EXPERIMENT - 3

-TEAM 16

AIM:

Relational Algebra queries for the ABC. Clearly <u>write the definition as well as relational algebra queries for each.</u>

OPERATOR	ISHAN	ALISTER	KHUSH
1. Selection	List the info. From Band_Tag where people came in time slot 6-8 PM: $\sigma_{In\_Time>6 \text{ and } Out\_Time<8}$ (Band_Tag)	List items from Groceries above a specific quantity $\sigma\ Item\_quantity > 25$ (Grocery)	Select the rows of the Customer who went for the shopping on x date $\sigma_{Date = 'x'}(Customer)$
2. Projection	List all the tags and also their location sequence of the shopper based on tags: π_{Tag_Id,Loc_seq} (RFID_raw_data)	Select the id of various items in front and their quantities. $\pi\ Item\_ID, Item\_Quantity$ (Front)	Select the Customer_ID, First name, and E-mail id of all the customers. $\pi_{Email\_ID, First\_name, Customer\_ID}(Customer)$
3. Cartesian product	Provides us with all combinations of readers and sensors Readers ⍰ Sensors	Combination of the total items in the store grocery X medicine	Select the First name and customer ID of all the customers whose list_ID is 20 years. $\pi_{First\_name,Customer\_ID}(\sigma_{List\_ID = '20'}(Customer \times List))$
4. Union	List all the data of items pertaining to verification and analysis	List the data of sellers that provided their	Find the customer ids of all the customers whose age is

	in store : $(\text{Analysis\_Mdata} \cup \text{Analysis\_Gdata});$	resources to the store $\text{Seller} \cup \text{Front}$	19 years or 20 years. $\pi_{\text{Cutomer\_ID}}(\sigma_{\text{Age} = \text{'19'}}(\text{Customer})) \cup$ $\pi_{\text{Cutomer\_ID}}(\sigma_{\text{Age} = \text{'20'}}(\text{Customer}))$
5. Set difference	List accuracy info. of grocery items that have not been bought or added to the cart by customer : Analysis_Sdata – Analysis_Gdata	List all items in the store that aren't tagged as medicines Front - Medicine	Find the Customer_ID that has a payment method as card but do not have a BHIM_ID. $\pi_{\text{Customer\_ID}}(\sigma_{\text{payment method} = \text{'Card\_number'}}(\text{Payment\_information})) -$ $\pi_{\text{Customer\_ID}}(\sigma_{\text{payment method} = \text{'BHIM\_ID'}}(\text{Payment\_information}))$
6. Natural join	Info of raw_data and sensors together Rfid_rawd_ata $\bowtie$ Sensors	Details of seller that has provided items for the store Seller $\bowtie$ Grocery	Give the Name and Contact_Number of all the customers whose payment method is BHIM_ID. $\pi_{\text{Name, Contact\_number}}(\sigma_{\text{Payment\_method} =}$

			$_{\text{'BHIM\_ID'}}\big($Customer $\bowtie$ Payment_information$\big)\big)$
7. Composition of any two from (1-6) operators	List Customer_ID, Tag_ID,Vessel_ID for the shopping hours 6-8 PM $\pi_{\text{Customer\_ID,Tag\_ID,Vessel\_tag\_I}}$ $_D\big(\sigma_{\text{In\_Time>6 and Out\_Time<8}}$ $(\text{Band\_Tag})\big)$	Display all items that one specific seller provided to the store Π Item_name, Salesman_name(σ S_ID=S1234(Grocery))	Give the first name and the email id of all the customers having item_category as 'grocery' and type of payment is through Card. $\pi_{\text{First\_name,}}$ $_{\text{Email\_ID}}\big(\sigma_{\text{item\_category =}}$ $_{\text{'grocery' } \wedge \text{ payment\_method =}}$ $_{\text{'Card\_number'}}\big($Customer$\bowtie$Shopping_list$\bowtie$Payment_information$\big)\big)$