

Leading University, Sylhet

Dept. of Computer Science and Engineering

A final year project submitted in partial fulfilment of the requirement for the award of the Degree of Bachelor of Computer Science and Engineering.

Project Title: KhaniDaani (Freelance based cooking service)

Course Title: Project II/Thesis (Part-II)

Course Code: CSE-4128

Supervisor:

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Lecturer & Coach, Programming Contest Teams.

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Approval

The project entitled "KhaniDaani" is submitted by Md. Nurain Haider, Amdad Hussain Juned and Md. Sakhawat Hussain respectively to the Department of Computer Science and Engineering, Leading University and it has been accepted as satisfactory in partial fulfillment for the requirement to achieve the degree of bachelor of Computer Science and Engineering as to its style and content.

Approved By:

SUPERVISOR
Md. Saiful Ambia Chowdhury
Lecturer, Dept. of CSE

DECLARATION

All of the project work herein is sophisticated and we have tried the best of our knowledge. It has never been presented anywhere else for any academic or other purposes.

----- Md. Nurain Haider ID: 1432020016

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DEDICATED TO

All the honorable teachers, students and corroborative staffs of the Department of Computer Science and Engineering of the Leading University who have provided untiring and altruistic effort in making us who we are today.

We also dedicate our work to our beloved parents.

To

Head of the department,

Department of Computer Science & Engineering

Leading University, Sylhet.

Subject: Application for permission to approve proposal of the project.

Sir,

This is to respectfully state that we, the students of CSE department, 37th batch are interested to design and develop a freelance based cooking service application named – "KhaniDaani" for our final-year project under your guidance. We strongly believe that our application will introduce a unique and flexible system to purchase and sall food items

to purchase and sell food items.

Therefore, we hope that you may kindly allow us to develop this application and

oblige thereby.

Thanking you in anticipation.

Your most obediently,

Md. Nurain Haider ID – 1432020016

Amdad Hussain Juned ID – 1432020021

Md. Sakhawat Hussain ID – 1432020025

Students of Computer Science & Engineering

Leading University, Sylhet.

Project Proposal

Proposal for the project in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering.

Project Title

KhaniDaani

(A freelance based cooking service)

Project For

Bachelor Degree in Computer Science and Engineering

Date of Submission

Expected Date of Completion

SUPERVISOR

Md. Saiful Ambia Chowdhury Lecturer, Dept. of CSE

Work Plan

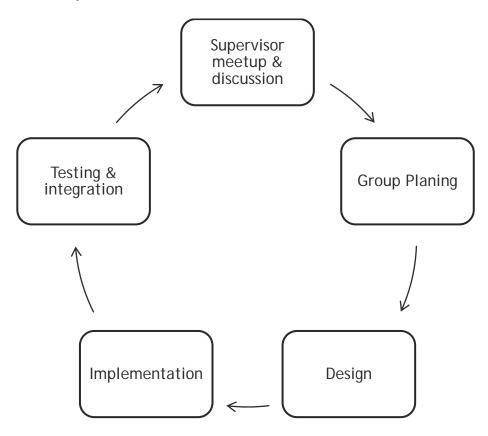
We have followed a proper work plan to complete the project work in due time, we have to maintain a time schedule in

Task Distribution: We distributed our tasks as follows:

• Time Scheduling

Working Fields	Time Limit
Overall Planning (mind mapping)	5-10days
System Design	10-15days
Database Design	10-15days
Interface design (Initial)	15-20days
Development (Initial)	20-25days
Complete Interface design	15-20days
Complete Development	25-35days
Testing & Finalization	15-25days
Domain & Hosting setup	3-5days
Custom web view for mobile	3-5days

• **Preceded Steps:** Those steps are followed on every working field to complete the whole tasks efficiently -



