MSIS 2603 - DATABASE MANAGEMENT SYSTEMS



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1. Introduction

Nowadays people are so busy with their jobs and responsibilities, a minor obstruction in their day to day work will affect the entire schedule. These obstructions can be of any types. The most common of those types are household problems or household needs such as thermostat failure, wiring issues in the house, baby proofing the entire house, plumbing issues and etc. These obstructions need to be addressed immediately for bring people's lives back on track. Solving household issues needs a good handyman or service provider who has decent workmanship, who is an expertise in the area, trustworthy, good communicator and charging a reasonable fare for fixing the problem. Finding a handyman of these qualities is difficult, we cannot just pick a number from the phonebook and call the first handyman in the list and expect him to be the best one for fixing a certain problem. So, to solve this problem and make it easier for people to find the right person, we came up with new a solution called Quickfix. The one stop application for fixing the day to day household problems.

2. Business/Organization description

Quickfix is going to be an application for mobile phones, especially for platforms iOS and Android. As the name suggests, the idea here is to make an application that is going to help users to quickly fix their day to day problems, related to their electric wirings, taps, tiles etc. The goal of our product is to minimize the cost of service providing and seeking process and maximize the benefits and profits on both sides. This service can also be expanded to all over the America since it is so useful to everyone. But, we mostly concentrate on Bay Area and see how the people use this application. Although, a few applications such as Angieslist exist in market, those are paid applications. Our product is going to be free of cost for all users, with some nominal fee to service provider users like electricians, plumbers etc.

Delving further in the description of application, it is going to be a service software for people. However, users would be both service providers like Plumbers, Electricians and regular users like us. Using the application the user can look for service providers in their area or within a certain range of miles or from certain locations, as selected in the application. Also, there is going to be a Google map integration, which will help users and service providers to see and share each other's' location. Service providers are going to have their hours and days of work listed, which can be seen by the user. Users can also put their preference time on the application. In addition, user can see the minimum cost of service from the service provider.

3. Types of users for the application:

Types of users:

Customer:

The customer is a user who would have an issue with household wiring, plumbing etc. to be fixed.

Service Provider/Handyman:

The handyman is a user who would fix the household problems related to wiring, plumbing etc.

Customer Care:

Customer care would be a user who helps customers and service providers to resolve their issues as well would provide extra guidance about application as well as its use.

Application Administrator:

Application Administrator is a person who will keep the track of issues faced by customer and service providers and will fix those issues. Issues could be related to software, support to particular ios or android phone or version etc.

4. Use cases for the application:

Customer:

- 1. Creating an account in Quickfix
- 2. Logging into Quickfix application
- 3. Selecting a service provider/handyman based on sorting order.
- 4. Fixing the appointment with the service provider/handyman. (once it is fixed then the appointment details are updated in the Quickfix calendar).
- 5. Sending the message to the service provider.
- 6. Sharing the problem with service provider/handyman in the form of text, photo, audio and video formats.
- 7. Accepting service provider/handyman logging in time(the timer starts and turns off only when customers sign off that work is done)
- 8. Starting the timer when the service provider/handyman comes to solve the issue.
- 9. Updating the amount of time spent by the service provider/handyman on the issue.
- 10. Giving feedback and ratings to the service provider/handyman once the issue has been resolved.
- 11. Accepting the price charged by the system.
- 12. Complaining or calling the customer care if there is any discrepancy with price charged to him.(depends on the condition)

Service Provider/Handyman:

- 1. Creating an account in Quickfix.
- 2. Logging into Quickfix application

- 3. Checking the messages received from the customer.
- 4. Updating the status of his availability (Available, Working, Off-Duty)
- 5. Fixing the appointment with the customer once he/she understands the issue
- 6. Sending the message to the customer.
- 7. Viewing the media content shared by the customer
- 8. Accepting the logging in time that is started by the customer.
- 9. Updating the amount of time spent by the customer.
- 10. Giving feedback about the issue and about the customer if any.
- 11. Accepting the price charged by the system
- 12. Complaining or calling the customer care if there is any discrepancy with price charged (depends on the condition).

