



SABZI MANDI

Final Report



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Submitted to Dr Noman Javed

SINGED DECLARATION

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With anyone nor submitted elsewhere.

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May 13, 2019

Abstract:

"Sabzi Mandi " is an E-commerce website and online market to make the trader's job easy and provide a common platform to farmers , merchants ,shopkeepers and all others having concern with buying or selling vegetables and fruits .Its functionality would be just like OLX where customers buyer and seller) would post about their products and would deal with each other.Secure transaction facility would also be provided by the system to its user.it would promote trading by decreasing loss, increasing profit and making the business easy, pure ,reliable and secure User.

In "Sabzi Mandi " fruits and vegetables traders can post an ads to sell or buy fruits and vegetables on wholesale level. The greengrocer can view the ads of other greengrocers. Seller and buyer can communicate each other through real time chat application on specific post. Buyer Can view the posting place of the seller through google-map.

Seller have ability to create custom order for buyer if the dealing person are agreed.

Acknowledgment:

I would like to express my sincere gratitude to my supervisors, Mr. Noman Javed and Mr .Saqib for helping me throughout my project by providing a great guidance, right comments and suggestions and a constructive feedback on project development. They have also been the source of motivation to work harder and better to come up with better product. I would also like to thank other teachers, especially Sir Fiasal Zeshen, for assistance and support whenever needed. Special thanks to my family members for their hidden support in terms of prayers, which actually empowered me to accomplish this work.

Last but not the least, a humble thanks to all my friends, who helped me testing my application and help me to find requirements.

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1: Introduction

About Project

E-commerce is a commercial transaction of goods and any things which we buy or sell over internet. Most growing area of ecommerce is consumer to consumer e-commerce where buyers and sellers can find themselves easily through a middle source like website or any other online source. Middle source is handled by any third party which take care of transaction between both consumers (buyers and sellers). (Anon., n.d.)

This website is a Web based and structural system design and developed with the criteria to make the process of greengrocers easy and quick for all. The project was developed to fulfill the requirement of the user who wish to buy or sell online fruits and vegetables on wholesale rate. Brokers can use this system to get more benefits.

So, this report illustrates my idea of ecommerce website where farmers and traders can sell and buy their products like vegetables, fruits and cereals etc.

Problem Statement

Most of the developers target Intelligentsia and ignore the uneducated people to increase the users of their application. Another reason may be is that it is very difficult to make uneducated people use advanced technologies. Our country (Pakistan) mostly depends on Agriculture but there aren't any online facilities for Agricultural business. This was the main motivation behind developing this application. Agricultural business based on farmers, traders and merchants. Nowadays Agriculture system is not developed. Farmer is unable to sell his Agri-Products to trader which give him more profit than his local trader because there is not an online system to check who are ready to buy his products due to which most of the time farmer get deceive by a local trader. There was no proper platform where people get whole rate vegetables and fruits. I belong to rural background. The people of my village are doing such kind of business. They visit different cities of country to sell or purchase fruits and vegetables on wholesale. These people have no knowledge which open-air market gives suitable profit. Now a days, people which have such kinds of business are surfing different open-air market round the cities. Similarly, people of rural areas will be able to know about technologies used. So, this platform will resolve these issues.

The main aim of the project that in rural areas, because they have unaware from such type of application.

Justification

The purpose of this website is just to make the sellers and buyers job easy, decreasing the loss ratio and increasing the profit ratio, and making the business pure, reliable and more beneficial. To achieve success e-commerce websites need to integrate all of the latest online closing & upsell techniques available which have been proven to increase the chances that a visitor will purchase. (Anon., n.d.)

Here it has been tried the best to resolve such issues of traders and farmers by providing them an online platform where they can sell and buy different products in a more easy, fast and comfortable manner. Here one can post his/her products to sell from home and others can see the products and their prices available in different markets and regions and can easily deal with each other. Which makes their job easy and decrease the chances of loss and wastage of products etc.

Aims and Goals:

- i. Research and implementation
- ii. Keep application interface simple so that Usability factor can be maximized
- iii. Brokers can search traders and he can communicate with them.
- iv. Provides facility to traders to see ads of farmers or merchants and communicate with them.
- v. All the users will receive notification when new ads posted.
- vi. Real time chat application facility is available for all users
- vii. The application is just making the connection between different seller and buyer
- viii. The user will do a transaction of money using this application

Engineering Principle:

The development methodology used in this project is Agile Development because of its flexibilities and incremental and iterative development techniques. The Agile Methodologies followed for the development involves Extreme Programming, Dynamic System Development and Lean Development. The reason to choose to follow mentioned methodologies was because of the project's continuous evolving development that because of the continuous affective feedback and features' additions suggested by supervisors, teachers and colleagues. The used methodologies not only helped to put an ease in the development process but also improved the product to be more useful and smarter in terms of its services and user-friendliness.

(pohl, n.d.)

Product development process and its efficiency and effectiveness depends on how well the product development process has been executed and how better and well-defined professional and ethical behavior has been shown (Larsson, 2016). The development process has followed a right path coming from not only specific professional and ethical principles but general ones, followed by most of the development processes. The process involved professional meetings with supervisors, teachers and even colleagues for feedback, suggestions and help. It also involved ethical behaviors (shared at the start of the FYP module) to follow during not only the meetings but also afterwards and during the development and documentation of the product.

This project leads to a product to have a marketplace in near future wherein it would publically provide its services, the security concerns would most probably arrive. The probability of their arrival depends upon how big the product user-base is and how much product's services generate data per user. Storing users' data in any database available online, though its private and secured, opens up to data breaches which leads to legal concerns not only by users but also by public and concerned organizations. Data breaches is one side of the security concern, other arrives when it comes to sharing of the users' information with any third party involving agencies. Sharing of users' information involves users consents and also business decisions of identifying what to share and what to not and what legal terms are involved in data sharing. The data security is a wide field that needs a focus of study and implementation, if this product has to be launched in a market to have a marketplace.

This report would help the reader to know what the project idea is; what literature review had been done to select this project and what problems have been faced. The features to be implemented in the project and what implementation technologies are being used in the development phase will also be mentioned. The prototype description will also be given and Use Case and System Architecture diagrams will be highlighted. What work is yet to be done (snapshots added), what

constraints have been faced so far and the conclusion remarks are also stated at the end.

This report involves the discussion of the project following the software engineering approach. It involves the literature survey about existing solutions and their rough edges, challenges faced and the need of such a system. Requirements and Analysis is a main part of the discussion which involves brief discussion of the project and its features. Furthermore, discussion on Design, Implementation and Testing is also provided which provides architecture and components design with a reference to Model Template View. Implementation techniques are also put together along with Software Testing. In the end, Results and Achievements of the end product are discussed and Conclusion is given to sum up the whole discussion.

2: Literature Review

Although, there is no such web application in our country (Pakistan) which facilitate farmers, merchants, and traders to sell or buy agri-products to each other online .So here I am going to discuss some application having similar feature like ' Sabzi Mandi'.

E-commerce website's related work has been done by many others, and a lot of work has been doing on daily basis. E-commerce websites have already earned a good name in the market. Almost each one of us may know better about famous online shopping websites like Amazon, express mandi,trade mart ,Ali Baba,OLX and Ebuy etc. These are all such platforms which provide the facility of buying and selling goods online.

OLX:

The OLX marketplace is a platform for buying and selling services and goods such as electronics, fashion items, furniture, household goods, Properties, cars and bikes, exchanging and communicating to other users

"OLX" has multiple features that are as follows

Features

1. Find verified sellers in your neighborhood and get to discover great deals.
2. Sell your unwanted items quickly straight from your phone
3. Chat with sellers directly to negotiate your deals from the safety of your home.
4. Easily Manage and edit your ads while on the move.
5. Get personalized alerts and recommendations based on your interests.
6. Customize & save your searches with our advanced features.
7. Share your ads directly with your friends on Facebook and on WhatsApp.
8. Log in via Facebook account for convenience.

Mandi Express:

'Mandi Express' is online web application .it is only working in Karachi which is famous city of Pakistan. This application target is to reach fruits and vegetables to families. They provide service to limited area of Karachi.

Features

1. Any person can contact mandi express to buy things
2. They are only selling product
3. Their business in small scale.
4. User can register itself through mobile number.
5. Payment gateway facility provided.
6. They reach order product to your home.

