Lab 06	Querying – Aggregate Operations
IT615 Database Management System, Autumn'2021; pm_jat @ daiict	

In this lab you practice aggregate operations on relations.

Your goal here is to write relational algebra expressions and SQL statements for answering following queries. [Algebraic expressions can be handwritten and scanned]

On **`sales`** database

1. Compute total sales of a given item (say item code=1103).
2. What is sale for a given date?
   [Total sale amount for a give date; it can be computed by summing (qty*rate) from `InvoiceDetails` of invoices on given date]
3. List item codesof top 3 most sold item based on quantity
4. List (item codes, item name, category) of top 3 most sold item based on quantity
5. Most valuable customer (customer id) in terms of purchase values. Customer that sums of maximum sale amount.
6. Most valuable customer (customer id) in terms profit to the company. Assume that profit on an item sale can be computed by formula:
   `Rate (from invoicedetails relation) – AveragePurchasePrice`
7. Top selling item (in terms of numbers) for a given year.

On `da-`**`acad`** database

8. Retrieve ID of faculties who took more than one courses in a semester (for all semester in the database)
9. List total count for each instructor. List the faculty name even if course count is zero.
10. Retrieve all students (StudentID, Name, TotalCreditTaken) for B.Tech. (CS) (progid='02') batch 2007 in Autumn'2008
11. Retrieve all students (Id and name) who got more than two F grades in Autumn'2008