Work Steps

Working Steps	Start date – end date	Feedback of Project Supervisor
Started to build the architecture, designed database with ER assistant and collected resources	February 10 th – February 27 th	Checked Database architecture, and suggested to improve.
First meet up with project supervisor, showing our first work KhaniDaani Database	March 4 th	Suggested to change some table attributes
Completed the Database design and coding, took survey from CSE students	March 10 th - 24 th	Instigated to start development of the project
Built the design skeleton and started developing with raw php	March 25 th – April 16 th	Motivated to continue the work
Shifted to Laravel for development, purchased theme, domain and hosting	April 17 th – May 10 th	Gave positive review encouraged to work on further activities
Completed the KhaniDaani system design	May 11 th – May 30 th	Suggested to improve the order status and delivery system
Completed all logical tasks, Notification and messaging system.	Till June 30 th	Suggested to improve more
Upgraded all resources and completed the backed, started writing the Project Book	Till July 31 st	Suggested to improve functionality and work on further activities
Completed all error handling of the forms and other bugs	Till August 20 th	Suggested a change on the order status and chef activity
Completed the project book, set up server and uploaded all the files into it	Till September 10 th	Appraised the overall work.
Final Touch on the Project, and showed it to the supervisor	September 18 th	Suggested some changes for future work and accoladed overall effort

Acknowledgement

With the grace of almighty Allah, we would like to express our heartiest gratitude towards some special individuals without whose endeavors and buttress, it would be too arduous to successfully accomplish the project.

First and foremost, it is always a great pleasure to sincerely thank our project supervisor - Md. Saiful Ambia Chowdhury. For his untiring corroboration, constructive direction and consistent feedback on our episodic work throughout these months, we could sail our ship on the right track and destined towards our goal.

We cannot fully express our gratitude to the Department of Computer Science and Engineering for letting us using the necessary equipment available there that helped us on our project work. Besides, for their generous assistance in the research of the project, we would also like to acknowledge the cutest junior brothers and sisters of the Dept. of CSE who aided our project by taking the survey carried out by us.

We are immensely grateful to our beloved parents who let us to study here, are always there to pursue our dreams and intermittently giving us support in all aspects.

Lastly, all gratefulness to those people who helped us by sharing their knowledge, advice and expertise during the development of the project.

Abstract

"KhaniDaani" is such a handy application via which every person having an aptitude at cooking can sell his/her own homemade recipes to the interested consumers. Once an individual is registered with the KhaniDaani community, s/he can then choose to take any of the services – purchase any item, sell own created dish or act as a delivery service provider. Ordering any food item is simple – search the item, read the details, pay the bill and wait for sometimes till it reaches to the home. Likewise, to add any food item as a dish on own profile, the process is systematic – add the detailed info via a form, fix relevant prices, select a preferable delivery system and wait for a couple of time for approval. Once it is acknowledged, it will be lively and the potential food lovers will find it via searching or visiting to the profile of the chef. There is a stringent rule for all of cookers of the system which is – if any recipe gets ordered at any time, they must prepare and send the item within the due time otherwise they cannot do smooth business here. The payment method is also authentic, all transactions will run under strong security measures. On the other hand, the task of delivery services will be different - be alarmed with the intermittent notification from the system. When a notification on a prepared dish will go to the device of the DSP, s/he will must be there to fetch the ordered item from the house of a chef and reach it to the exact destination. Thus, a person can easily have tasty, fresh, hygienic and homemade dishes staying at home by just a few clicks. Apart from this, any restaurant's owner also can deliver or take orders from anyone. Initially, a restaurant will get all types of services as like as a chef gets, but gradually the activity will be improved if the business analytics of the restaurant goes well. After all, the main targeted group of this unique system is the housewives who want to earn money through their cooking skill and on the other part, it is for those food lovers who want to taste something different and unique recipes every now and then.

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Chapter 1 Introduction

1.1 Project motivation

Our project title seems to be a bit uncommon "KhaniDaani"; by the way, it's a very common territorial word – related to the meaning - "to consume (food)". As the three members of us becoming professional freelancers, we had been looking to build something great which would help us on both sides – academic and professional areas. So, when the idea of creating "KhaniDaani" arose in our minds and after so many discussions, we culminated to visualize our idea into existence in the form of a web-based application, our individual skills such as – frontend and backend web development, mobile application development, graphics design and digital marketing etc. have instigated us to start and continue the project. This project has given us the opportunity to explore the world of full stack mobile and web development piece by piece and of course, we have enjoyed a lot throughout these months.

The celerity of the project work has been ameliorated in a consistent way - we designed the hierarchy of the project and divided our work into some slots, each slot was maintained by the skilled of that slot. Then, when we are done completing individual tasks, a version control system has been there to aid us integrating all of the works together and also to save the track histories dynamically.

