**Submitted By:**

**PROJECT 1**

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**RA Queries:**

**Query1:**

Res1:=Select Name='Red Hot Chili Peppers' (Artist)

Res2:= Album njoin Res1

project AlbumId,Title (Res2)

answer(Res2.AlbumId:int,Res2.Title:varchar(160)) ->

{

answer(193,'Blood Sugar Sex Magik'),

answer(194,'By The Way'),

answer(195,'Californication')

}

**Query 2:**

R1:=rename Artist1(ArtistId,AName) (Artist)

R2:= Select AName='U2' (R1)

R3:= Album njoin R2

R4:=rename Track1(TrackId,TName,AlbumId,MediaTypeId,GenreId,Composer,Milliseconds,Bytes,UnitPrice) (Track)

R5:= R3 njoin R4

R6:= R5 njoin Genre

project Name (R6)

answer(R6.Name:varchar(120)) ->

{

answer('Pop'),

answer('Rock')

}

Info: 2 tuples computed.

**Query 3**:

Q1:= Select Name='Grunge' (Playlist)

Q2:= Q1 njoin PlaylistTrack

Q3:= rename Track1(TrackId,TName,AlbumId,MediaTypeId,GenreId,Composer,Milliseconds,Bytes,UnitPrice) (Track)

Q4:= Q2 njoin Q3

Q5:= Q4 njoin Album

Q6:= rename Artist1(ArtistId,AName) (Artist)

Q7:= Q5 njoin Q6

project TName,AName,Title (Q7)

answer(Q7.TName:varchar(200),Q7.AName:varchar(120),Q7.Title:varchar(160)) ->

{

answer('Alive','Pearl Jam','Ten'),

answer('Black Hole Sun','Soundgarden','A-Sides'),

answer('Come As You Are','Nirvana','Nevermind'),

answer('Daughter','Pearl Jam','Vs.'),

answer('Drain You','Nirvana','Nevermind'),

answer('Evenflow','Pearl Jam','Ten'),

answer('Hunger Strike','Temple of the Dog','Temple of the Dog'),

answer('In Bloom','Nirvana','Nevermind'),

answer('Jeremy','Pearl Jam','Ten'),

answer('Lithium','Nirvana','Nevermind'),

answer('Man In The Box','Alice In Chains','Facelift'),

answer('On A Plain','Nirvana','Nevermind'),

answer('Outshined','Soundgarden','A-Sides'),

answer('Plush','Stone Temple Pilots','Core'),

answer('Smells Like Teen Spirit','Nirvana','Nevermind')

}

Info: 15 tuples computed.

**Query 4:**

Q1:= Select Name='TV Shows' (Playlist)

Q2:= PlaylistTrack njoin Q1

Q3:=Q2 njoin InvoiceLine

Q4:= Q3 njoin Invoice

Q5:= Q4 njoin Customer

project FirstName,LastName,Email (Q5)

answer(Q5.FirstName:varchar(40),Q5.LastName:varchar(20),Q5.Email:varchar(60)) ->

{

answer('Astrid','Gruber','astrid.gruber@apple.at'),

answer('BjÃ¸rn','Hansen','bjorn.hansen@yahoo.no'),

answer('Camille','Bernard','camille.bernard@yahoo.fr'),

answer('Dan','Miller','dmiller@comcast.com'),

answer('Dominique','Lefebvre','dominiquelefebvre@gmail.com'),

answer('Frank','Ralston','fralston@gmail.com'),

answer('FrantiÅ¡ek','WichterlovÃ¡','frantisekw@jetbrains.com'),

answer('FranÃ§ois','Tremblay','ftremblay@gmail.com'),

answer('Fynn','Zimmermann','fzimmermann@yahoo.de'),

answer('Heather','Leacock','hleacock@gmail.com'),

answer('Helena','HolÃ½','hholy@gmail.com'),

answer('Hugh','O\'Reilly','hughoreilly@apple.ie'),

answer('Isabelle','Mercier','isabelle\_mercier@apple.fr'),

answer('Jack','Smith','jacksmith@microsoft.com'),

answer('Jennifer','Peterson','jenniferp@rogers.ca'),

answer('Joakim','Johansson','joakim.johansson@yahoo.se'),

answer('Johannes','Van der Berg','johavanderberg@yahoo.nl'),

answer('JoÃ£o','Fernandes','jfernandes@yahoo.pt'),

answer('Julia','Barnett','jubarnett@gmail.com'),

answer('Ladislav','KovÃ¡cs','ladislav\_kovacs@apple.hu'),

answer('Luis','Rojas','luisrojas@yahoo.cl'),

answer('LuÃ­s','GonÃ§alves','luisg@embraer.com.br'),

answer('Manoj','Pareek','manoj.pareek@rediff.com'),

answer('Puja','Srivastava','puja\_srivastava@yahoo.in'),

answer('Richard','Cunningham','ricunningham@hotmail.com'),

answer('Terhi','HÃ¤mÃ¤lÃ¤inen','terhi.hamalainen@apple.fi'),

answer('Tim','Goyer','tgoyer@apple.com'),

answer('Victor','Stevens','vstevens@yahoo.com'),

answer('Wyatt','Girard','wyatt.girard@yahoo.fr')

}

Info: 29 tuples computed.