Trade mart:

"Agri Trade mart" can only use in India. Its main purpose to bring Farmers and traders close to each other. By using this application Farmer can sell his products to Trader from any location of India.

Features

1. Traders can directly contact farmers
2. Traders can send SMS to farmers
3. Farmers can also list & close listing their products by calling to customer care
4. The app is Simple in design, easy to use and works faster in 2G Network
5. Simple user registration process.
6. Farmers can upload images, expected price and quantity of agriculture products.

Ebuy:

“Ebuy” has multiple features that are as follows: (Anon., n.d.).Ebuy is an e-commerce web application which is selling electronic, bed sheets, health item and woman accessories . They provide the shipping facility.

1. Users can create its account by giving the information about email, phone number or by social media accounts.
2. It gives searches facility by location, price ranged.
3. User can post an ad to sell any product.
4. User can add picture of that product.
5. User can view all of its posts.
6. Buyer can view ads to buy any product.
7. Seller and buyer can chat, call and SMS each other's.
8. User can also update his ads.
9. It gives shopping cart facility to customer.

Pros and Cons:

There are many benefits of this platform user can buy and sell anything. Users can chat with each other.

User can give ad about anything. Advantages and disadvantages always travel side by side. So in case of e-commerce websites, although they have a lot of benefits as discussed above like time saving, comfort, and ease etc. but there are also some disadvantages and threats like trust issues, no payment guarantee, scammers and low product quality etc. (Akhter, n.d.)

Daraz.pk:

“Daraz.pk” Selling different kind of product like electric things, fashion things, health, beauty and toy etc.it has multiple features that are as follows: (Anon., n.d.)

1. Users can create its account by giving the information about email, phone number.
2. It gives searches facility by category.
3. User can post an ads to sell any product.
4. User can register market on daraz that market has different products.
5. User can view all of its posts.
6. Buyer can view ads to buy any product.
7. Seller and buyer can chat, call and SMS each other's.
8. User can also update his ads.
9. User can cancel the order.
10. This application can confirm order on mobile service.
11. It gives shopping cart facility to customer.
12. Cash on delivery system.

Pros and Cons:

The main issue is that some people place fake order .Blocking customer placing regular fake order. The big advantages of e-commerce site is time saving. Things are available on minimum price as compare to market. Some time, no grantee of things.

Now a days, it is necessary for any company or a business to provide an online platform to their customers, as people are more interested in searching, dealing and buying online than to visit the market. And it is the best way to increase the business and earning. Everyone is

trying to put his/her job online. (Cudjoe Dan, 2014; 4(2): 29-32) Different e-commerce websites are playing their role in different ways. Some are for global users, some are just limited to specific users and particular areas etc. It is always tried to make an application as simple and easy as possible so each one may could use it. Language restriction's issues are being resolved by providing facility of dealing in multiple languages so people from different areas may find it easy and comfortable.

Table 1: Features Table

Features	Mandi express	Trade mart	Olx.com	Sabzi Mandi
Login and Registration	Yes	Yes	Yes	Yes
Seller post an ads	No	No	Yes	Yes
Buyer post an ads	No	No	No	Yes
View other ads	No	No	Yes	Yes
Chat Application	No	No	Yes	Yes
Notification	No	NO	Yes	Yes
Contact us	Yes	Yes	Yes	Yes
Transactons	Yes	Yes	No	Yes
Profile information	No	No	Yes	Yes
Specific for vege-products	Yes	Yes	No	Yes

3: Requirements and Analysis

Requirements and Analysis is the process of determining user expectations for a new or modified product. It is one of the very important step in software development process where developers figure out the system behavior before developing the actual product. Following sections explains the requirements of the this application

Requirement Gathering

Gathering requirement is an important part of the project, without gathering information it may be possible that project will impractical. When I decided my project after discussing with a supervisor, during discussion my supervisor suggest me to gather as many as possible information from farmers, traders, sellers, buyer and broker.

First of all, I meet a trader from my hometown to ask some questions about his profession and to ask that how they manage all buying and selling of agri-products. He told me all about trader profession and he also told me that how they deal with farmers or broker. After meeting the trader I met with farmers and a broker who gave me information about their professions.

Requirement Analysis:

After gathering information from all the users, I set up a meeting with supervisor to discuss all the information with him. After discussion, we decide basic features of the application, for example, every user has to post his basic information on the application so that other users will contact him on the basis of given information.

With the passage of time, we added some new feature in the application like rating and reviews and we changed some feature like every user can see all the other users on this application.

Target audience:

Project's target audience involves Seller and Buyer of fruits and vegetables on wholesale.

Mostly user are formers, traders, merchants and brokers

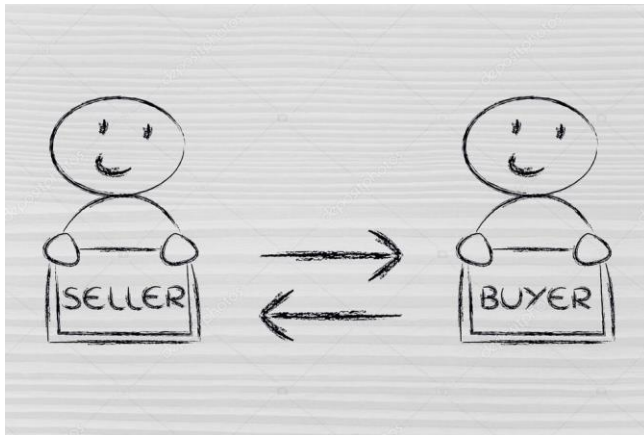


Figure 1 Target audience

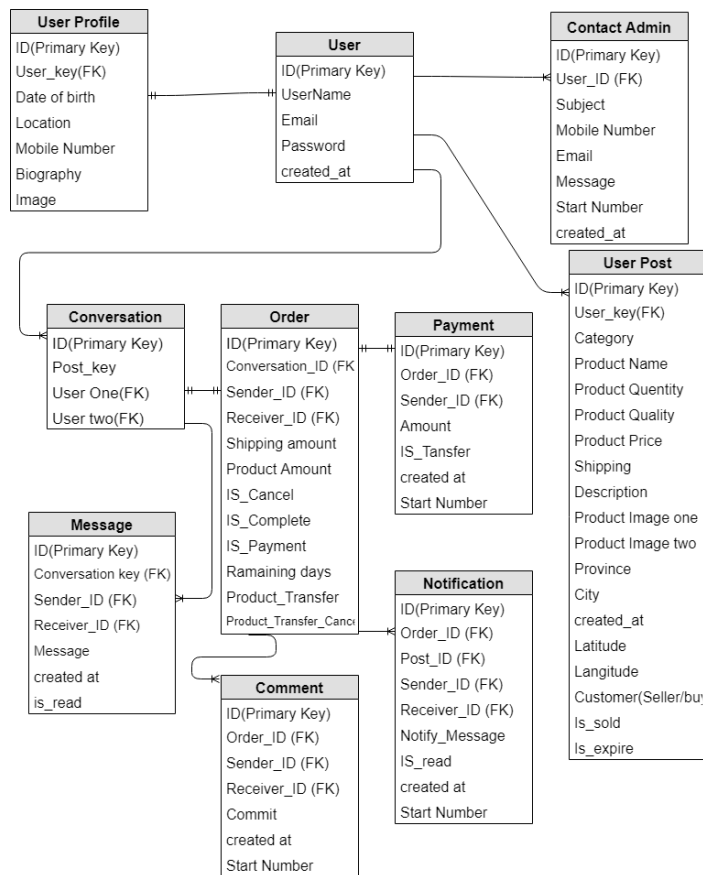
Description of project:

"Sabzi Mandi " is an E-commerce website and online market to make the trader's job easy and provide a common platform to farmers , merchants ,shopkeepers and all others having concern with buying or selling vegetables and fruits .Seller and buyer needs to make an account of (Sabzi mandi) to sell or buy products. Sellers can Post an ads to sell own things .Seller have to give the complete details of product like product type, quantity , Weight , expected price, shipping facility, Current location and product pictures. Buyer can view the seller product ads .Buyer can view the complete details of product .If buyer want to buy the product he can communicate with seller through chat application .If both of them are agreed on dealing. Then the seller creates custom order for buyer .Buyer receive the custom order notification from seller side .

Buyer have ability to cancel the order or confirm order .If he confirm the order then he will have to pay payment through debit card to system .Then system send notification to seller to inform that product send to buyer .If buyer receive the product he will inform system about receiving product. Buyer can view the all seller products. Buyer can search product by category by name, and by district.