From the theory aspect, we also read some documentation and publications to collect the necessary information regarding the software technologies that we preferred to use. Besides, we also took a survey to check the craze of people of having such a new concept of selling and purchasing food.

1.2 Aims and objectives

The kernel goals that have been denominated as fundamental to the project are:

- Provide easy-to-use functions so that users can sell or purchase any amount of food items from anywhere and at any time.
- Address latest integrated features and flexible functionalities
- Design and implement a user-interface with latest and advanced Frameworks
- Create a Rest API to use the application as cross platformed
- In addition, the advanced aims which are desirable if time permits are:
 - Launch the project at local market and provide all the services
 - Build a version of the application for iPhone users

1.3 Report structure

- Chapter 2 indicates a detailed background study obtained from taking surveys and personal study. It covers survey summary, existing problems and scope of the KhaniDaani system to solve the problems.
- **Chapter 3** depicts the Project review and Literature review.
- Chapter 4 illustrates various kinds of feasibility steps and reports of the project.
- Chapter 5 defines the system requirements. Programming and Scripting languages, advanced frameworks, version control system, a number of various software, web browsers and operating system to display and function correctly.
- Chapter 6 provides description of the project methodology and gives an overview of the design and implementation of the software developed.
- Chapter 7 shows the system design with ER diagram, DFD diagram and some other graphical representations.
- Chapter 8 shows the coding summary enlisted some key Laravel functions and Bit Bucket command lines.
- Chapter 9 depicts testing and shows results.
- Chapter 10 identifies the future works.
- Chapter 11 evaluates the objectives and aims of this project.
- Chapter 12 indicates references and citations.

1.4 About KhaniDaani

KhaniDaani is such an elegant system by which every user can find a convenient platform for purchasing and selling homemade food items. Our main target is to assist the housewives and potential cookers who want to start a small scaled startup business by using cooking talent but could not do that before because of families' bounding, expenditure to open a restaurant and other problems. Those are discouraged to work outside can easily find our application as an ultimate problem solver. So, the cook or chef is the most significant user of our system. Any adroit cook can create some dishes here and s/he will be bound to prepare the dish when it is ordered by someone. Now, who will be the someone? This orderer is the second most important entity of the application. Any registered user can order any number of dishes at any time. And of course, s/he has to wait for the ordered dish until the time interval defined by its chef.

The delivery system for any ordered food item will be in different methods such as - pick up point delivery, an individual serving as a deliverer or any authorized food delivery system (for example -Food Panda, i-serve etc.).

Any registered user can serve as a cook/delivery service provider. Besides, the restaurant's owner also can deliver or take order from anyone. User can order the foods or book the seat of the restaurant when they are on their way or planning to go to the restaurants.

We have researched and found that there is no such system in the territory like ours which can provide the opportunity to have hygienic and fresh homemade food. For that uniqueness, it will be very fruitful for both the cookers and food-lovers.

1.4.1 Key features of the project

- Authenticated Profiles (categorical as users, chef, dsp, picker's point service)
- Dynamic input (Chef's dish, delivery service, Pick-up point Host)
- Real Time Notification and Email Notification
- Real Time Messaging
- Advanced Searching
- Manageable CRUD operations
- Responsive Design (cross platform)
- Bkash Payment method, Rating and Review system
- Real Time Monitoring (order status)

1.4.2 Key functionalities of the project

- There are four kinds of users. (Chef or Restaurant, delivery service provider, picker's point host and food lover or user)
- All people will first register as a user, then they can switch to as a Cook, Restaurant owner/manager or pick point delivery provider.
- Cookers/ Restaurant can add dishes or foods menu in their profile.
- Restaurants can add and categorize their all products, while cookers will face limitations for adding more recipes.
- Pick point host or delivery provider can define his area of service and price for the service.
- Cookers can select multiple pickup points for delivery.
- A user can choose any pickup point from the cooker's preferred/given pickup point list.
- The Cookers & Restaurant owners can advertise their business to the application user.
- The Cookers, Deliverers & pickers point hosts can advertise their dish/services to the KhaniDaani community.

- Payment method is easier (via Bkash and KhaniDaani Balance)
- All kinds of users can communicate with real time messaging system.
- There are tracking information given via notification, so no one can cheat anything.