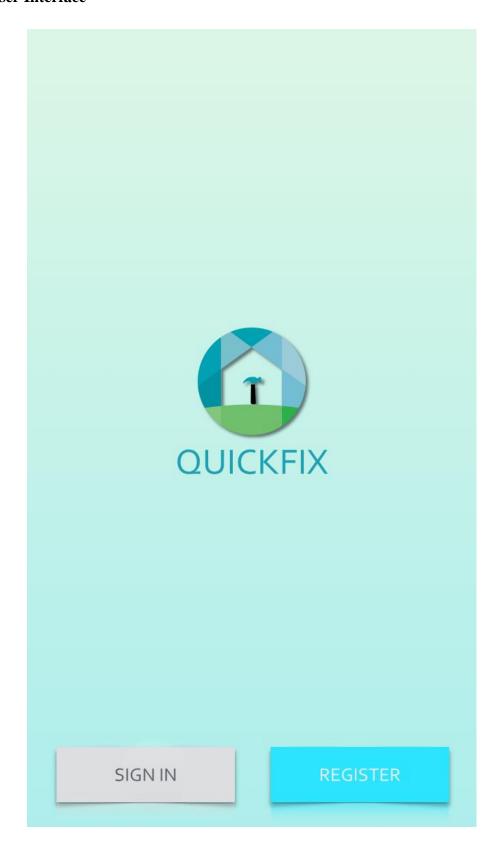
Customer Care:

- 1. Logging into customer care account of Quickfix
- 2. Checking the no of messages received from the customer and service provider/handyman
- 3. Categorizing the list of messages based on type of complaint, priority, date received or time received etc.
- 4. Answering the calls from the customer or service provider.
- 5. Resolving the issues (issues related to the application) of customer or service provider/handyman.
- 6. Assisting the customer or service provider/handyman in performing functions related to Quickfix application.

System Administrator:

- 1. Administrator will have login and logout password.
- 2. Admin can give read/write access to other users.
- 3. Software Developer can add features and delete features from the application.
- 4. Checking if the code works properly and data is getting sent and received properly.
- 5. Will check the throughput in sending and receiving data to/ from user and serviceman.
- 6. Checking if the payment gateway is working properly for money transactions.

5. User Interface





50% ■

CANCEL

SIGN IN

DONE

Email ID raviklose@gmail.com

Password ******



8:08 AM

50%





QUICKFIX





Q Search a service provider

Select by type of service provider





lan Klingenberger

Owner / Operator

ph: {920} 393 - TURF



Call for a free estimate

Total Turf Solutions is a turf and landscape management and installation company based in Neenah, WI. Total Turf Solutions is committed to finding the best solution for all of our customers' needs.

- Weekly Lawn Maintenance
- Spring & Fall Clean-up
- Aeration
- Mulch Installation
- **Bed Maintenance**
- And So Much More!

Your previous contacts



Michael Mendoza Electrician ****



Matt Murdock Plumber



Ben Pearson Locksmith



Need a product?



