Food Express
AUST CSE 4126 Spring - 2018 - Project Report

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***Abstract*—Food has been an important part of culture all around the world for long although it doesn't get the credit that much. People celebrate every occasion with food. However, it doesn't seem possible every time to cook food at home. Thus, restaurant system has come to the rescue. Now-a-days, it has become a common trend to go out for dining in a restaurant even on simple occasions and for recreation. Even that is not always possible to do as we don't always have lots of time to go out for food. So, to that solution, food online delivery system has become a popular medium which can be handy to solve time and ease our work of cooking. Systems like Food Panda, Hungry Naki have become really popular in our country. People can order via those apps and then within a short time those orders will be delivered to them through a delivery system.**

1. Introduction

Being inspired from the existing systems such as Food Panda, Hungry Naki, I, along with my peers, decided to implement a project based on food delivery system, which we named as 'Food Express'.
Food Express Is an online food delivery system which will serve as many other alternatives. The delivery will be based on user location. User needs to login to order. I'll discuss about all the functions of our project in following sections where I tried to show the most important part of my codes as the implementations.

1.1. Features

To make our project much more efficient and desirable, we implemented some special options other than just delivering food. Those are explained below.

1.1.1. Searching Based On Food Type.

What is someone wants to eat a specific food, but he doesn't have any specific choice of restaurant or he doesn't know in which restaurant that food is served. For that we created a system where users can search food based on their appetite.

From figure 1, we can see the query that we used to implement search based on bood type. In the query fnum actually refers to food type 'Burger'.

Search Based on Food type

```
open menu_cur
for
select menu_acc.mname@site_gulshan, menu_acc.rnum@site_gulshan, price, rname
from menu_t1@site_gulshan inner join menu_acc@site_gulshan
on menu_t1.mnum@site_gulshan = menu_acc.mnum@site_gulshan
inner join restaurant1@site_gulshan
on menu_acc.rnum@site_gulshan = restaurant1.rnum@site_gulshan
where fnum = fnum;
close menu_cur;
```

```
MNAME                          PRICE RNAME
------------------------------ ---------- ----------
Garlic Mayo Burger                    120 KFC
Takeout Special                       160 KFC
Chicken Supreme Burger                210 Herfy
```

Figure 1. Here, we can see the query for the implementation.

1.1.2. View Of Top Restaurants.

Nobody likes to do something that is recognized poorly among other people. Same goes for dining in restaurants. For that we implemented a query so that we implemented a query which distinguishes between top-tier and low-tier restaurants based on user rating. This will let users choose restaurants based on common liking.

Top Restaurant Query and The rests:

```
cursor cur_res710 is
select rname, avg(rating) from restaurant2@site_gulshan inner join ratings2@site_gulshan
on restaurant2.rnum@site_gulshan = ratings2.rnum@site_gulshan
where avg(rating) between 7 and 10
group by rname
order by avg(rating) desc;
cursor cur_res16 is
select rname, avg(rating) from restaurant2@site_gulshan inner join ratings2@site_gulshan
on restaurant2.rnum@site_gulshan = ratings2.rnum@site_gulshan
where avg(rating) between 1 and 6
group by rname
order by avg(rating) desc;
```

Figure 2. Here, it shows the query for top search along with the result.

1.1.3. Others.

We also implemented a system where users can comment on the food menu that they ordered which can be viewed by others.
Keeping security in mind, we kept a function so that we can check the validity of users and no other people apart from users can use this food delivery system.

1.2. Theory Implementations

We learned various theories on our course, that we were needed to implement in our project. Brief discussion of our implementations is in the following sections from 1.2.1 - 1.2.7.

1.2.1. Rule 1: Effect Of Update.

We know that in level 3 transparency, if we need to update a certain value in a certain relation, it effects all other relations that share the same global relation with the first one. This effect is known as effect of update.

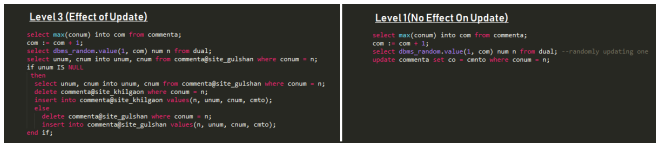

Figure 3. Implementation of effect of update.

1.2.2. Rule 2: Query Simplification.

If we follow criterions of distributed database system, we can simplify any query we want so that it will take less space. We tried to implement it on our project.

Figure 4. Implementation of query simplification.

1.2.3. Rule 3: Canonical Form.

Fragmentation queries are required to 'Union' if they have to be reconstructed to global queries. This union form is called canonical form.

1.2.4. Rule 4: Qualified Relation Proof.

In my implementation, I tried to implement a query which has two qualified relations. The query was in form of $[[[r1 : pr1]UN[r2 : qr2]JNF[[s1 : rs1]UN[s2 : ts2]]]$ which is later converted to $[(r1UNr2)JNF(s1UNs2) : (porq)and(rort)andF]$.

