CS262- Problem Set 1

CS262- Database Systems
RegNo — Your name

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Consider the following schema.
Company(<u>name</u>, city)
Description Relation list the company name and location of company in city attribute.

Product(<u>name</u>, maker, cost, year)
Description Each product has name, and manufacturer of product in maker, cost as purchase price, and year as the launch year of that particular product. product name is unique for all problems except problem No.4

Purchase(<u>id</u>, product, buyer, price)
Description Relation list the purchases made by customer listed in buyer columns, price as sale price, and product as name of product.

To-Do For each of the problems given below you are required to provide Relational algebra expression and at least five equivalent solutions in SQL, out of which one solution should be performed using

1. Cartesian product

2. Joins

3. Subquery

If any of the above solutions is not possible provide the reason as well.

Solution should be written in latex, use the following document as template for solution, https://www.overleaf.com/read/fkrzmpgybjnq. Submit pdf and tex file on eduko.

Problem 1. Find the products(names only) whose cost is more than the average cost.

Solution. Write a solution here □

Problem 2. List the name of companies whose products are bought by Aslam.

Solution. Write a solution here □

Problem 3. List the name of products that are more expensive that all the products produced by Unilever.

Solution. Write a solution here □

Problem 4. List the copy cat products along with manufacturer, i.e. the products that have the same name as produced by Unilever.

Solution. Write a solution here □

Problem 5. Buyers of products produced in Lahore.

Solution. Write a solution here   □

Problem 6. List of buyers, who only buy the products 'Made in Karachi'.

Solution. Write a solution here   □

Problem 7. Name and price of products bought by more than five customers.

Solution. Write a solution here   □

Problem 8. List of products that are more expensive that all the products made by same company before 2015.

Solution. Write a solution here   □

Problem 9. List of companies who never sale products with loss.

Solution. Write a solution here   □

Problem 10. List the products which have more than average revenue in 2015 but below average revenue in 2016

Solution. Write a solution here   □