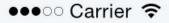




Electric wires

Faucets

Counter Tops



8:08 AM

50%





QUICKFIX





Q Search a service provider

Home

Select by type of Service Provider

Deals and Packages

My Appointments

My Account

My Recently Viewed Service Providers

My Ratings and Recommendations

Notifications

About

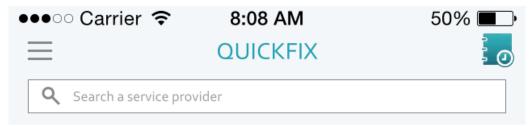
Help

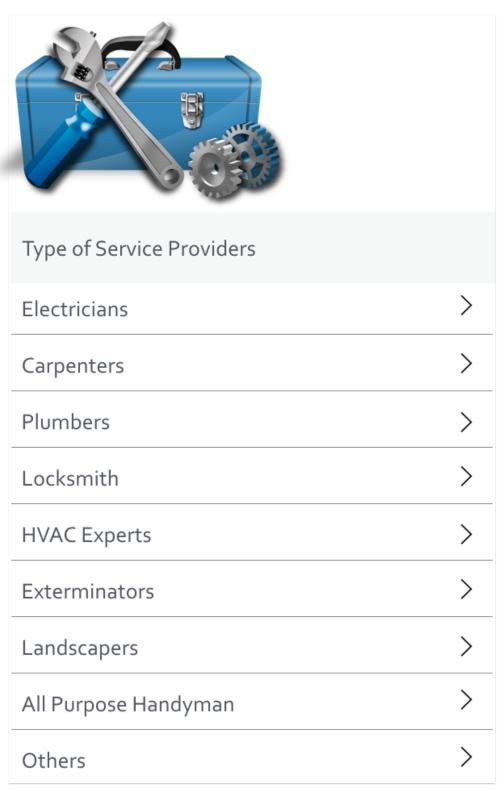
Contact Us

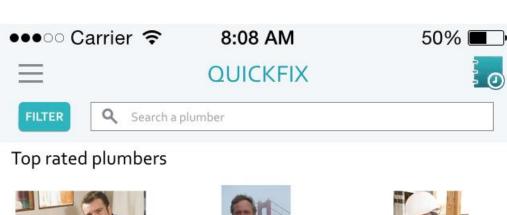
Rate Our App

Legal Information

Not Raviklose? Sign out









Richard Parker Plumber



Matt Murdock Plumber



Noah Centino Plumber



Tony Abbott
Plumber

★★★★

1254 Benton Street
Santa Clara, CA

0.7 miles



Noah Centino
Plumber

9024 Lewis Street
Santa Clara, CA

1.7 miles



Matt Murdock Plumber 123 Fourth Street San Jose, CA

3.7 miles



Noah centino
Plumber

256 Evans Street
Milpitas, CA

11.8 miles



Eric Cantona
Plumber

★★★★

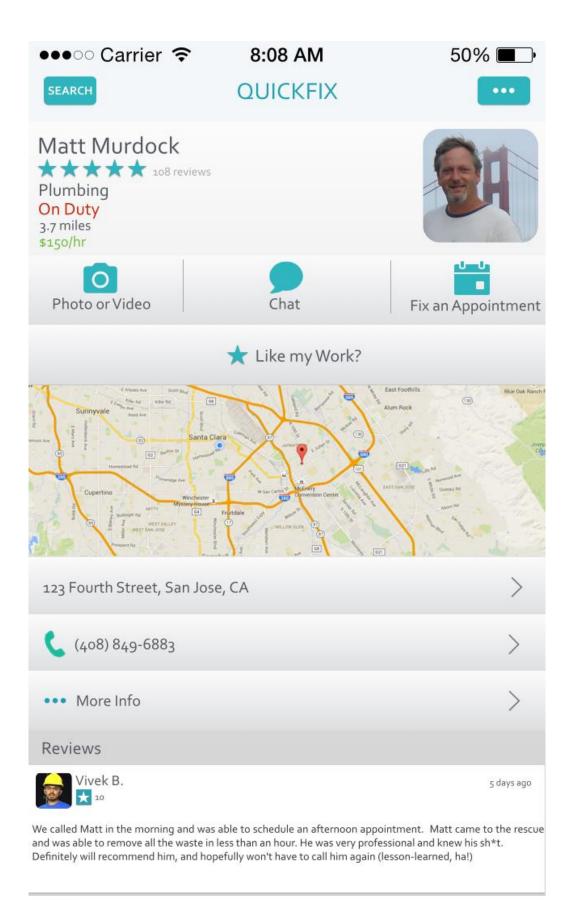
708 San Antonio Road
Mountain View, CA

15.7 miles



Aron Ramsey

25 miles





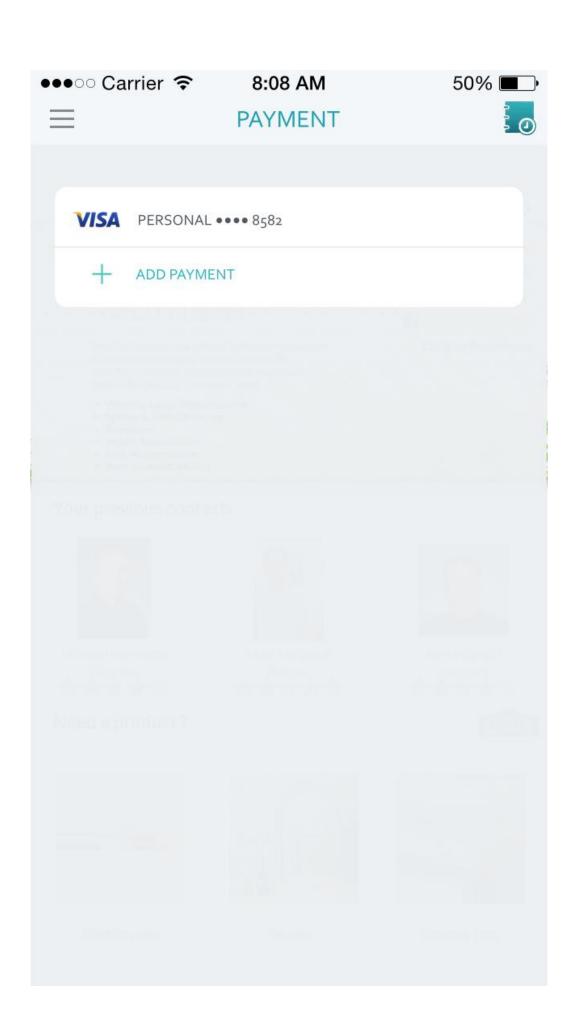








Appointment ID: B12345
Service Provider: Tony Abbott
Task: Plumbing
Date: June 01, 2015
Time from: 5:45 pm
Time to: 7:20 pm
Check in time: 5:45 pm ACCEPT REJECT
Check out time: ACCEPT REJECT
NEED HELP? WORK DONE
Task Description
Shared Media