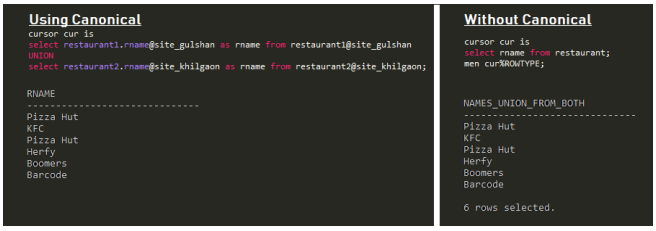

Figure 5. Implementation of canonical form.

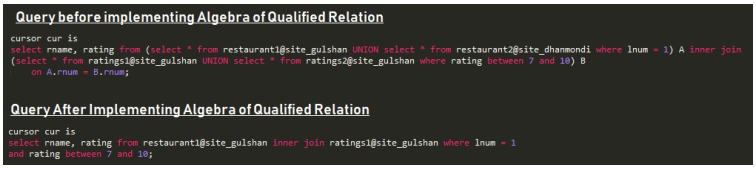

Figure 6. Implementation of qualified relation, $[[[r1 : pr1]UN[r2 : qr2]JNF[[s1 : rs1]UN[s2 : ts2]]]$

1.2.5. Rule 5: Database Profile Estimation.

Database profile holds the numeral information of the relations. We estimated the total bits each relation has.

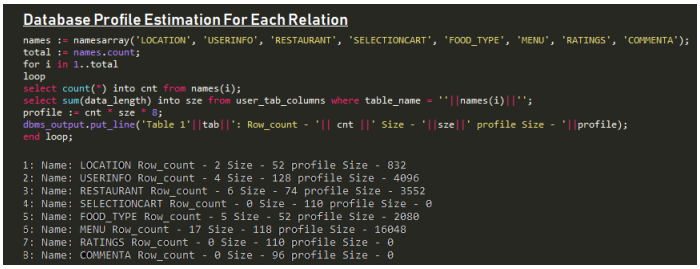

Figure 7. Estimation of database profile of each relation.

1.2.6. Rule 6: Semi Join Program.

We know that, a semi join program on join program can reduce the transmission cost of an application as it needs less bits to transmit.

Figure 8. Implementation of semi join program.

1.2.7. Rule 7: Machine Learning Implementation.

Machine learning is a system by which can predict upcoming results. I used $Multi - VariateLinearRegression$ in our project to predict the quality of any restaurant based on price, the time from the restaurant is established and user rating. We know that only user rating can never be enough to judge a restaurant. So we tried to judge the quality of a restaurant based on these features.

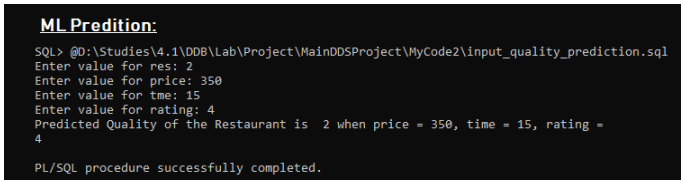

Figure 9. Here, it shows the query for top search along with the result.

1.3. Database Connection

The following figure proves the connection for database at site gulshan which I worked on.

Figure 10. Here, it shows the query for top search along with the result.

1.4. Implementation Of Packages & Triggers

In our project, I implemented four packages. All my features are included in those packages.

$1.user_package$:
$i.procedureuser_signup_proc.$
$ii.procedurelogin_func.$

$2.food_selection_package$:
$i.functionsearch_funcgulshan.$
$ii.functionsearch_funcdhanmondi.$
$iii.procedureshow_menu_procgulshan.$
$iv.procedureshow_menu_procdhanmondi.$

$3.cart_package$:
$i.procedureadd_comment_proc.$
$ii.functionadd_to_cart.$
$iii.procedureupdate_comment.$

$4.theory_package$: $i.forrule1 -$
$procedureupdate_commentlevel3.$
$procedureupdate_commentlevel1.$
$ii.forrule2 -$
$procedurewithoutSimplify.$
$procedurewithSimplify.$
$iii.forrule3 -$
$procedureshow_all_canonical.$
$procedureshow_all_Notcanonical.$
$iv.forrule4 -$
$procedureproof_left_side.$
$procedureproof_right_side.$
$v.forrule5 -$
$proceduredb_profiel_estimator.$
$vi.forrule6 -$
$functionsemi_join_func.$
$vii.forrule7 -$
$procedurequality_linear_reg_func.$

All these functions and procedures which are in these packages are explained previous on section 1.1 and 1.2.

2. My Contribution

I worked on all the codes which are done from site gulshan and also on the theory implementation part of the project which was mentioned earlier.All the parts that I worked on have been briefly described in section 1.1 and 1.2.

3. Conclusion

We tried our best to implement a decent food delivery system which includes all the basic features. However, it lacks many modern specialities such as showing remaining time for delivery, cancellation of the order and a chat bot.