1.5 Achievements

This project claims the following achievements:

As the trend of e-commerce has rocketed in recent years, people prefer to purchase their daily commodities via online. Among all the goods bought online, the most exciting fact that has been observed is purchasing food from different restaurants. Even, it is noticed that both men and women prefer to order food rather than preparing it at their home as many of them work outside for long time. But it is a matter of hygiene and quality of the food item cause most of them are not healthy, basically the fast food and high calorific food items. So, most people tend to have boredom consuming that sort of foods and always search to have something that would be both tasteful and hygienic. By using KhaniDaani, they can solve the problem of buying food from restaurants, instead they can have delicious homemade recipes.

On the other side, the potential cook especially the housewives will find our system as an easy and secure system for selling their food and earing money. As they do not need to go our or require any physical shop to do the business, almost all housewives would love our system and take it in practice as a needed system.

Moreover, the system will introduce a way for passive income for the ones who would serve as the delivery service providers. We, the system managers and business pioneers will also get the amenities when more and more people start doing business transactions here.

1.6 Targeted beneficiary groups

- Housewives Face obstacles to go outside for social and family bounding, can contribute
 to the family earnings by outsourcing.
- **Service Holders and Bachelors** Can have fresh homemade special recipes by ordering yet staying their workplace every now and then. Besides, they can preorder any dish items or book chefs by selecting any preferred date and time.
- **Unemployed Youths** Any unemployed youth, professional deliverers or a neighboring guy who can easily frivol into his territory can earn some bucks.
- **Shop owners** Can host their shops as the intermediary between the chef and deliverer. Thus, they will also get a percentage for every order they will host.
- Foodies Who always love to have special recipes can taste fresh and hygienic homemade food items cheaper than prices of existing restaurants

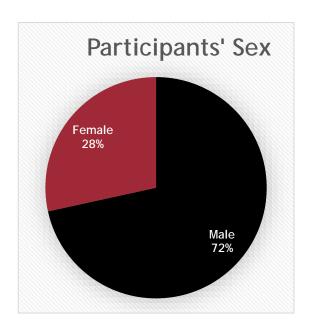
Chapter 2

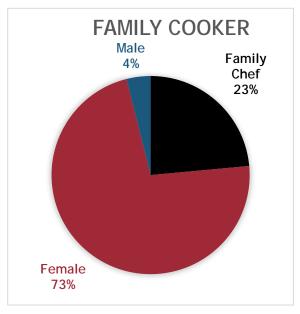
Background Research

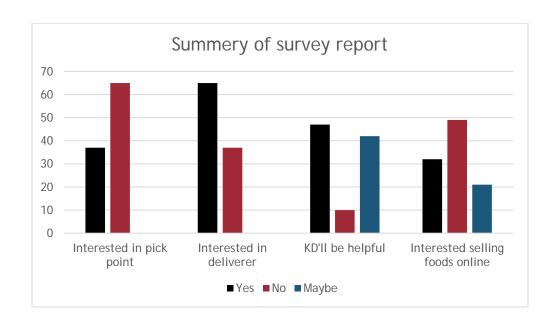
Problems Specification and Scope

2.1 Survey summary

Before starting the development of the project, we have taken survey from our neighboring houses, students of our CSE dept and from a Food Fair. Our goal was to listen and collect data from them whether they are excited or not for having the KhaniDaani on the market. Fortuitously, most of them have given a positive reply in the survey. The survey questionnaire was based on the food taste, number of online transactions for food, the difficulties arisen while ordering food from restaurants, payment method issues, interest on having a new method of freelancing, involvement of women in freelancing and some other issues. From the survey, we have studied some problems and invented some scopes of our system by which the existing problems can be solved.







2.2 Existing problems specification

By studying some existing software on the market and taking survey, we have figured out some current drawbacks faced by local city dwellers. Among these, we have enlisted three major issues where our system has the potential to solve these perfectly.

2.2.1 Social boundaries of women

From the very beginning, women are restricted to their freedom. They are rarely provided with the facility to work outside from home. Although now women are encouraged to work outside as equal as men, the number is still very low in some developing countries like Bangladesh and India. Yes! They can browse the world with their choices and even can do a job until their marriage. Once they are tied up to the knot, they are always bound to do household chores and have limitations from going outsides. Thus, a huge number of populations of Bangladesh is indirectly unemployed and a burden to their corresponding families in spite of being educated. They have to maintain family and obey the unwritten rules of the societies.