50% ■





PAYMENT



- JUNE 01, 2015 AT 07:20 PM -

\$ 180.19

- WORK SUMMARY -



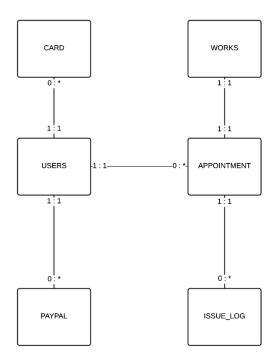


FEEDBACK

NEED HELP?



6. Logical Schema - UML



7. Physical Model – Data Dictionary

	USERS				
PRIMARY	UID	NVARCHAR(255)			
Key	NAME	NVARCHAR(255)			
Key	DOB	DATE			
Key	ADDRESS	NVARCHAR(255)			
Key	CITY	NVARCHAR(255)			
Key	ZIP	INT			
Key	STATE	NVARCHAR(255)			
Key	PHONE_NUMBER	NVARCHAR(255)			
Key	EMAIL_ID	NVARCHAR(255)			
Key	MIN_WAGE_IN_USD	INT			
Key	TIME_IN	TIME			
Key	TIME_OUT	TIME			
Key	MONDAY	BIT			
Key	TUESDAY	BIT			
Key	WEDNESDAY	BIT			
Key	THURSDAY	ВІТ			
Key	FRIDAY	ВІТ			
Key	SATURDAY	ВІТ			
Key	SUNDAY	ВІТ			
Key	AOE	VARCHAR(45)			

CARD			
FOREIGN(USERS)	NVARCHAR		
Key EMAIL_ID		NVARCHAR	
PRIMARY CARD_NO		INT	
Key	EXP_DATE	DATE	

PAYPAL					
PRIMARY EMAILD_ID NVARCHAR					
FOREIGN(USERS)	UID	NVARCHAR			

WORKS				
PRIMARY	PAYMENT_ID	NVARCHAR(255)		
FOREIGN	APT_ID	NVARCHAR(255)		
Key	AMT_CHRG	FLOAT		
Key	SERVICE_RATINGS	FLOAT		
Key	FEEDBACK	NVARCHAR(255)		
Key	STATUS	NVARCHAR(255)		

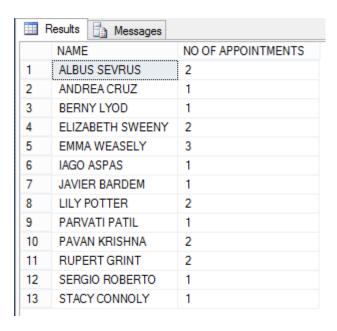
APPOINTMENT						
PRIMARY APT_ID NVARCHAR(255)						
FOREIGN	NVARCHAR(255)					
KEY	SID	NVARCHAR(255)				
Key	DATE					
Key	TIME_FROM	TIME				
Key						

ISSUE_LOG				
PRIMARY	NVARCHAR(255)			
FOREIGN	APT_ID	NVARCHAR(255)		
Key	CID	NVARCHAR(255)		
Key	CMPT_DATE	DATE		
Key	COMPLAINT_TYPE	NVARCHAR(255)		
Key	CMPT	NVARCHAR(255)		
Key	STATUS	NVARCHAR(255)		

8. QUERIES

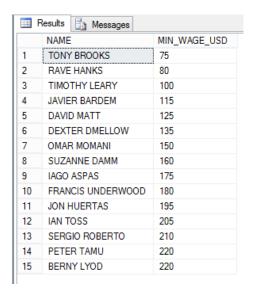
1) COUNT THE NUMBER OF APPOINTMENTS EACH CUSTOMER HAS

SELECT U.NAME, COUNT(*) AS 'NO OF APPOINTMENTS'
FROM USERS U, APPOINTMENT A
WHERE U.UID = A.CID
GROUP BY U.NAME



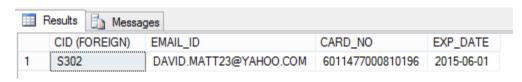
2) FIND SERVICE PROVIDERS WHO HAVE MINIMUM WAGE IN ASCENDING ORDER

SELECT NAME, MIN_WAGE_USD FROM USERS WHERE UID LIKE 'S%' ORDER BY MIN_WAGE_USD



3) FIND CUSTOMERS WHOSE CREDIT CARD EXPIRES IN NEXT TWO MONTHS

SELECT *
FROM CARD
WHERE EXP_DATE < '2015-08-01' AND EXP_DATE > '2015-05-31'