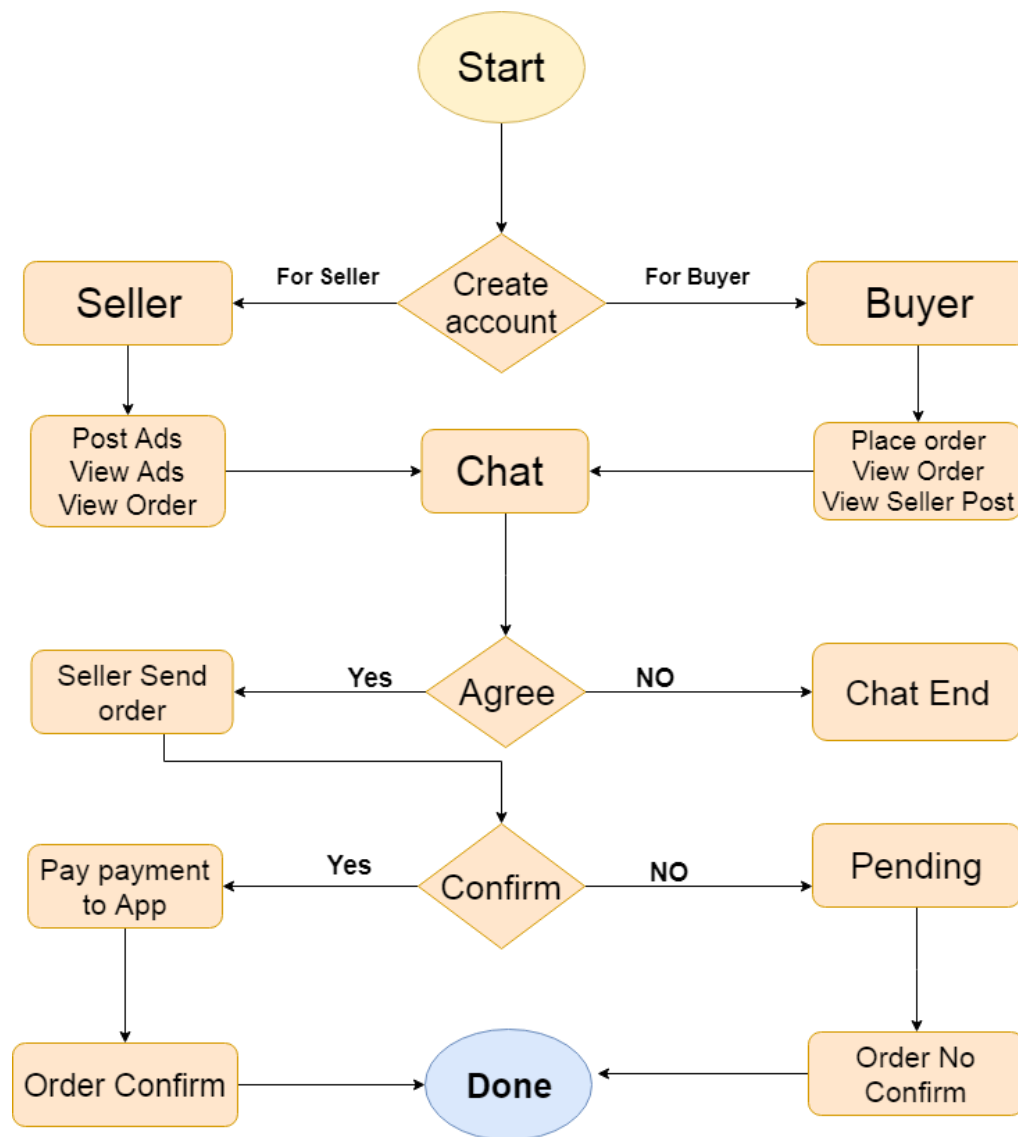
Entity Relationship Diagram:

We have identified the relationship between various attribute and then we have identified entities and the relationship between various entities .Now let's explain the relationship between various entities that had been generated during the analysis by the help of an entity relationship diagram.



Flow Diagram:

Flow diagram explain the whole project



Functional requirements:

The tasks which my application has to perform are explained below as functional requirements:

For Admin side:

- Admin should be able to register themselves by providing sufficient information required about them.
- Admin should be able to view all the posts.
- Admin should be able to delete any account who misuse the site or giving an inaccurate information.
- Admin should be able to view the chat between two customers.
- Admin have full control on transaction.
- If customer ready to give amount then system will allow to transfer payment otherwise system are responsible

Admin should be able to give certificates of agreement

For Client Side

User Registration:

- First of all, the new user has to make account.
- Making account he has to provide information like name ,phone number and email
- There is same account for seller and buyer in this application.
- Once the user has account he can either sell the fruits and vegetables or he can buy these product.

Display Ordered Products.

- The application shall display all the configurable products.
- The application shall allow user to select the product specifications.
- The application shall enable user to add products.
- The application shall allow user to confirm the completion of order.

Provide comprehensive product details.

- The application shall display detailed information of the selected products.
- The application shall provide browsing options to see product details.
- Buyer can see the direction and path from his location to the sellers current location through google map image

Provide Search facility.

- The application shall enable user to search product.
- The application shall enable user to select multiple options on the screen to search.
- The application shall display all the matching products based on the search
- The application shall display only 10 matching result on the current screen.
- The application shall enable user to navigate between the search results.
- The application shall notify the user when no matching product is found on the search.

Maintain customer profile.

- The application shall allow user to create profile and specify credential.
- The application shall authenticate user credentials to view the profile.
- The application shall allow user to update his profile information:

Provide personalized profile

- The application shall display both the active and completed order history in the customer profile.
- The application shall allow user to select orders from the order history.
- Our application shall display the detailed information about the selected order.
- The application shall display the most frequently searched items by the user in the profile.

Provide Customer Support.

- The application shall provide FAQ's customer support, and sitemap options for customer support.
- The application shall allow user to enter the customer and product information for the support.

Email and mobile confirmation.

- The application shall maintain customer email information as a required part of customer profile.
- The application shall send an order confirmation to the user through email and mobile number.
- The application shall provide Password recovery facility through customer email account.

Detailed invoice for customer.

- The application shall display detailed invoice for current order once it is confirmed.

- The application shall optionally allow user to print the invoice.

Provide transition facility.

- The application shall provide shopping cart during online purchase.
- The application shall allow user to add/remove products in the shopping cart.
- User have facility to buy a single product or add multiple product into shopping cart.

Allow online change or cancellation of order.

- The application shall allow user to select the order to be changed.
- The application shall allow user to cancel the order
- The application shall allow user to change shipping, payment method.
- The application shall notify the user about any changes made to the order.

Allow Online Customer reviews and ratings

- The application shall display the reviews and ratings of each customer, when it is selected.
- The application shall enable the user to enter their reviews and ratings

Instant Messaging Service:

This application provide instant messaging service between seller and buyer.

Review after complete order:

Buyer give review on seller service and agri-smart.

Non Functional Requirements:

Success or failure of any software system largely depends upon the careful specification of non-functional requirements like performance, security, privacy, capacity and scalability, availability, maintainability, and recovery etc. (P. Hoggett, 2011) .

Performance

- **Response time:** Its response time should be very fast. Screen refreshing time will no more then 5 seconds.
- **Processing time:** Its processing time should be in seconds. Application should provide up-to-date information.
- **Query and reporting time:** Queries should be so efficient that there reporting time is few seconds even if uses third part APIs.

Capacity and scalability

- **Throughput:** Capacity of system for handling users at same time should be maximum.

- **Storage:** Storage should be monitoring through admin panel that how much storage we need.
- **Growth requirement:** System should be able to make itself compatible to face the growth requirement.

Availability

- **Hours of operations:** System should be available online for 24 hours and 7 days per week.
- **Location of operations:** This should be operate from anywhere of the world.

Maintainability

- **Architectural standards:** System should follows the famous architecture like MTV. It should follows the web design principles.
- **Coding standards:** Coding standards should be efficient and clear to understand.

Recovery

- **Restore time:** If there is any problem related to server or portal it should be restore within minute, It may done by choosing quality hosting.
- **Backup time:** Backup time should be depend upon the size of data.

