**Relational Algebra**

1. This query returns Crop buyers(CB\_ID) having maximum ratings and expecting the crop that farmer sow in current season.

ΠCB\_ID[ΠCB\_ID, Ratings(crop\_buyer) ⨯ ΠCB\_ID, Ratings(crop\_buyer)

– σRatings<Ratings2(ΠCB\_ID, Ratings(crop\_buyer)

⨯ ρRatings2/Ratings(ΠCB\_ID, Ratings(crop\_buyer)))]

∩ ΠCB\_ID[ΠCB\_ID,crop\_ID(crop\_buyer\_need)

⨝crop\_buyer\_need.crop\_ID = current\_season\_crop.crop\_ID

Πcrop\_ID(current\_season\_crop)]

1. This query returns Labs(Lab\_ID, Contact\_NO), When a farmer searches labs residing in the same city by Test\_name,Test\_price.

ΠLab\_ID,Contact\_NO[ ΠLab\_ID,Contact\_NO,Pin\_code(soil\_analytical\_lab)

⨝soil\_analytical\_lab.Pin\_code = farmer.pincodeΠF\_ID,pincode(farmer) ]

⨝ΠLab\_ID[ ΠLab\_ID,Test\_ID(test\_info)

⨝ Π ( ΠTest\_ID(σTest\_name=”name”(test))

∩ ΠTest\_ID( σTest\_price<=”price” (test\_info)) )]

1. This query returns Farmers’ details (F\_ID, First\_name, Contact\_No, district, state) whose current season’s crop production is higher than previous season’s crop production for the same crop.

σstate=”Gujarat” [ ΠF\_ID,First\_name,Contact\_No,district,state(farmer)

⨝ σcurrent\_season\_crop.Expected\_production>>previous\_season\_crop.production

( ΠF\_ID,crop\_ID,Expected\_production(current\_season\_crop)

⨝ΠF\_ID,crop\_ID,production(previous\_season\_crop) )

⨝ Πcrop\_ID,crop\_name(crop\_info) ]

1. This query returns Fertilizer dealers’ details (Fd\_ID, First\_name, Contact\_No) whose shop’s pincode is 382007 and who has Urea fertilizer with available stock greater than or equal to 5.

ΠFd\_ID,First\_name,Contact\_No[

σPin\_code=382007 ( ΠFd\_ID,First\_name,Pin\_code,Contact\_No(fertilizer\_dealer)

⨝σAvailable\_stock>=5( ΠFertilizer\_ID(σFertilizer\_name=”Urea” (fertilizer))

⨝ (fertilizer\_availability) ))

]