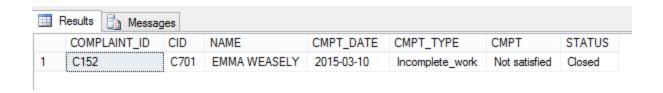
4) FIND SERVICE PROVIDERS WHO ARE PLUMBERS AND AVAILABLE ONLY ON SUNDAYS

SELECT UID, NAME, PHONE_NO, EMAIL_ID FROM USERS WHERE SUNDAY='TRUE' AND AOE='PLUMBING'



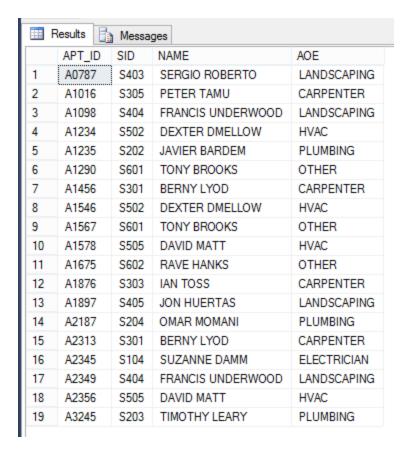
5) SEE COMPLAINTS FILED ON 10TH MARCH 2015

SELECT I.COMPLAINT_ID, I.CID, U.NAME, I.CMPT_DATE, I.CMPT_TYPE, I.CMPT, I.STATUS
FROM ISSUE_LOG I, USERS U
WHERE CMPT_DATE='2015-03-10' AND U.UID = I.CID



6) SELECT SERVICE PROVIDERS WHO HAVE AN APPOINTMENT

SELECT A.APT_ID, A.SID, U.NAME, U.AOE FROM USERS U, APPOINTMENT A WHERE A.SID=U.UID



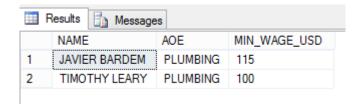
7) SELECT CARPENTERS WHO ARE LOCATED IN SANTA CLARA

SELECT U.UID, U.NAME, U.AOE, U.CITY
FROM USERS U
WHERE CITY='SANTA CLARA' AND AOE='CARPENTER'



8) SELECT PLUMBERS WHOSE MINIMUM WAGE IS LESS THAN \$150

SELECT U.NAME, U.AOE, U.MIN_WAGE_USD FROM USERS U WHERE U.AOE='PLUMBING' AND U.MIN WAGE USD<150



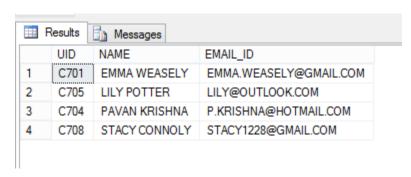
9) LIST SERVICE PROVIDERS WITH RATINGS OF MORE THAN 4

SELECT A.SID, U.NAME, U.AOE, W.SERVICE_RTNGS FROM WORKS W, APPOINTMENT A, USERS U WHERE A.APT_ID = W.APT_ID AND U.UID = A.SID AND W.SERVICE_RTNGS>4 ORDER BY A.SID



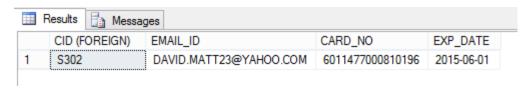
10) SELECT CUSTOMERS WHO HAVE REGISTERED USING PAYPAL ACCOUNT

SELECT U.UID, U.NAME, P.EMAIL_ID FROM PAYPAL P, USERS U WHERE P.UID = U.UID AND P.UID LIKE 'C%'



11) FIND USERS WHOSE CREDIT CARD VALIDITY IS EXPIRED

SELECT *
FROM CARD
WHERE EXP_DATE='2015-06-01'



12) SELECT ALL CUSTOMERS WHOSE CREDIT CARD HAS EXPIRED

Select U.NAME, C.EMAIL_ID
From USERS U, CARD C
WHERE U.UID=C.CID AND C.EXP_DATE>GETDATE();