According to the goal of the project non-functional requirements are:

- The resulting prototype should be extendable, and explore and put current innovational technologies as many as potential as building blocks in the project.
- User interface should be readable, easy to understand, and easy to operate.
- Application will meet all of the functional requirements without unexpected behavior.
- Prototype should use combine existing innovational technologies like frameworks etc.
- All steps should be on only one click.
- Application should maintained easily.
- It follows the web design principles.
- It should be mobile and tablet responsive.
- It should responds and performs as fast as possible
- It supports advanced user interface features like styles and themes.

Learning Phase:

Since we had decided to work on a lot of new technologies so we had to learn them all in order to initiate the development phase. First of all we had to list down the things that we needed to learn. The languages are under listed.

- Python
- Django (Python web development framework)
- Bootstrap
- Javascript

There have been a lot of other things that we had learned during the learning phase. I started with learning python and after I got comfortable with python I moved on to learn Django. Since we already had a course on web development so I had learned it during that course because I had to use it later on in the development of the application interface. Other than the above mentioned list I also had to learn a number of other things including

the usage of google maps API's, material design and mysql database.

Google Maps API:

Since this is a location based system as we have to work with the location of our seller google maps API will be playing a vital role. Especially, the google maps directions API which we will be using to show the current location of seller to buyer. We will be using the google maps. Seller can easily find current location through google maps API.

4: Design Implementation and testing

DESIGN ARCHITECTURE

MODEL Template View (MTV)

Django follow model template View rather than model controller view. Below figure clear the idea. (Anon., n.d.)

Is it MVC or MTV??

- In Django it is called MTV rather than MVC.



Models	Describes your data
Views	Controls what users sees
Templates	How user sees it
Controller	URL dispatcher

6/4/2015

6

Model:

In django, model is same as MVC pattern. This takes the same position as MVC model.

Template:

Django template relate to the view of MVC pattern. It is a presentation layers. It control what should be displayed and how should be displayed data to the client side.

View:

The django view relates to the controller in the MVC. it is a bridge between model and template. View interact with database to retrieve, update, and insert data in database. View passed data to template for displaying client side

Controller:

Controller is URL dispatcher. It control the request and response.

The "Sabzi Mandi " implanted the MVC by separating the view, which are the Django views rendering HTML templates. Then there are models that handle the data transaction to and from the database. Then there are controllers which control the interaction of the view and the models. The view are the files which help in displaying the content to the user. The user can interact directly with view. Data is generated on interaction of the user and the application and controllers whose job is to control the communication between the view and the data models. The classes responsible will be passing on the data to the model classes where the manipulation of the data takes place and the data flows from ant to the database via model classes. We have to kept all these three components separate so that any modifications that we intent to apply in near future can be applied easily with changing a number of other classes which may lead to the generation of error in the system.

Web Design Principles

For making my application user friendly and UI friendly. I adopted different web principles which are as follows. (Anon., n.d.)

- Keep it brief
- Pictures are faster than words
- Only show what I need when I need it
- I should always know where I am
- If it looks the same, it should act the same
- Only interrupt me if it's important
- Make important things fast.
- Navigation and menu should easy for people to take action and move around your website.
- It follows the pattern of Grid Base Layouts.
- User like to read from left to right so layout should be F-Layout.
- It must be mobile friendly.

Technical Background

Desktop and Mobile Requirements

Now a days, mobiles are mostly use for searching and using the internet, so keeping in mind this fact I tried to overcome the barrier of different grid and layout system for web and desktop. The application is mobile friendly, it behaves like an app when it runs on mobile navigation and menu is simply follows the web design principles. The usability factor for admin who is most engaging person with the application, the layout for desktop and mobile kept as simple as possible keeping in mind that quick access for every module and statistics is not more than two steps away.

Usability Requirements

Since the application is for all kind of users so application is meant to user friendly and not complex to navigate and use. For removing language constraints, the application is built in multi-language system.

Security/ Privacy Considerations

One of the biggest problem which industry is facing is leakage of user data. This application built on advance encryption and SSL encrypted protocol. User's passwords and data is secured with MD5 encryption hashing in server side.

Technologies Used

Following tables show the technologies and tools that we have used throughout the development of

the web module. The table also shows the reason why we have used this technology and not others.

(Anon., n.d.)

Table 4 Technologies used in the development of Sabzi Mandi

Tool/Technology	Detail
Django	Django is a python framework for web development. We have used Django for the managing the backend of our application. Due to the extensive libraries that python has to offer, we had decided to use it and the best web development framework was Django

Programming Language (Python)	The programming language that we have used is python.
Bootstrap & Material Design	For the front end of the manager's module we have used bootstrap and the Google's material design framework.
Google Maps API	We have used google maps APIs for finding the current location of seller. To find the precise position. And also we used google map for search the nearer city post.

MySQL	We have used MySQL as backend storage for our system
Twilio	Twilio is an cloud communication platform as a service company.It allow developer to send sms or call in using its web service API
Django Restframework	This framework helps to create restful APIs and we have used it to create APIs via which the data is shared along multiple platforms.
PYcharm	I have used PYcharm as the IDE for the development of our manager's Module

Django Serializer:

The Django serializer is kind of django form but it gives you a powerful, generic way to control the output of your responses. You can declare serializer and they will help you in a lot of things. You can authenticate the validity of the data the user has entered into the form also you can restrict the type of the data the user can enter into the form. Also you can display messages on the form using Django's serializer.

The serializer of django rest framework provide different kind of method .Which we use to insert the data into database. We can validate the form data through serializer.

If any error occur in form it return an appropriate error message to the client.

```

class UserSerializer(serializers.ModelSerializer):
    email = serializers.EmailField(
        required=True,
        validators=[UniqueValidator(queryset=User.objects.all())]
    )
    username = serializers.CharField(
        validators=[UniqueValidator(queryset=User.objects.all())]
    )
    # password = serializers.CharField(min_length=8)
    password = serializers.CharField(min_length=6, write_only=True)

    def create(self, validated_data):
        user = User.objects.create_user(validated_data['username'], validated_data['email'],
                                         validated_data['password'])
        return user

    class Meta:
        model = User
        fields = ('id', 'username', 'email', 'password')

```

Django Models :

One more important feature that Django provides which I have used in this project is the Django Models. Django models provide a good way to define your schema and the attributes. Irrespective of the backend database's type, you can simply define the schema of an entity in Django models and rest is left on the models to figure out which database it is and how to store the information in to that database. Following code snippet shows the how I have used the Django models to store the information into the backend database.

```
class Profile(models.Model):
    user = models.OneToOneField(User, on_delete=models.CASCADE)
    bio = models.TextField(max_length=500, blank=True)
    location = models.CharField(max_length=40, blank=True)
    birth_date = models.DateField(null=True, blank=True)
    mobile_number = models.CharField(max_length=10, null=True)
    image = models.ImageField(upload_to='profile_picture')

    @receiver(post_save, sender=User)
    def create_user_profile(sender, instance, created, **kwargs):
        if created:
            Profile.objects.create(user=instance)

    @receiver(post_save, sender=User)
    def save_user_profile(sender, instance, **kwargs):
        instance.profile.save()

    def __str__(self):
        return self.user.username

    def last_seen(self):
        return cache.get('last_seen_%s' % self.user.username)
```

You can define various data fields and can apply constraints on Django models. I have used this model to import it in various classes and used it either to store or retrieve the information from the table named as “tranposrt_resources_drivers” in our database.

Making Migrations

Every time you define a Django model, or you modify an existing one, you will have to make migrations in order to make your model work. In the “make migrations” process the system reads from a file called as “migrations” which can be found in each application that you have created, and tries to setup the databases and tables in the backend database. Following is the command that we used to make the

```
python manage.py makemigrations  
python manage.py migrate
```

OR for a particular Django application

```
python manage.py makemigrations appName  
python manage.py migrate appName  
migrations.
```

Data tables

I have used datatables provided by "datatables.net". The reason of using the data tables is that they come with some prebuilt functionalities like pagination, sorting and searching. The data can span over multiple pages if it exceeds from one page. The user can interact with data tables to sort the information by any particular column of the data table. The user can also search for any particular keyword, which will then be applied by the data tables on each and every column of the data tables.

Interface Design

Registration Page:

Once the user has entered phone number this phone number will be verified. After pressing Send Button, a code will be sent to user cell phone. When user will enter the code it will be verified. If the code given by user matches the code in database for this phone number, then this given number will be verified. If user does not provide code within the next five minutes this code will expire then user will have to request for new code. Then user have to enter username, email and password. Then user have completed the registration. One user have only unique username email and phone number. After registration user will get confirmation message on the screen.