2.2.2 No such Cooking platforms

We have researched on online have found some relevant applications such as — "Hire a Chef", "CookUps Home", Food panda and Upwork etc. All have their individual restrictions. For example — the US based web application "Hire a chef" provides the facility to search for a chef and hire him to your home. But, it is not possible countries like Bangladesh because no one will be interested to visit or invite to an unknown house whom they are not familiar with. "CookUps Home" provides homemade food through the Dhaka city, but it is not a freelance site, they are doing e-commerce business instead. Food panda and Upwork on the other hand, are a food delivery system and freelancing site of intangible products respectively.

2.2.3 Drawbacks for unmarried individuals

There are hundreds of individuals in a city like Dhaka who are either students or service holders. They normally do not have balanced diet, often order tasty unhygienic food from online that belong to restaurants. So, they do not get the required nutrition and waste a lot money by having thus food from restaurants.

2.3 Scope of KhaniDaani

• The application is suitable for all housewives and potential cooks who want to earn bucks by selling their own food item(s). It will save them from going outside and having their own food service stores or restaurants. Instead, they can do business transactions from their houses and can deliver their dishes with their chosen deliverer from this application. In addition, they can drop the dish to near picker's point for collection. It will give them chances to show their inner talents at cooking and to reach their potential food lovers as customers.

- KhaniDaani will enhance the marketplace of ordering food from restaurants to kitchens. If your kitchen is ready, the world is ready to have your dishes!
- All types of service holders, employers and other workers those who cannot go home and have their lunch and/or dinner, they can easily order and taste fresh homemade food.
- The youths who are desperately seeking jobs can find a part time job by serving as a delivery service provider.
- Shop owners can also earn extra money by giving a little space for keeping up and taking the ordered dish. They can also marketize their shop products.
- Food lovers, on the other hand, can have variety of tasty foods and receive them at their homes from his local area.

Chapter 3

Project and literature review

3.1 Project review

Before starting our project work, we have done research on the related apps, websites and web applications, But, it is fortuitous for us that there are no other freelancing based platforms that serve like as ours. Still we have enlisted two related giant platforms – Hire A Chef, Upwork and Foodpanda whose business strategies resemble like KhaniDaani in some aspects.

3.1.1 Hire a chef

It is a US based online website where you can search and find available local expert chef. There are their predefined prices for working per hour, different rates for different parities such as – for a wedding party of 20 people – normal charge of a chef ranges from \$1000 to \$3000. While reviewing the project, we have found many discrepancies that are strictly antagonistic to our idea. The first problem is the type of business! In USA, it is possible to hire a chef in our house, but in the countries like Bangladesh – it is quite awkward to invite chef from online if it is a woman. The chef rate is very much higher, not implementable to our countries. Another demerit of it is it do not provide the facility to its chefs to sell their dishes online which is main theme of KhaniDaani! We are providing a platform with the moto "women in freelance". ^[29]



3.1.2 UPWORK

Upwork provides a smooth system to find clients as well as a great range of talents. As we discuss on seller's side, anyone can work here by showing his/her aptness over any skill. At first, s/he has to attend some online exams to pass the test and get authenticated by the Upwork team! After that, s/he can run his/her own business and choose potential clients and projects. On the client side, any buyer can find top talents ranging from programmers to designers, writers, customer support reps, and more. All anyone needs is just posting a job and define what you specifically want. The sellers will flock to your requests and invite you to let them do your work at a comfortable price. [1] [2]



3.1.3 Foodpanda

Foodpanda is Online Food Ordering and delivery platform operating in many countries. It is an online ordering portal that aggregates the best restaurants from your neighborhood. You can simply select your country, city & area or select on the Geo-location feature in the Foodpanda app & browse through a list of quality restaurants that deliver to YOU. All restaurants have updated menus & you can simply add the items in your cart & proceed to checkout. There are

multiple payment options & in case you're paying cash on delivery, you can even mention if you require any change. Once you've created an account, your address & contact details will be saved which makes reordering a breeze. [3] [4]



