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Assignment 2 : PART 1

1. $\pi_{ename, age}(Emp \bowtie (Works(\sigma_{dname='hardware'}(Dept))) \cap$
$Emp \bowtie (works(\sigma_{dname='software'}(Dept)))$

2. $\rho(Temp, Emp \bowtie Works \bowtie Dept)$
$\pi_{ename}(Emp) - \pi_{Temp.ename}(\sigma_{Temp.salary < d.budget}($
$\sigma_{Temp.eid = d.eid}(Temp \times \rho(d, Temp)))$

3. $\pi_{managerid}(Emp \bowtie works \bowtie (\sigma_{Dept.budget > 1000000}(Dept)))$

4. $\rho(Temp, Emp \bowtie works \bowtie Dept)$
$\pi_{ename}(Emp) - \pi_{Temp.ename}(\sigma_{Temp.budget < d.budget}($
$\sigma_{Temp.eid = d.eid}(Temp \times \rho(d, Temp)))$

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Assignment 2 : PART 2

1. $\pi_{airline}\left(\pi_{airline,to}(Flight) / \pi_{code}(Can\ Airport)\right)$

2. $\pi_{airline}\left(\pi_{airline,to}(Flight) / \pi_{code}(can\ Airport)\right) -$
$\left(\pi_{airline,to}(Flight) / \pi_{code}(Can\ Airport \bowtie US\ Airport)\right)$

3. $\rho\left(Temp1, \pi_{from}\left(\pi_{from,to}(Flight) / \pi_{code}\left(\sigma_{location='New York'}(CanAirport)\right)\right)\right)$
$\rho\left(Temp2, \pi_{from}\left(\pi_{from,to}(Flight) / \pi_{code}\left(\sigma_{location='New York'}(USAAirport)\right)\right)\right)$
$\pi_{location}(Temp1 \bowtie Can\ Airport) \cup \pi_{location}(Temp2 \bowtie USA\ Airport)$

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Assignment 2 : PART 3

1. $\Pi_{name}(characters) \bowtie \Pi_{CharacterName, PlanetName}(TimeTable) \, /$
$\Pi_{PlanetName}(\sigma_{Affiliation='Neutral'}(planet))$

2. $\Pi_{PlanetName}(TimeTable) \bowtie \sigma_{Race='human'}(\sigma_{affiliation='empire'}(Characters))$

3. $\rho(Temp1, \sigma_{CharacterName='Luke'}(TimeTable))$
$\rho(Temp2, \sigma_{CharacterName='Darth\ Vader'}(TimeTable))$

$\Pi_{Temp1.PlanetName, Temp1.movie}(\sigma_{Temp1.PlanetName = Temp2.PlanetName}($
$(\sigma_{Temp1.TimeOfArrival < Temp2.TimeOfDeparture}(Temp1 \times Temp2)) \cup$
$(\sigma_{Temp1.TimeOfDeparture > Temp2.TimeOfArrival}(Temp1 \times Temp2))$

4. $\Pi_{movie, TimeOfArrival, TimeOfDeparture, CharacterName}($
$(\sigma_{type='desert'}(Planets \bowtie TimeTable) \bowtie \sigma_{Race='human'}(Characters)) \cup$
$(\sigma_{type='swampy'}(Planets \bowtie TimeTable) \bowtie \sigma_{Race='droids'}(Characters))$