**Query 5:**

R1:= project MediaTypeId (Select Name='Purchased AAC audio file' (MediaType))

R2:= R1 njoin Track

R3:= R2 njoin InvoiceLine

R4:= R3 njoin Invoice

R5:= rename Customer1(CustomerId,FirstName,LastName,Company,Address,City,State,Country,PostalCode,Phone,Fax,Email,EmployeeId) (Customer)

R6:= R4 njoin R5

R7:= rename Employee1(EmployeeId,LName,FName,Title,ReportsTo,BirthDate,HireDate,Address1,City1,State1,Country1,PostalCode1,Phone1,Fax1,Email1) (Employee)

R8:=R6 njoin R7

project LName,FName (R8)

answer(R8.LName:varchar(20),R8.FName:varchar(20)) ->

{

answer('Johnson','Steve'),

answer('Park','Margaret')

}

Info: 2 tuples computed.

**TRC queries (/trc):**

**Query 1:**

{A.Title |'Album'(A) and (exists B) ('Artist'(B) and A.ArtistId=B.ArtistId) and (B.Name='Red Hot Chili Peppers')};

**Query 2:**

{G.Name | 'Genre'(G) and (exists T) ('Track'(T) and T.GenreId=G.GenreId) and (exists A) ('Album'(A) and T.AlbumId=A.AlbumId and (exists B) ('Artist'(B) and A.ArtistId=B.ArtistId and B.Name='U2'))};

**Query 3:**

{T.Name, B.Name, A.Title | (exists P) 'Playlist'(P) and P.Name='Grunge' and 'Track'(T) and (exists Pt) 'PlaylistTrack'(Pt) and P.PlaylistId=Pt.PlaylistId and Pt.TrackId=T.TrackId and 'Album'(A) and 'Artist'(B) and T.AlbumId=A.AlbumId and A.ArtistId=B.ArtistId};

**Query 4:**

{C.FirstName, C.LastName, C.Email |(exists P) 'Playlist'(P) and P.Name='TV Shows' and (exists Pt) 'PlaylistTrack'(Pt) and P.PlaylistId=Pt.PlaylistId and (exists T) 'Track'(T) and T.TrackId=Pt.TrackId and (exists Il) 'InvoiceLine'(Il) and Il.TrackId=T.TrackId and (exists I) 'Invoice'(I) and I.InvoiceId=Il.InvoiceId and 'Customer'(C) and C.CustomerId=I.CustomerId}

**Query 5:**

{E.FirstName,E.LastName | 'Employee'(E) and (exists C) 'Customer'(C) and E.EmployeeId=C.SupportRepId and (exists I) 'Invoice'(I) and C.CustomerId=I.CustomerId and (exists Il) 'InvoiceLine'(Il) and I.InvoiceId=Il.InvoiceId and (exists T) 'Track'(T) and Il.TrackId=T.TrackId and (exists M) 'MediaType'(M) and M.MediaTypeId=T.MediaTypeId and M.Name='Purchased AAC audio file'}

**DRC Queries (/drc)**

**Query 1:**

{T | exists A 'Album'(A,T,\_) and exists B exists N 'Artist'(B,N) and (N='Red Hot Chili Peppers') and 'Album'(A,T,B)};

**Query 2:**

{G | exists B exists N 'Artist'(B,N) and (N='U2') and exists A 'Album'(A,\_,B) and exists Gid 'Track'(\_,\_,A,\_,Gid,\_,\_,\_,\_) and 'Genre'(Gid,G)}

**Query 3:**

{N,Bn,Ti | exists Pid exists Pn 'Playlist'(Pid,Pn) and Pn='Grunge' and exists Tid 'PlaylistTrack'(Pid,Tid) and exists B 'Artist'(B,Bn) and exists A 'Album'(A,Ti,B) and 'Track'(Tid,N,A,\_,\_,\_,\_,\_,\_)}

**Query 4:**

{Fname,Lname,E,Pname | exists Pid 'Playlist'(Pid,Pname) and Pname='TV Shows' and exists Tid 'Track'(Tid,\_,\_,\_,\_,\_,\_,\_,\_) and 'PlaylistTrack'(Pid,Tid) and exists Iid 'InvoiceLine'(\_,Iid,Tid,\_,\_) and exists Cid 'Invoice'(Iid,Cid,\_,\_,\_,\_,\_,\_,\_) and 'Customer'(Cid,Fname,Lname,\_,\_,\_,\_,\_,\_,\_,\_,E,\_) }

**Query 5:**

{Fname,Lname | exists Mtypeid exists Mname 'MediaType'(Mtypeid,Mname) and Mname='Purchased AAC audio file' and exists Tid 'Track'(Tid,\_,\_,Mtypeid,\_,\_,\_,\_,\_) and exists Iid 'InvoiceLine'(\_,Iid,Tid,\_,\_) and exists Cid 'Invoice'(Iid,Cid,\_,\_,\_,\_,\_,\_,\_) and exists Repid 'Customer'(Cid,\_,\_,\_,\_,\_,\_,\_,\_,\_,\_,\_,Repid) and 'Employee'(Repid,Lname,Fname,\_,\_,\_,\_,\_,\_,\_,\_,\_,\_,\_,\_) }