I used twilio platform to send verification code to the user cell phone. I have already describe about twilio service. User will get email message for registration process complete.

Below figure show the registration page.

Create An Account

LOG IN?

Mobile Number

3036445075

Verification Code

Verification code

Send

User Name

Full Name

Email

Email

Password

Password

Re Password

Re Password

Create Account

Verification code has been sent to Your Phone Close

Create An Account LOG IN?

If user click on button send. The application show the confirmation message .You can see in above figure.

Verification Code
Wrong Verificatoin code

If user enter wrong verification code then system show error message .You can see above figure. If any type of error like wrong email pattern or password length less than six character or username which is already exists or register in the system.

Login Page:

Username or email and password is needed for logging. If user enter wrong password or username then system will display error message. Forget password facility is provided by application. If user forget password then he will have to click on "Forget password" button. A dialog will open for reset password .Here user enter email, new password and confirm password . Password changing info sent to the email account.

Blow we can see the login page and error message screenshot.

Log In to Your Account SIGN UP?

User Name

Password

[Forget username and password](#)

[Register Here](#) (Or) go back to [Home](#)

Log In to Your Account

SIGN UP?

Invalid login

User Name

Email Address

Password

Sign in and Continue

Forget username and password

Forget password facility is provided .if user forget password don't needs to get tension. User can click on "Forget username and password" .Then bootstrap modal will open for reset password. User needs to inter username or email address ,new password and confirm password.

The image shows a 'Forget Password' modal window. The modal has a green header with the title 'Forget Password' and a close button (X). Below the header, there are three input fields: 'Username' with a user icon, 'New Password' with a lock icon, and 'Confirm password' with a lock icon. A blue 'Reset Password' button is positioned below the input fields. The modal is overlaid on a background that includes a 'SIGN IN' button and a 'Sign in and Continue' button.

Home Page:

Below home page will be shown to only register user .Register user have ability to see all the seller and buyer post.

He can click on any post to see the complete product details and seller details. User can view the messages who can contact her/him. If any user make post or send order then notification goes to all register user on home page. Here user can search any post by category, name and city name

Sabzi Mandi

[Home](#)
[Seller](#)
[Buyer](#)
[Contact Us](#)

Vegetables

Choose City

Search

Seller Post

Buyer Needs

Pees

58/KG

205 KG

Mianwali , Punjab

April 19, 2019

LadyFinger

1040/KG

500 KG

Mianwali , Punjab

April 21, 2019

Orange

102/KG

800 KG

Mianwali , Punjab

April 21, 2019

Apple

103/KG

300 KG

Mianwali , Punjab

April 21, 2019

User can view the some details of posted product like product name, per kilogram weight, expected price, posted date time, and address. If user wants to view full detail of any of posted product he can click on product image, it will goes to next page where it will show all details of selected product. From the navigation bar menu user can click on the notification label to view the notifications regarding any post which is posted by seller or buyer or order response or any change in order status or anyone give comet to his product he will receive notification. There are two separate block .One of them is for new notification that are unread and other is for old notifications that are read by the user.

POST An Ads:

From the navigation bar menu user can view “seller” and “buyer” tab .Seller have two main function. One is Posted an ads and other one is view own post. Here we will discuss about posting ads. If seller or buyer post ads he needs to give some necessary information like product category (Fruits and Vegetables),product name, quality, quantity, expected price ,shipping facility and description about product. The “sabzi mandi” application have some strict rule for posting ads. The expected price value greater than 10,000 PK (Rupess) and per Kg price not greater than local market price. If these condition was not fulfill then system will show error message while submitting the post form.

Confirm location:

In this part, display have two main tab one for current location and other one for manual location. If user click on manual tab,he will see two field one for city name and other one for Province name. On the other hand, if he click on current location tab then automatically filled city and province name. Here I am using google map API which give me the current location latitude and longitude values.

I used these values to get city and province name. Application also save the latitude and longitude

value in database for showing the google map image to buyer side.

What are You Selling ?

Category

Vegetables

Quality

Good

Quantity


KG


Shipping


Yes


Expected Price

Rs









Description

Description

Confirm Your Location

Current Location

Manual location


Province

Punjab

City

Manwali

Review Details



User Name: naveedkhan

Let's verify your account

View Post:

In the part, seller and buyer can view own posted ads or post. In this page, user can do some task.

If user want to delete the post then he will click on delete post button .After deleting the post system will show delete success message. If user want to update the post he can click on update post where he can change anything according to desire. If user sold product without application then he will change product status to be sold on clicking on sold button .If Post mark as sold it never show all other register or not register user home page. Blow we can see the screen shot of view Post.

Filter



Rs : 83000

Name : Apple

I am seller of fruits .I sell Apple round the year .I have different types of Apple .I can buy on daily bases



Remove Post



Mark as Sold



Update Post



Rs : 61000

Name : Orange

April 21, 2019


I am seller of fruits .I want to sell Fruits on season .I have good quality Orange .I have own Orange Garden .You can buy on daily bases

User can search own post by any key work like product name or category.

Specific Product Details:

If user want to see the complete details of posted product. He can click on post image which is showing

On home screen .The system goes to the details screen of selected product where user can view the slider of product images. Buyer can view the seller posting location through google map picture.He can view the seller profile .Here buyer have ability to contact seller through chat application. Below figure show the complete details of product.




Product Name: Orange

RS 61000

Address: Mianwali Punjab

April 21, 2019, 1:09 p.m.

Seller Description



User Name:naveedkhan

[Chat with Seller](#)

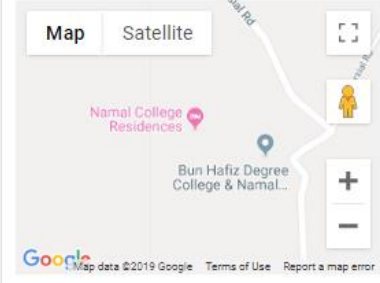
Details

Quantity(KG)	Amount(RS)	Shipping(RS)	Total Amount(RS)
600	61000	No	101

Description

I am seller of fruits .I want to sell Fruits on season .I have good quality Orange .I have own Orange Garden .You can buy on daily bases

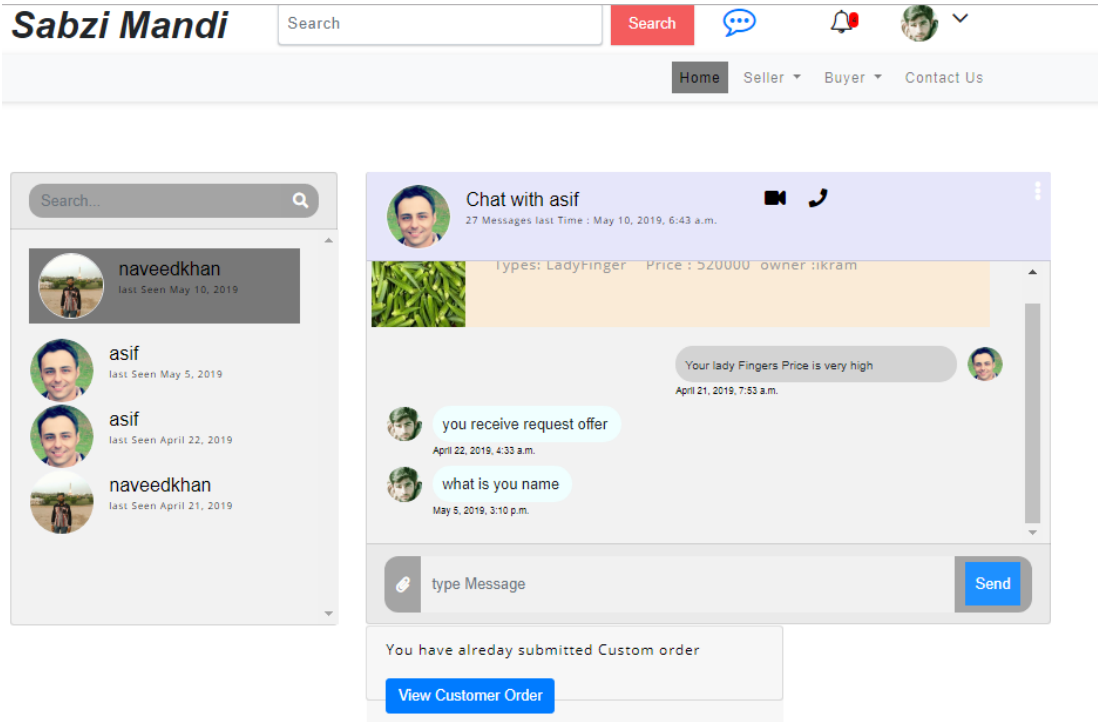
Posted in Mianwali, Punjab



Chat application:

Chat application is the main feature of 'Sabzi Mandi'. Seller and buyer can communicate on specific post through chat application. It is real time chat application. Chat application will be open by clicking on message icon on navigation bar or you can see above figure where seller Description part a button with name 'Chat with seller'. Buyer can click on this button to view own chat conversation with other seller.

