost) as StoreCost, SUM(s.UnitSales) as UnitSales
4 WHERE UnitSales > 25000
5 RETURN type, city, StoreSales-StoreCost as profit
```