<u> </u>	Results Messages	
	NAME	EMAIL_ID
1	SUZANNE DAMM	S_DAMM@OUTLOOK.COM
2	TIMOTHY LEARY	TMTY.LEAR@YAHOO.COM
3	OMAR MOMANI	OM.MOMANI@GMAIL.COM
4	BERNY LYOD	BLYOD@GMAIL.COM
5	IAN TOSS	IAN.TOSS@GMAIL.COM
6	PETER TAMU	PETERTAMU@YAHOO.COM
7	IAGO ASPAS	IAGO.ASPAS@GMAIL.COM
8	SERGIO ROBERTO	SERGIO0924@GMAIL.COM
9	FRANCIS UNDERWOOD	F.UNDERWOOD@GMAIL.COM
10	DEXTER DMELLOW	D1190@HOTMAIL.COM
11	DAVID MATT	DAVID_MATT@YAHOO.COM
12	TONY BROOKS	TONY33@GMAIL.COM
13	RAVE HANKS	RAVE.H33@GMAIL.COM
14	EMMA WEASELY	EMMA.WEASELY@GMAIL.C
15	RUPERT GRINT	RGRINT@GMAIL.COM
16	PARVATI PATIL	PP@YAHOO.COM
17	PAVAN KRISHNA	P.KRISHNA@HOTMAIL.COM
18	ALBUS SEVRUS	ALBUS777@YAHOO.COM
19	ELIZABETH SWEENY	COOL_SWEENEY@YAHOO
20	ANDREA CRUZ	ACRUZ@HOTMAIL.COM

UPDATE, INSERT, DELETE QUERIES

FOR PAYPAL TABLE

SELECT * FROM PAYPAL



13) DELETE

DELETE FROM PAYPAL WHERE UID = 'C701' SELECT * FROM PAYPAL

III F	Results	Messages
	UID	EMAIL_ID
1	S103	ANDY1228@GMAIL.COM
2	S301	BLYOD@GMAIL.COM
3	S505	DAVID_MATT@YAHOO.COM
4	S604	HARRY4444@YAHOO.COM
5	S401	IAGO.ASPAS@GMAIL.COM
6	S405	JON.2806@YAHOO.COM
7	S202	JV.BARDEM@GMAIL.COM
8	C705	LILY@OUTLOOK.COM
9	S105	NICKREIL@GMAIL.COM
10	S204	OM.MOMANI@GMAIL.COM
11	C704	P.KRISHNA@HOTMAIL.COM
12	S305	PETERTAMU@YAHOO.COM
13	S504	PITT2305@GMAIL.COM
14	S603	REECEPETERS@GMAIL.C
15	S104	S_DAMM@OUTLOOK.COM
16	S102	SDCOSTA@YAHOO.COM
17	S403	SERGIO0924@GMAIL.COM
18	S503	SPARKER@GMAIL.COM
19	C708	STACY1228@GMAIL.COM

14) UPDATE

UPDATE PAYPAL

SET EMAIL_ID = 'NICK@GMAIL.COM'

WHERE UID = 'S105'

SELECT * FROM PAYPAL

<u></u> F	Results	Messages
	UID	EMAIL_ID
1	S103	ANDY1228@GMAIL.COM
2	S301	BLYOD@GMAIL.COM
3	S505	DAVID_MATT@YAHOO.COM
4	S604	HARRY4444@YAHOO.COM
5	S401	IAGO.ASPAS@GMAIL.COM
6	S405	JON.2806@YAHOO.COM
7	S202	JV.BARDEM@GMAIL.COM
8	C705	LILY@OUTLOOK.COM
9	S105	NICK@GMAIL.COM
10	S204	OM.MOMANI@GMAIL.COM
11	C704	P.KRISHNA@HOTMAIL.COM
12	S305	PETERTAMU@YAHOO.COM
13	S504	PITT2305@GMAIL.COM
14	S603	REECEPETERS@GMAIL.C
15	S104	S_DAMM@OUTLOOK.COM
16	S102	SDCOSTA@YAHOO.COM
17	S403	SERGIO0924@GMAIL.COM
18	S503	SPARKER@GMAIL.COM
19	C708	STACY1228@GMAIL.COM

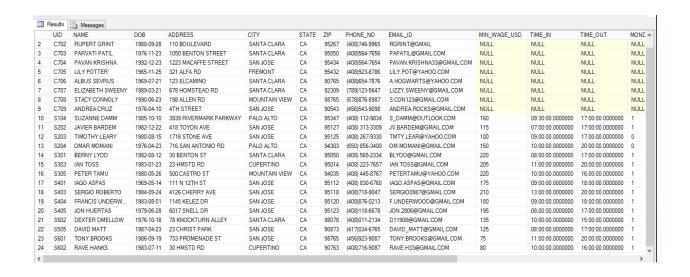
15) INSERT

```
INSERT INTO PAYPAL (UID, EMAIL_ID)
VALUES ('C707', 'EWATSON@GMAIL.COM')
SELECT * FROM PAYPAL
```