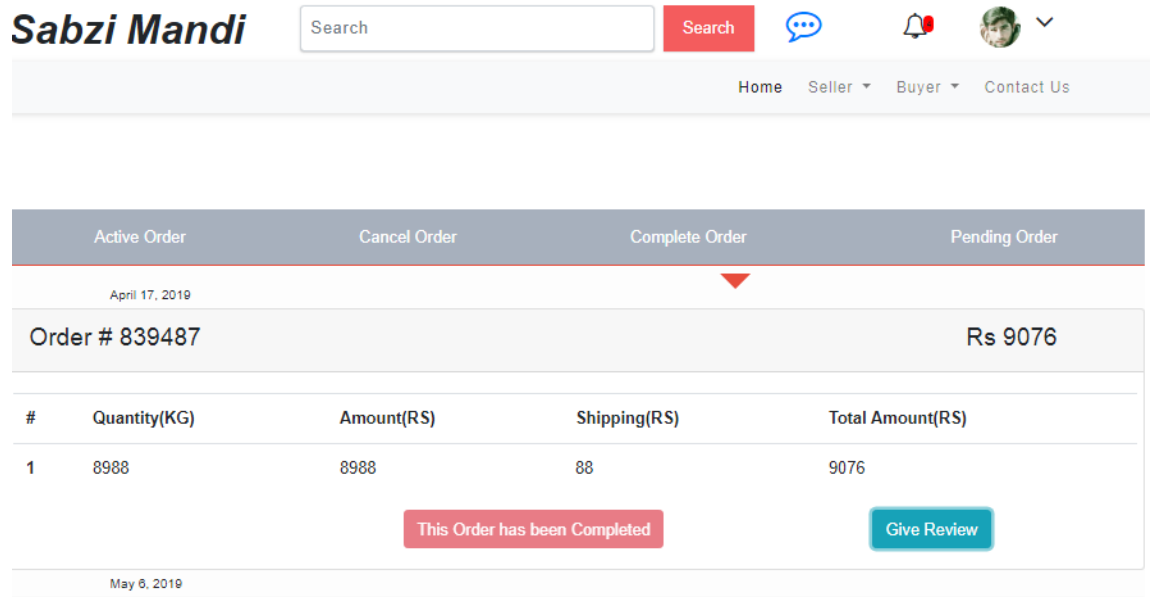
Below figure show the chat application interface.



View order:

View order page show all order like Active order, canceled order, complete order and pending order.

Seller send custom order request to buyer. I used tab view for handle the four order type .Below figure show all these order



Below figure show active order .This order send by seller .Now buyer have two either pay or cancel the order. If buyer perform any action then seller get real time notification on navigation bar.

Active Order				
Cancel Order				
Complete Order				
Pending Order				
May 10, 2019				
Order # 8394813				Rs2100
#	Quantity(KG)	Amount(RS)	Shipping(RS)	Total Amount(RS)
1	200	100	2000	2100
		Pay with Card	Cancel	

Below figure shows the cancel order and pending order figure.

Active Order				
Cancel Order				
Complete Order				
Pending Order				
April 17, 2019				
Order # 839486				Rs 1667
#	Quantity(KG)	Amount(RS)	Shipping(RS)	Total Amount(RS)
1	889	889	778	1667
This Order has been canceled				

Pending order below screen shot.

Active Order

Cancel Order

Complete Order

Pending Order

April 18, 2019

Order # 839488

Rs 8666

#	Quantity(KG)	Amount(RS)	Shipping(RS)	Total Amount(RS)
1	200	7888	778	8666

paid

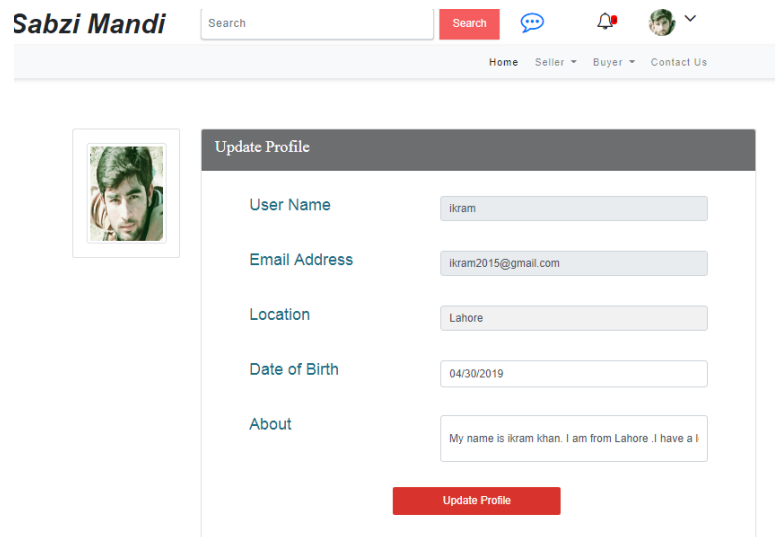
Confirm

If you click on Confirm button Your Payment will transfer to Seller

User Profile:

User Profile has important role in e commerce application .User can view own profile .User can update the profile. User can view the other user profile. Actually profile tells us about User activity,location, about its services and we can view the comment of other people which is

commenting on his services. Below screen shot for update profile.



Sabzi Mandi Search Search

Home Seller Buyer Contact Us

Update Profile

User Name ikram

Email Address ikram2015@gmail.com

Location Lahore

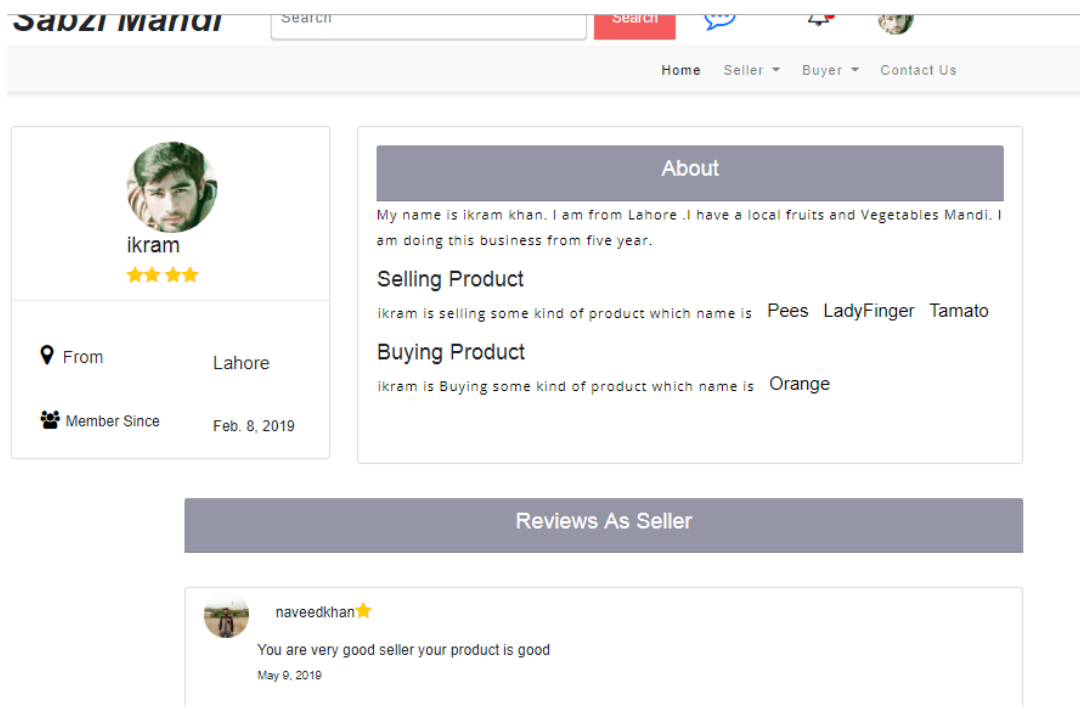
Date of Birth 04/30/2019

About My name is ikram khan. I am from Lahore. I have a I

Update Profile

Update Profile

Now if buyer want to buy product from seller he can visit his/her profile .Buyer can view his comment ,location,city where He belong to.We can see below figure(p.1)



Sabzi Mandi Search Search

Home Seller Buyer Contact Us

ikram
★★★★

From Lahore

Member Since Feb. 8, 2019

About

My name is ikram khan. I am from Lahore .I have a local fruits and Vegetables Mandi. I am doing this business from five year.

