CS 630 HW1

Q 1

a) $\Pi_{year}(((\sigma_{zipcode = '02125'} Customers) \bowtie Orders) \bowtie Books)$

b) $\Pi_{zipcode}((\sigma_{price>100}((\sigma_{quantity>=10} Orders) \bowtie Books)) \bowtie Customers)$

c) $\Pi_{cname}(((\sigma_{year>=1990} Books) \bowtie Orders) \bowtie Customers)$

d) $\rho(T, \sigma_{author = 'Edd Codd'} Books)$
$\rho(F, \Pi_{cname}((\sigma_{quantity>=1}(T \bowtie Orders)) \bowtie Customers))$
$\rho(D, \sigma_{bname = 'Databases'} Books)$
$\rho(G, \Pi_{cname}((\sigma_{quantity>=10}(D \bowtie Orders)) \bowtie Customers))$
F U G

e) $\rho(T, (Order \bowtie Books))$
$\Pi_{cname}((\sigma_{quantity*price>1000} T) \bowtie Customers)$

f) $\Pi_{author}((\sigma_{quantity=1} Orders) \bowtie Books)$

g) $\rho(P, \Pi_{bname,zipcode}((Books \bowtie Orders) \bowtie Customers))$
$\rho(Q, \Pi_{bname,zipcode}((Books \bowtie Orders) \bowtie Customers))$
$\rho(F, P \bowtie_{P.zipcode=Q.zipcode} Q)$
$\Pi_{bname}(P - F)$

Q 2

a) Π_{pname} ($\sigma_{price<=800}$(($\sigma_{aircraft="B787"}$ Flights) ⋈ Tickets) ⋈Passengers)

b) Π_{age} ((($\sigma_{to='BOS'\ v\ from='BOS'}$ Flights) ⋈ Tickets) ⋈Passengers)

c) Π_{price} (($\sigma_{aircraft='B777'}$ Flights) ⋈ Tickets)

d) Π_{city} (($\sigma_{miles>500\ v\ price<=500}$ (Flights ⋈ Tickets)) ⋈Passengers)

e) Π_{from} (($\sigma_{city='Boston'\ v\ city='Chicago'}$ Passengers) ⋈ Flights)

f) ρ(F1, Flights) ρ(F2, Flights)
ρ(G, F1 x F2)
ρ(H, ($\sigma_{F1.from <> F2.to}$ G) ∩ ($\sigma_{F1.to = F2.from}$ G))
Π_{pname} ((H ⋈ Tickets) ⋈ Passengers)

g)