FOR USERS TABLE

SELECT * FROM USERS



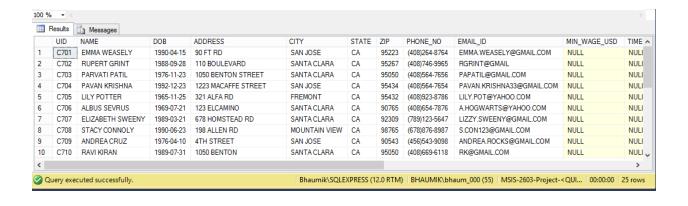
16) INSERT

INSERT INTO USERS (UID, NAME, DOB, ADDRESS, CITY, STATE, ZIP, PHONE_NO, EMAIL_ID)
VALUES('C710', 'RAVI', '1989-07-31', '1050 BENTON', 'SANTA CLARA', 'CA', '95050',
'(408)669-6118', 'RK@GMAIL.COM')



17) UPDATE

UPDATE USERS
SET NAME = 'RAVI KIRAN'
WHERE UID = 'C710'



9. BUSINESS METRICS

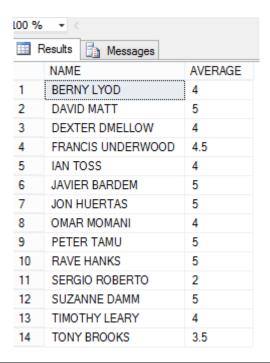
1. Average rating of service provider.

Average rating of service provider would help us understand the quality of service provided by a service provider.

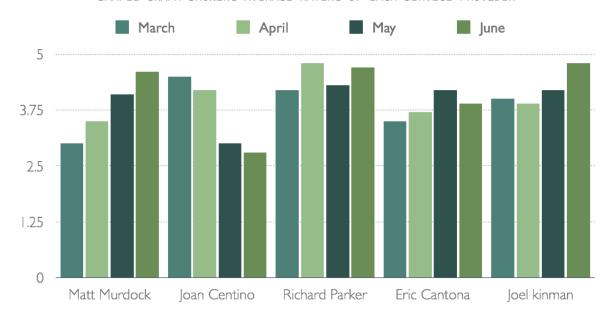
Average rating = Total count of stars / (No. of users who rated * 5)

LIST THE AVERAGE RATING OF EACH SERVICE PROVIDER

```
SELECT U.NAME, AVG(W.SERVICE_RTNGS) AS 'AVERAGE' FROM USERS U, APPOINTMENT A, WORKS W WHERE W.APT_ID = A.APT_ID AND A.SID=U.UID GROUP BY U.NAME
```



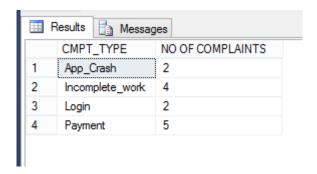
SAMPLE GRAPH SHOWING AVERAGE RATING OF EACH SERVICE PROVIDER



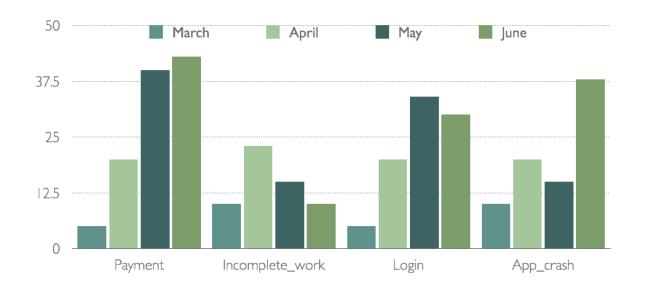
2) Types of issues registered in issue log.

WHICH COMPLAINT HAS MOST FREQUENTLY OCCURRED

SELECT I.CMPT_TYPE, COUNT(*) AS 'NO OF COMPLAINTS' FROM ISSUE_LOG I GROUP BY I.CMPT_TYPE



SAMPLE GRAPH FOR TYPE OF COMPLAINTS



3) Number of appointments for a particular month. (To check how active is the application for a particular month.)