Selling Product

ikram is selling some kind of product which name is Peas LadyFinger Tamato

Buying Product

ikram is Buying some kind of product which name is Orange

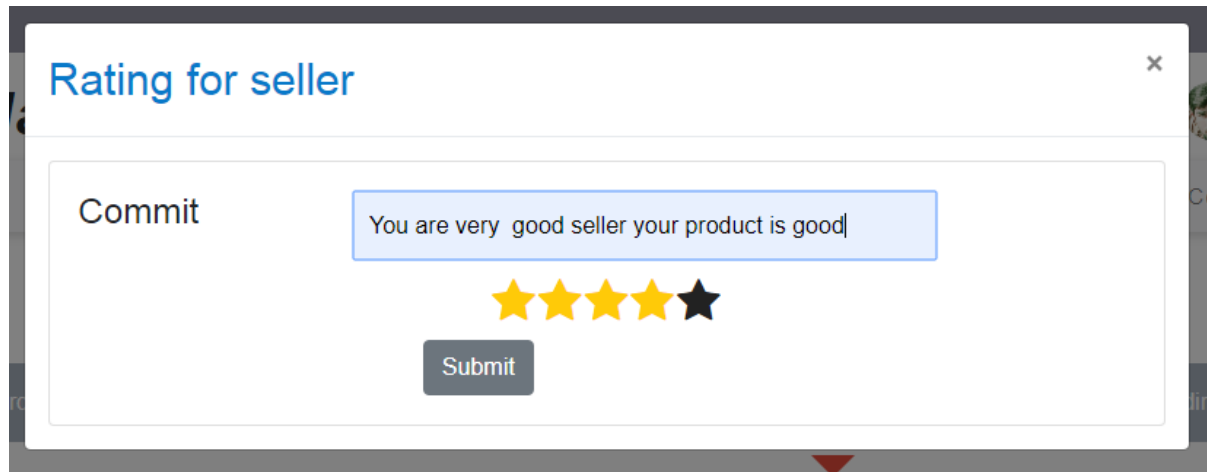
Reviews As Seller

naveedkhan★
You are very good seller your product is good
May 9, 2019

Figure(p.1)

Review on complete order:

Buyer can make comment after completion of order. In comment page, buyer rate the seller service through star and comment message.



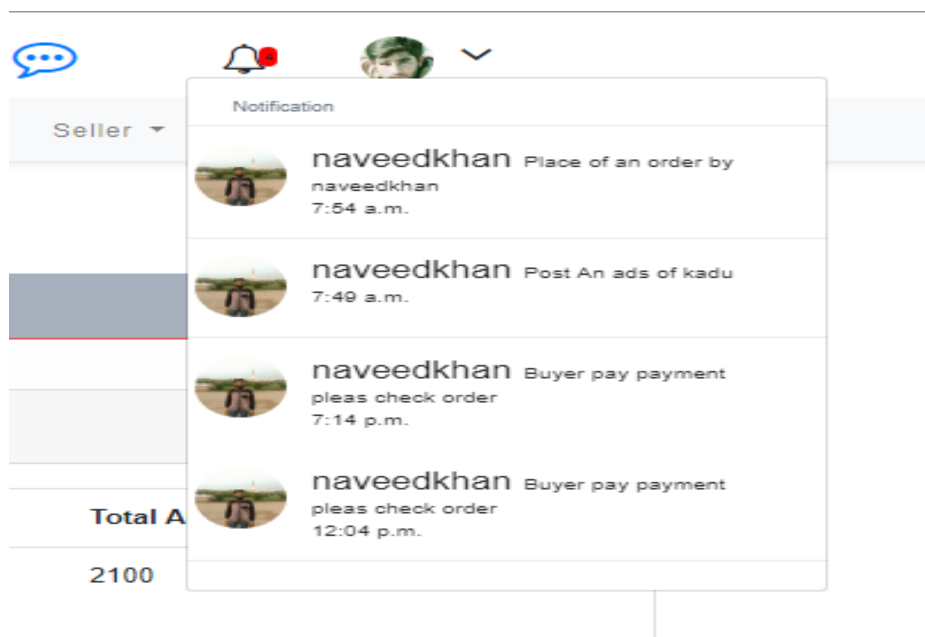
A screenshot of a 'Rating for seller' form. The form has a title 'Rating for seller' in blue text at the top left. Below the title, there is a text input field with the placeholder text 'Commit'. To the right of the input field, there is a blue box containing the text 'You are very good seller your product is good'. Below the input field, there are five stars: four are yellow and one is black. Below the stars, there is a grey button labeled 'Submit'.

Notification:

Notification have different purpose in web application or mobile application. I describe the benefits of notification.

Notification are hard for user to miss, creating web notification is (way) quicker than creating an email.

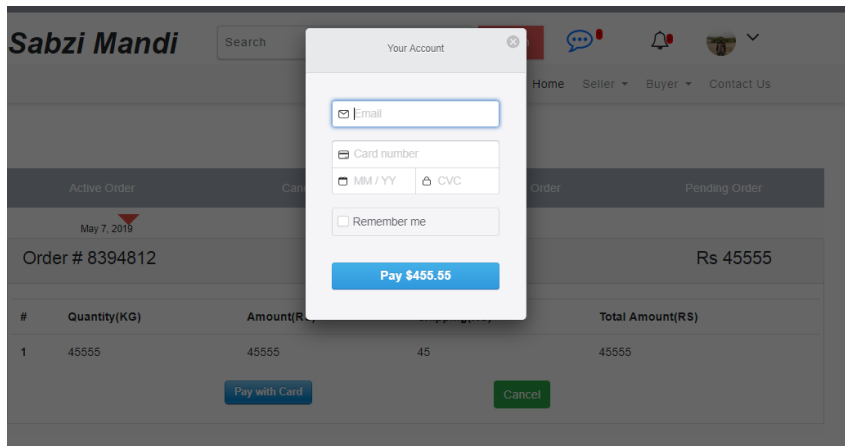
If seller make new post then all other user get notification of post. If buyer give comment on seller specific post then seller get notification. We can see notification icon on navigation bar. Below figure shows notification interface



Payment gateways:

Today's world is progressing so fast that online payment is becoming trend. Many big companies like PayPal, Paytm, Banking transferring, Skrill and many other has their customers in millions. So after analyzing and understanding growing demand of online payment, "Sabzi Mandi "has linked with many top payment gateways. Admin can enable or disable the any payment gateways method. Following payment gateways are added into the portal for better system.

- PayPal
- Stripe
- Skrill



Contact Us:

Similarly, there is also a page named as "Contact Us" through which users will contact to the admin of this platform if he/she has any issue regarding this platform. There is also complete address and location

of admin of this platform .If user contact admin then system send contact confirmation mail to user ,In this mail Admin thanks user for contacting him and give message to wait for kind response. If Admin solve the user query, admin inform user through mail and send him notification. We can view Contact us page below.

