



INDIAN INSTITUTE OF INFORMATION TECHNOLOGY KALYANI

Kalyani, Nadia-741235, West Bengal
(An institute of National Importance)

Assignment 2

MTAI 411 Data Mining Lab
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Date: 17/01/2026

Due date: 17/01/2026 12:50 PM

8 Marks

A relational database for AllElectronics. The AllElectronics company is described by the following relation tables: customer, item, employee, and branch. Fragments of the tables described here are shown in the Figure. Please fill up the tables with 10 entries each.

The relation customer consists of a set of attributes, including a unique customer identity number (cust ID), customer name, address, age, occupation, annual income, credit information, category, and so on.

Similarly, each of the relations item, employee, and branch consists of a set of attributes describing their properties.

Relational data can be accessed by database queries written in a relational query language. A query allows retrieval of specified subsets of the data. Here we will use python to access the relational database and to write the queries. Write the Python code to get the following results.

1. What is the most frequent item brought along with item X among all branches?
2. Name the top selling product (by qty not by amount) say product M for each branch.
3. What is the most frequent item brought along with product M for each branch.
4. Which employee is associated with more number of items.

customer

<u>cust_ID</u>	name	address	age	income	credit_info	category	...
C1	Smith, Sandy	1223 Lake Ave., Chicago, IL	31	\$78000	1	3	...
...

item

<u>item_ID</u>	name	brand	category	type	price	place_made	supplier	cost
I3	hi-res-TV	Toshiba	high resolution	TV	\$988.00	Japan	NikoX	\$600.00
I8	Laptop	Dell	laptop	computer	\$1369.00	USA	Dell	\$983.00
...

employee

<u>empl_ID</u>	name	category	group	salary	commission
E55	Jones, Jane	home entertainment	manager	\$118,000	2%
...

branch

<u>branch_ID</u>	name	address
B1	City Square	396 Michigan Ave., Chicago, IL
...

purchases

<u>trans_ID</u>	cust_ID	empl_ID	date	time	method_paid	amount
T100	C1	E55	03/21/2005	15:45	Visa	\$1357.00
...

items_sold

<u>trans_ID</u>	<u>item_ID</u>	qty
T100	I3	1
T100	I8	2
...

works_at

<u>empl_ID</u>	<u>branch_ID</u>
E55	B1
...	...