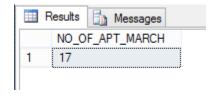
LIST OF APPOINTMENTS FOR THE MONTH OF MARCH

SELECT *
FROM APPOINTMENT A
WHERE DATEPART (MONTH, A.DATE) = 3

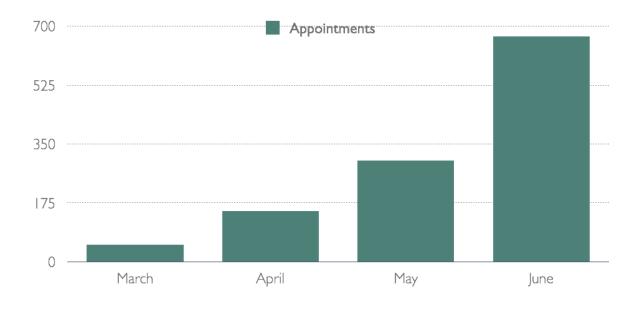
Ⅲ F	Results Messages					
	APT_ID	CID	SID	DATE	TIME_FROM	TIME_TO
1	A0787	C701	S403	2015-03-02	14:30:00	16:00:00
2	A1017	C709	S101	2015-03-04	16:30:00	18:00:00
3	A1098	C704	S404	2015-03-12	12:00:00	14:00:00
4	A1235	C708	S202	2015-03-13	13:00:00	15:00:00
5	A1290	C701	S601	2015-03-09	09:00:00	11:00:00
6 CI	ick to sele	ct the w	hole rov	2015-03-06	18:30:00	20:00:00
7 _	A1546	C706	S502	2015-03-08	08:00:00	10:00:00
8	A1578	S301	S505	2015-03-01	13:30:00	15:00:00
9	A1675	C705	S602	2015-03-16	16:00:00	18:00:00
10	A1876	S401	S303	2015-03-14	14:00:00	16:00:00
11	A1897	C704	S405	2015-03-07	19:30:00	21:00:00
12	A2187	C702	S204	2015-03-05	17:30:00	19:00:00
13	A2313	C702	S301	2015-03-11	11:00:00	13:00:00
14	A2345	C707	S104	2015-03-03	15:30:00	17:00:00
15	A2349	C707	S404	2015-03-17	17:00:00	19:00:00
16	A2356	C701	S505	2015-03-15	15:00:00	17:00:00
17	A3245	C706	S203	2015-03-10	10:00:00	12:00:00

NUMBER OF APPOINTMENTS FOR MARCH

SELECT COUNT(*) AS NO_OF_APT_MARCH FROM APPOINTMENT A WHERE DATEPART (MONTH, A.DATE) = 3

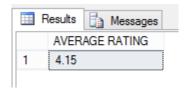


SAMPLE GRAPH OF NUMBER OF APPOINTMENTS PER MONTH

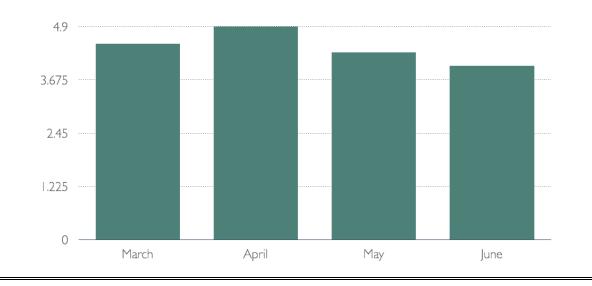


4) Average rating of all services provided from Quickfix application.

SELECT AVG(W.SERVICE_RTNGS) AS 'AVERAGE RATING' FROM WORKS W



SAMPLE GRAPH OF RAVERAGE RATING OF ALL SERVICE PROVIDER



10. Project Summary

• Summarize your experience with this exercise

It was really a very good experience. We got to learn a lot from each other in professional and personal life. All four of us had different perspectives for the project design, which really forced us to think deeply and comprehend vivid ideas for every single problem.

What was the hardest part of this project?

As the project doesn't exist in reality, it was very hard to define the scope of project as well as types of attributes. Thinking for all kinds of circumstances, like "what would happen when credit card registered is expired?" which could occur in real time was the hardest part of this project.

• What problems did you run against in this project?

Designing the schema for this project was very difficult. We being a group of 4, it was tough to see each other at same time. Planning logical flow for the application was challenging.

• How did you solve these problems?

We did lot of research on the existing applications like Yelp, Uber and Angieslist. This helped us to understand the logical flow as well as schema design. We kept everything documented for all of us on cloud, which helped us to work together on this project.

- If you were to do this project again, what methodology would you follow We would do more research on the existing applications, to understand the keys required in database as well as to improve our business model. Other than this, our prime focus would be to make database normalized.
- Suggestions for how to refine this project for the next class

Students should do thorough R&D on kinds of applications which exist in market. This would help to understand the attributes required for designing database, business model, and logical flow. It helps to think for features not available in existing applications.