3.2 Literature review

- The most significant achievement that we have gathered by researching on the internet is that there is no such competitor like us. We have gone through many similar projects for example Hire A Chef where anyone can hire a chef for his home party or any kind of event. But, the drawback here is the hired chef can serve only a family at a time. He can never a book another home for other order (s) concurrently. While, the best amenity for a KhaniDaani chef is s/he can take one or many orders at a time, for many customers. Thus, we have given the utmost priority to a chef to do a secure freelance.
- Almost every freelancing platform such as Fiverr, People Per Hour and Upwork which only provide services for digitalized products, there is no freelancing platforms like ours that provide tangible products.
- A tremendous merit of our system is it opens a new window to the housewives who cannot go outside for doing any kind of job. If they are adroit at cooking, then they can easily utilize their talent to sell dishes and be solvent to contribute to their family.
- We have implemented real time messaging and notification that is very unique for a startup freelancing site.
- When an order is created by an orderer, notification is sent to the system admins, related delivery service providers or picker's point host, and to the chef. So, everyone can see the track changes if the order is ready, if it is received by DSP or a host, and if it is destined to its original orderer. So, security is prioritized here. No one can deceive anything.
- A chef can create, update or delete any dishes or any profile info anytime
- There is authentication system in every step. So, if someone is not authenticated by system admins, s/he can just only browse through our KhaniDaani pages, but cannot do any kind of transaction.
- Bkash payment system is totally maintained by the system admins, so no one will get the expected fees until the transaction id of Bkash is verified.
- A huge advantage that the service holders and bachelors living in dormitories can have fresh homemade special recipes by ordering any amount of foods staying their workplace every now and then. Besides, they can preorder any dish items or book chefs by selecting any preferred upcoming date and time.
- The unemployed youths and neighboring dwellers can easily find an online workplace for earning some bucks.

- Shop owners can host their shops as the intermediary between the chef and deliverer and thus, they can earn extra money without investing any penny and also be familiarized with two people with a single order.
- Foodies can taste fresh and hygienic homemade food items cheaper than that of the prices of existing restaurants.

Chapter 4

Feasibility report

4.1 Steps of feasibility analysis

Feasibility refers to the study of impact brought by the development of a system or project which can ameliorate the existing organizations and platforms. This impact can be either positive or negative. A system is considered as a feasible one if its merits outweigh the demerits. By the way, there are many factors studying by which the feasibility of a system can be evaluated such as - technical feasibility, economic feasibility, legal feasibility, operational feasibility and schedule feasibility. Feasibility analysis involves eight steps:

- Form a project team and appoint a project leader.
- Prepare system flow chart.
- Enumerate potential candidate system.
- Describe and identify characteristic of the project.
- Determine and evaluate performance and cost effectiveness.
- Performance and cost.
- Select the best candidate system.
- Prepare and report final project directive to management.

4.2 Different types of feasibility study

The aim of the feasibility study is to understand the problem and to determine whether it is worth proceeding. There are five main factors to be considered:

- Technical Feasibility
- Economic Feasibility
- Legal Feasibility
- Operational Feasibility
- Schedule Feasibility

4.2.1 Technical feasibility

A project is called as technically feasible when the availability of required resources is easier and do not create any hassle to maintain the Project. Almost all the resources that we used to develop and maintain the system are available in the organization. Only a few tools required some cost to purchase the premium subscriptions.

Software used -

- 1. PHP STORM
- 2. ER assistant
- 3. Brackets / Sublime Text Editor
- 4. XAMPP and our own server
- 5. Bitbucket
- 6. Git Bash

Time Scheduling:

Working Fields	Time Limit
Overall Planning (mind mapping)	5-10days
System Design	10-15days
Database Design	10-15days
Interface design (Initial)	15-20days
Development (Initial)	20-25days
Complete Interface design	15-20days
Complete Development	25-35days
Testing & Finalization	15-25days
Domain & Hosting setup	3-5days
Custom web view for mobile	3-5days

4.2.2 Economic feasibility

Although it is fortuitous, it has to be acknowledged that there is no other existing application, websites, mobile application or any sort of system as like as ours in the existing territorial market. It is only our project which will reach at everyone's kitchen and bring a completely bran new system of purchasing and selling food items. So, for sure, the project will be very lucrative and more people will love to purchase food thorough this. We can speculate that the marketing cost around the city can be afforded with a low investment which we, the team JSN can bear that. But, the issue will arise when people from outside the city will demand the system at their place to be conducted on! At that point, more budget will be needed to marketize and supervise the system. Even, we cannot prescience about the budget if the system would spread throughout the country. Therefore, honestly to say, this project is not economically feasible, instead it is semi economically feasible. We require giant investors and governmental fund to host the project throughout the whole territory.

