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CS 316 HW 2

NOTE: **(only select-project-join/cross-diff-rename are allowed)**

Use this '

**Question 1: Find names of drinkers that live in ‘100 W. Main Street’.[Output columns: name](10 points)**

\project\_{name} \select\_{address='100 W. Main Street'} Drinker;

**Question 2: Find names of all drinkers that frequents James Joyce Pub but not Satisfaction.[Output columns: drinker] (15 points) [Output columns: drinker]**

(\project\_{drinker} \select\_{bar='James Joyce Pub'} frequents) \diff (\project\_{drinker} \select\_{bar='Satisfaction'} frequents);

**Question 3:** **For each bar that Coy frequents, find the names of beers that they serve at the lowest price. Format your output as list of (bar, beer) pairs.[Output columns: bar, beer] (15 points)**

\project\_{serves.bar,serves.beer}

(\select\_{frequents.drinker='Coy'}

(frequents

\join\_{frequents.bar=serves.bar}

(\project\_{serves.bar, serves.beer} serves

\diff

(\project\_{S1.bar, S1.beer}

(\rename\_{S1:\*} serves

\join\_{S1.bar=S2.bar and S1.price > S2.price}

\rename\_{S2:\*} serves)))));

**Question 4:** **Find names of bars serving some beer Dan likes for greater or equal to $3.[Output columns: bar] (15 points)**

\project\_{bar} ((\project\_{beer} \select\_{drinker='Dan'} likes) \join (\project\_{beer,bar} \select\_{price>=3.00} serves));

**Question 5: Find all drinkers who ​do not frequent any bar​ that serves ​some beers​ they like.[Output columns: drinker]​ ​(20 points)**

\project\_{name} drinker

\diff

\project\_{drinker}(

\project\_{drinker,bar} frequents

\join

\project\_{bar,beer} serves

\join

\project\_{drinker, beer} likes);

**Question 6: Find names of all drinkers who frequent ​only bars​ that serve ​some beer​ they like.[Output columns: drinker] (25 points)**

\project\_{name} drinker

\diff

(\project\_{drinker}

((\project\_{drinker,bar} frequents)

\diff

(\project\_{drinker,bar}

(\project\_{drinker, beer} likes

\join

\project\_{bar,beer} serves))));

**Extra Credit: Find names of all drinkers who frequent ​every bar​ that serves ​only beers​ they like.[Output columns: drinker]**

Need:

Serve only beer they like

(\project\_{drinker,beer} likes)

\join

(\project\_{bar,beer} serves);

Bars frequented

\project\_{drinker,bar} frequents;

\project\_{F.drinker,F.bar}

\rename\_{F:\*} frequents

\join\_{F.drinker=L.drinker}

(\project\_{L.drinker,L.beer}

\rename\_{L:\*} likes)

\join

(\project\_{S.bar,S.beer}

\rename\_{S:\*} serves);