**+92 303 644 5075**
+92 303 644 5075**Email**
manzoorhussain075@gmail.com**Address**
50Km Talagang road Mianwali

Get in Touch

Your name

Your email

Your phone number

Message

Send Message

Implementations:

Login implement:

I have used Django user's authentication service to authorize several of our users. Django provides us with a service to create the user which will be stored in the backend database. When the user tries to login to the system by providing the login credentials, Django makes sure that only the valid user of the system gets a login permission. Following figure shows how the Django authentication works

```
if request.method == "POST":  
    username = request.POST['username']  
    password = request.POST['password']  
    user = authenticate(username=username, password=password)
```

Find: Found th

Send Verification Code on Cell Phone:

During creating new account system authenticate user by sending verification code on provided cell phone number. If user enters valid code then he is registered. Following figure shows how Twilio sends verification code.

```

if request.method == "POST":
    number = request.POST['mobile']
    phone_len=len(number)

    if (phone_len > 10) | (phone_len < 10):
        return render (request,'commerece/register.html',{'mobile_error':'Enter Valid Phone number'})
    else:
        X = numpy.random.randint(0, 10, size=6)
        account_sid = "ACd3974ac779ddf5c1278e6970686a0b9a"
        auth_token = "61bee5dc8cf80ecb63cc4f186f808288"
        client = Client(account_sid, auth_token)
        code = ''

        for x in X:
            code += str(x)
        ccode = code
        request.session['ccode'] = str(ccode)
        request.session['number'] = str(number)
        message = client.messages \
            .create(
                body="Verificatoin code is:" + ccode + ".This code will expire in 5 minutes",
                from_='+15759151305',
                to='+92' + number)

```

Register account:

here, I want to explain how user register in django rest framework. Creating new account I used django serializer which I have already explain above. I serialized registration model. I give only user data request to serializers class. This class validate the data as comparing the database data. If user name already register in system then serializes through back error. It compare model schema itself. We can see the sterilizer class in below figure.

```

@api_view(['GET', 'POST'])
def create_user(request):
    if request.method == 'POST':
        code = request.data.get('code')
        mail = request.data.get('email')
        send_code = request.session['ccode']
        password = request.data.get('password')
        serializer = UserSerializer(data=request.data)
        if (code == send_code):
            messages_complete = "You Account has been created:\n Thanks for joining us"

            if serializer.is_valid():
                user = serializer.save()
                subject = "From Employee"
                to_list = [mail, settings.EMAIL_HOST_USER]
                from_email = settings.EMAIL_HOST_USER
                send_mail(subject, messages_complete, from_email, to_list, fail_silently=True)

            update_profilee(request, user.id)
            return redirect(reverse('login'))

```

```

class UserSerializer(serializers.ModelSerializer):
    email = serializers.EmailField(
        required=True,
        validators=[UniqueValidator(queryset=User.objects.all())]
    )
    username = serializers.CharField(
        validators=[UniqueValidator(queryset=User.objects.all())]
    )
    # password = serializers.CharField(min_length=8)
    password = serializers.CharField(min_length=6, write_only=True)

    def create(self, validated_data):
        user = User.objects.create_user(validated_data['username'], validated_data['email'],
                                         validated_data['password'])
        return user

    class Meta:
        model = User
        fields = ('id', 'username', 'email', 'password')

```

Retrieving data from database:

There is one line code to retrieve the data object from model. Table name in django is known as Model. For searching specific data I used django filter. I used slice for get desire number of object, Slice syntax is here [:1]. We can see such kind of query in below figure

```

user_list = User.objects.all().exclude(id=current_user.id)
# it return user list with out current user.
message_list = Message.objects.filter(receiver=current_user.id).order_by('timestamp')
#it return message list of current user
All_user=User.objects.all()
#it return all register user

```

Django context is a format of sending data to template .In context,we add data in context as key pair values format.we can see context format below.

```

context = {
    'current_user': userr,
    'comment': comment,
    'user_list': user_list,
    'user_seller': user_seller,
    'user_buyer': user_buyer,
}

return render(request, 'commerece/profile.html', context)

```

Showing Data in template:

We retrieve data from database and send data to template through context. In template I get list of object or specific object. I used for loop to get object attribute data to show. Below figure show template code.


```

<hr>
{% for noti in notify %}
{% for use in user_list %}

{% if noti.sender_id == use.id %}

<div class="row">

  <div class="col-sm-2 ml-1" style="..."> <a href="{% url 'notification' %}"><img src=
  <div class="col-sm-9">
    <span style="...">{{ use.username }}</span>
    <small style="...">{{ noti.message_notify }}</small><br>
    <small>{{ noti.created_at.time }}</small>

  </div>

</div>

{% endif %}

{% endfor %}
<hr>
{% endfor %}

```

Testing:

Testing is important because we all make mistakes. The reason of mistake can be a bad assumption or it can be a blind spot. So we have to get it tested by ourselves or by someone else because it is possible that we may not notice the flaw. So every time we make product we should test it to provide high performance.

Functional Testing:

Functionality tests were carried out to test the functionalities specified in requirement section. The following table shows the small description of all functional requirements.

Requirement ID	Description
1	User can register through his Mobile Number and Email account
2	User can login through his username or email
3	User can edit his personal information.

4	User has same account for selling and buying
5	Buyer can communicate seller through chat application
6	Seller can see detail of all vege-mart item posted by him which are active or expire. Active post time is 24 hours otherwise expire status.
7	greengrocer can post new vege-mart items.
8	System automatically fills the date, time and location field when user is ready to post new vege-mart item.
9	System shows the pointer at current location of seller on google map
10	Greengrocer can change his location on google map from where vege-product will be available.
11	User can see requests or notifications of posting product ,or any order,comment
12	System will show all the sellers to buyer in his current city
13	Buyer can see details of any vege-product item and any seller
14	Buyer can post for desire product.

Requirement ID	Action	Result
1	Pressing Send button on Register Screen and press Create account button	User successfully Register
2	Giving correct username and password and press Login button on Login Screen.	User successfully logins

2	Giving wrong username or password and press login button on login screen	Login process fails.
3	Pressing 'Update Profile' button while leaving any blank of users personal info empty	Edit process fails.
3	Pressing 'Update profile' button after filling all correct personal information of user.	User successfully update
4	One user may be seller or buyer	Successfully login Seller/buyer account
5	Pressing the Message icon on navigation bar	chat will be shown
5	Pressing the message icon before user login	Chat will be not shown

6	After login, first screen which appears in front of user shows the list of all selling and buying items posted by all other users.	Vege-product posted by login user will be shown
7	Seller can post a new vege-product by filling all required data like name,category,quality,shipping,expected price wheight,image,description,and location. Press Post button after providing this info.	Post successfully posted
7	Leaving Any required field empty while filling data for new new post	posting process fails
8	Pressing New post button in sellers account to post new vege-product.	Date,Time location fields are filled by system

9	Pressing current location button while selecting location for new post	Current location is selected successfully.
10	Seller can change his location by typing new location in Autocomplete text field.	Current location of user changes.
11	Pressing the notification button in action bar	All notifications are shown.
12	One user have same account for selling and buying	All sellers from his current city will be shown to buyer.
13	Any of the vege-product item on home scree is clicked	Information related to that particular vege-product is shown
14	Pressing send notification button	Notification will be send to seller with the buyers information.

Usability testing:

Usability testing is all about users experience with the application. It assures that meets users requirement and hope. To test my application, I moved to the real user of this application. I selected few areas of this application. In Usability testing I focused on four things.

- Easy to Use application.
- Familiarization with the application.
- Users satisfaction

First I start with user login process. It is very simple. It does not confuse user. The design and layout is very simple. User has to only click single button to login. After the first login the user is shown his personal information which if he wants he can edit other he has to just press OK button. Login process very easy and simple. Just pressing a button will login the user.

Every user said that this application is very easy to use because everything can be done by just clicking buttons. User don't have to interact much with keyboard. While the design and color scheme of application is also very attractive. User never gets confused because every user comes across only specific information related to that user. Even few users suggested that these so many progress bars on every click are irritating so this all work which needs bit time should be done on background without interrupting users flow.

So on the bases of the results I got from this survey I think it is very safe to say that this application is very easy to use for every type of user. It never confuses user. It can prove to be very useful in local community

5 Conclusion:

Lastly, I am glad to say that I could be able to completely finish my project. That was a moment to great pleasure when a presented my project to my mentor and he was satisfied with the project. He appreciated me on fulfilling all the requirement which were assigned by him and some of them from fruits and vegetables business person. He also motivated me to continue this project further and present it into market

The project has completed all the requirements but there is still s space of improvement before this product has its first beta release .This product needs a market survey and the real clients' feedback in order to better know the application of the product in real world on a production level. This project helped to lighten up my darken side which I never realized that what I am capable of doing. I am a changed person from the one who was I before doing this project. I was shy and demotivated kind of person .The person always thinking that I will not be able to do anything. But this project started proving me wrong while I started this in an impressive way and progressed gradually.

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