As our first target is to launch this project at our city only, we can assume and illustrate the initial cost impact. We have analyzed a series of relative costs that are based on actual cost data collected for large software projects. Then, we divided the cost in total 100 units scale.

Software cost: 10 units Learning cost: 5 units

Development cost: 28 units

Testing cost: 4 units

Marketing cost: 40 units

Documentation cost: 13 units

Total cost 100unit

4.2.3 Legal feasibility

This determines if the proposed system conflicts with legal requirements. The project team has to make a thorough analysis of the legal issues surrounding the project, across several dimensions. A detailed legal due diligence should be done to ensure that all foreseeable legal requirements, which have not or will not be dealt with in other appraisal exercises, are met for the development of the project.

The main objectives of the legal feasibility analysis are as follows.

- To ensure that the project is legally doable;
- To facilitate risk management, indicating the risks and obstacles that need to be addressed within the technical analyses, the financial model and/or the Value for Money analysis; and
- To avoid, to the extent possible, major problems in the project's development and implementation, specifying the requirements that need to be considered at subsequent stages of the development process.

We were enough scrupulous during the developing phases to ensure that the project would met all the legal feasibility objectives.

4.2.4 Operational feasibility

Operational feasibility defines how efficiently a proposed system solves the problems and satisfies the requirements. We have integrated all the required features according to the system analysis so that all demands can be easily manageable and further functionalities can be aggregated as well. In addition, we have focused on the degree to which the proposed development project fits in with the existing business environment and objectives with regard to development schedule, delivery date, corporate culture and existing business processes.

Besides, to ensure success, we have imparted the desired operational outcomes during the design and development. Such factors include design-dependent parameters as reliability, maintainability, supportability, usability, producibility, disposability, sustainability, affordability and others. We have been conscientious that our system may serve its intended purpose most effectively when its technical and operating characteristics are engineered into the design. Therefore, we can assuredly say that, our system is operationally feasible.

4.2.5 Market research studies

This is one of the most important sections of the feasibility study as it examines the market ability of the product or services and convinces readers that there is a potential market for the product or services. If a significant market for the product or services cannot be established, then there is no project. Typically, market studies will assess the potential sales of the product, absorption and market capture rates and the project's timing. We have done that market research

and have come to a culmination that, as our project is unique and there is no competitor to juxtapose individual functionalities, so we will dominate the current market. To ensure the customer satisfaction, we would not acknowledge any product or service in our system which has no potentiality for sales, customer interest and market dominance. So, it can be said that, our project will successfully be market friendly when it will be launched.

4.2.6 Schedule feasibility

Any project will be failed if the developers exceed the time limit which is given by the authority. Although there were many obstacles and academic pressures, we have accomplished our dream project within given time period. Therefore, our project has high schedule feasibility.

Chapter 5 System requirements

5.1 System requirements

In order to develop such a project, we started basic web technologies, but had to switch on advanced programming and scripting languages and frameworks as the application hierarchy required! The required technologies including minimum number of software and programming languages and frameworks such as - front-end technologies, backend technologies, Version Control System and Mobile Application Platform(s).

Front-end Technologies Requirements

- HTML5
- CSS3
- SASS
- JavaScript
- Bootstrap and
- iQuery

Back-end Technologies Requirements

- PHP
- Laravel
- Laravel Rest API
- AJAX
- MySQL for Database

Minimum Software Requirements

- PHP Storm
- Bracket /Sublime Text Editor
- XAMPP
- ER Assistant
- Android Studio and Xcode.

