3) FRONT END - QUERIES: you should have three pages: Drinker, Bar and Beer

a) DRINKER PAGE:

given a drinker, show all his/her transactions ordered by time and grouped by different bars.

show bar graphs of beers s/he orders the most.

also, bar graph of his/her spending in different bars, on different dates/weeks/months

b) BAR PAGE:

given a bar, show bar graphs

i) for top drinkers who are largest spenders,

ii) for beers which are most popular and

iii) for manufacturers who sell the most beers.

demonstrate time distribution of sales, show what are the busiest periods of the day and of the week.

Also have a way to add a new transaction for a given date etc.

c) BEER PAGE:

given a beer – show bars where this beer sells the most (again only top),

show also drinkers who are the biggest consumers of this beer

as well as time distribution of when this beer sells the most.

d) SQL QUERY INTERFACE:

provide a box where we can type in sql query and get them evaluated on your database. Of course we will have to know the scheme (which will be part of your submission).

4) FRONT END – UPDATES/DELETIONS/INSERTIONS:

Allow end user to modify every table in your databases.

Have **MODIFICATION** page, with one box for each table. If update is not accepted – provide the feedback message "violates foreign key" etc.

The **integrity** constraints should be implemented.

a) Foreign keys for each of the three tables – frequents, likes and sells. Drinker, Bar and Beer should be present in tables Drinker, Bar, Beer *before* they can participate in tables Frequent, Likes and Sells.

b) Key constraint for sells table – on bar, beer (bar, beer → price)

c) ASSERTIONS: All three patterns (1-3) from above have to be enforced as assertions. This means if an update (insert, update) violates the assertion it *should not be allowed* and proper warning/explanation has to be displayed – "not accepted due to violation of assertion X"

FINAL SUBMISSION DUE NOVEMBER 18 SHOULD CONTAIN:

(a) ER diagram and Relational DB scheme

(b) URL where we can access your web application through the front end

(c) Power Point Presentation (up to 10-15 slides, explaining what you did)

(d) Source code