UNION

Retrieve information about reg menu items and specials (price, item_id) where price is above $20.

$$\pi_{<price,item\_id>}(\sigma_{<price>20>}REGULAR\_ITEM \cup \sigma_{<price>20>}SPECIAL)$$

INTERSECTION

Displays the prices and days available for any specials and alcohols that are available for more than 1 day of the year. i.e.: “the list of prices for random specials and alcohols, and how long those prices are available throughout the year”.

$$\pi_{<price,dates\_available>}(\pi_{<price,dates\_available>}(\sigma_{<dates\_available>1>}ALCOHOLIC\_BEVERAGE) \cap \pi_{<price,dates\_available>}(\sigma_{<dates\_available>1>}SPECIAL))$$

DIFFERENCE

Displays the prices and days available that are unique to specials and **not** included within alcohol prices+dates available. i.e. “these price and available day combinations are possible for specials, but not possible combinations for alcohol items.”

$$\pi_{<price,dates\_available>}(\pi_{<price,dates\_available>}(SPECIAL) - \pi_{<price,dates\_available>}(ALCOHOLIC\_BEVERAGE))$$

DIVISION

Displays all the SPECIAL prices that have the same prices with at least the same days available as ALCOHOL items:

$$\pi_{<price>}(\pi_{<price,dates\_available>}(SPECIAL) \div \pi_{<dates\_available>}(ALCOHOLIC\_BEVERAGE))$$

AGGREGATION

Under each boss, shows the amount of employees and the average age of employees working under him/her.

$$_{<mgr\_ssn>}\Im_{<Count(SSN),Average(age)>}(EMPLOYEE)$$

JOINS

Shows the available tables for waiters, the cooks that have the same years of experience as the age of these waiters, and the employees combined with all of these, with the condition that they must all be older than 23.

$$(((AVAILABLE\_TABLE \bowtie_{<waiter=ssn>} WAITER) \bowtie_{<age=years\_experience>} COOK) \bowtie_{<age>23>} (EMPLOYEE))$$