COMP 3005 A2

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1.

ALG>

T1 = Select Name = Bradley(Sailer);
T2 = project B#(T1 njoin Reservation);
T3 = T2 njoin Boat;
Project Name(T3);

TRC>

{B.Name | B in Boat and (exists R in Reservation, S in Sailer)(R.S# = S.S# and R.B# = B.B# and S.Name = “Bradley”)};

Result:

Freedom

2.

ALG>

T1 = Select Name = Paradise(Boat);
T2 = Project S#(T1 njoin Reservation);
T3 = T2 njoin Sailer;
Project Name(T3);

TRC>

{S.Name | S in Sailer and (exists R in Reservation, B in Boat)(S.S# = R.S# and R.B# = B.B# and B.Name = Paradise)};

Result:

Smith
Jones
Blake

3.

ALG>

T1 = Project S#(Reservation);
T2 = Project S# (Sailer njoin Reservation);
T3 = T1 minus T2
Project Name (T3 njoin Sailer);

TRC>

{S.Name | S in Sailer and (not exists R in Reservation)(S.S# = R.S#)};

Result:

Adams

4.

ALG>

T1 = Rename S# to S#1(Reservation);
T2 = Rename S# to S#2(Reservation);
T3 = Project S#1, S#2(Select S#1.B# = S#2.B# and S#1 != S#2(T1 njoin T2));
Project Name, Name(T3 njoin Sailer);

TRC>

{S.Name and S.Name | S in Sailer and (for all B in Boat)(exists R in Reservation, R1 in Reservation)(R.B# = R1.B# and R.S# != R1.S#)};

Result:

Smith Jones
Smith Blake
Jones Smith
Jones Blake
Blake Smith
Blake Jones

5.

ALG>

T1 = Project S#, B#(Reservation);
T2 = Project S#(Boat);
T3 = T1/T2
T4 = Sailer njoin T3;
Project Name(T4);

TRC>

{S.Name | S in Sailer and (for all B in Boat)(exists R in Reservation)(S.S# = R.S# and R.B# = B.B#)};

Result:

Smith

6.

ALG>

T1 = Project B#(Select Name != “Splendor”(Boat);
T2 = Project S#, B#(Reservation);
T3 = T1/T2;
T4 = Sailer njoin T3;
T5 = Sailer njoin Boat;
T6 = Select Name = Splendor(T5);
Project Name(T4) minus (T6);

TRC>

{S.Name| S in Sailer and (forall B in Boat)(B.Name = “Splendor” and (not exists R in Reservation)(S.S# = R.S# and R.B# = B.B#)or (B.Name != “Splendor and exists R in Reservation))(S.S# = R.S# and R.B# = B.B#)};

Result:

Jones

7.

ALG>

T1 = Select Name = “Bradley”(Sailer);
T2 = Project B#(T1 njoin Reservation);
T3= T2 njoin Reservation;
T4 = Select Name != “Bradley”(T3 njoin Sailer);
Project Name(T4);

TRC>

{S.Name | S in Sailer and S.Name != “Bradley” and (exists S1 in Sailer)(S1.Name = “Bradley” and (for all B in Boat) (exists R in Reservation) R.B# = B.B# and S1.S3 = R.S#) and (exists R1 in Reservation)(R1.S# = B.B# and R1.S# = S.S#) or (not exists R in Reservation)(S1.S# = R.S# and R.B# = B.B#)};

Result:

Smith
Jones
Blake

8.

ALG>

T1 = Project S#, B#(Reservation);
T2 = Project B#((Select Name=”Bradley(Sailer) njoin T1));
T3 = T1/T2;
T4 = (Project B#(Boat)) minus T2;
T5 = (T4 njoin Reservation) njoin Sailer;
T6 = Project Name(T5);
T7 = Project Name(Select Name != “Bradley(T3 njoin Sailer));
T7 minus T6;

TRC>

{S.Name | S in Sailer and S.Name != “Bradley” and (exists S1 in Sailer)(S1.Name = “Bradley) and (for all B in Boat)(exists R in Reservation)(R.S# = S1.S# and R.B# = B.B#) and (exists R1 in Reservation)(R1.S# = S.S# and R1.B3 = B.B#) or (not exists R in Reservation))(exists R in Reservation)(R.S# = S1.S# and R.B# = B.B#) and (not exists R1 in Reservation))(exists R1 in Reservation)(R1.S# = S.S# and R1.B# = B.B#)};

Result:

Empty

9.

ALG>

T1(SName) = Project Name(Sailer);
T2 = T1 njoin Reservation;
Aggregate SName, count R.B#(Reservation);

TRC>

{S.Name, count(R.B#) | S in Sailer and R in Reservation and S.S# = R.S#};

Result:

Smith 4
Jones 3
Blake 2
Bradley 1
Adams 0

10.

ALG>

T1(Name, count) = aggregate Name count(B#)(Sailer njoin Reservation);
T2 = Select count > 2(T1);
Project Name(T2);

TRC>

S.Name | S in Sailer and (exists R in Reservation)(count(R.B#) > 2 and R.S# = S.S#)};

Result:

Smith
Jones