Web Browsers

- Chrome
- Firefox
- Internet Explorer
- Safari

Operating Systems

- MacOS
- Windows 10
- Android
- iOS

Version Control Technologies Requirements

- Bit Bucket
- Git Bash

Server Requirements

• PHP >= 7.1.3

- OpenSSL PHP Extension
- PDO PHP Extension
- Mbstring PHP Extension
- Tokenizer PHP Extension
- XML PHP Extension
- Ctype PHP Extension
- JSON PHP Extension

Hosting and Storage Technologies Requirements

- Domain (SSL Certified domain)
- Email and
- Hosting (purchased)

5.2 Front-end Technologies

The frontend of a website is what a user sees and interacts with on his browser. Also referred to as "client-side", it includes everything the user experiences directly: from text and colors to buttons, images, and navigation menus. The most used technologies are – HTML, CSS and JavaScript. Together these essentials create everything that's visually presented when someone visits a webpage. In addition to basic front-end languages, there are many frameworks like Bootstrap and Angular, as well as JavaScript libraries like jQuery, and CSS extensions like Sass and LESS. There's a long list of resources like these, which support HTML, CSS, and JavaScript.

HTML 5

Familiarization: HTML5 is the latest version of Hypertext Markup Language, the code that describes web pages. As you simply know, by HTML, one can define a backbone of a web page, so HTML does that with more convenience and flexibilities such as – new markup elements and attributes that reflect advanced uses on modern websites as well as specification of more scripting Application Programming Interfaces (APIs) that can be used with JavaScript such as – Canvas, Drag and Drop, Offline, Microdata and MIME type etc. Existing Document Object Model (DOM) interfaces are also expanded. [5] [6]

Usage on the Project: In almost all the raw pages of the project, we were dependent on using HTML5 as it aided with a number of new elements and attributes to create the architecture of "KhaniDaani". Following are some of the features that we have utilized in our project -

- **Latest Semantic Elements** There are hundreds of their uses in each page of the system such as <header>, <footer>, and <section>.
- Forms 2.0 Every now and then, the system asks the users to fill out forms to create accounts, chef profile, dishes and so on. With new HTML5 form patters, any user can create, edit, update and delete the data the previously filled out forms.
- Robust Local Storage Before using our own storage, the storage provided by HTML
 5 assisted us greatly to achieve a persistent storage to use without resorting any thirdparty plugins.
- **WebSocket** next-generation bidirectional communication technology for web applications. We have been helped by this WebSocket when to form an android application version of the web application.

- **Server-Sent Events** To deal with the form handing and storing the data in our server, we have used a lot of events which flow from web server to the web browsers and they are called Server-Sent Events (SSE).
- Canvas This handy plugin supported us to create two-dimensional drawing surface and integrate this to any program with JavaScript.
- **Geolocation** We used this feature to track the location of registered users. It will also help us when we will use ad campaign for the KhaniDaani dishes for targeted audiences.
- **Browser Support** As all of the developers worked from the individual PCs, so we used different types of Browsers and for this, this latest version of HTML helped us to support our system on any browser including Apple Safari, Google Chrome, Mozilla Firefox, and Opera and Internet Explorer 9.0.

CSS3

Familiarization: CSS3 is the latest evolution of the Cascading Style Sheets language and aims at extending CSS2.1. It brings a lot of long-awaited novelties, like rounded corners, shadows, gradients, transitions or animations, as well as new layouts like multi-columns, flexible box or grid layouts. Experimental parts are vendor-prefixed and should either be avoided in production environments, or used with extreme caution as both their syntax and semantics can change in the future. ^{[7][8]}

Usage on the Project: There had been a lot uses of CSS3 on the project. Some of the most used tasks are:

- Selectors
- Box Model
- Backgrounds and Borders
- Image Values and Replaced Content
- Text Effects
- 2D/3D Transformations
- Animations
- Multiple Column Layout
- User Interface

Besides, most of the other new CSS3 properties were implemented in the KhaniDaani web application.

SASS

Familiarization: SASS (Syntactically Awesome Stylesheets) is a CSS pre-processor that lets you use variables, mathematical operations, mixins, loops, functions, imports, and other interesting functionalities that make writing CSS much more powerful. In some ways, you may think of SASS as a style sheet extension language because it extends the standard CSS characteristics by introducing the benefits of a basic programming language. So, SASS will compile your code and generate the CSS output a browser can understand. ^[9] [10]

Usage on the Project: At one period, we have moved to design our application with SASS because it helped us greatly in the following aspects –

- As SASS is compatible with the CSS3, so it was easier for us to use the attributes and ready-made functions where needed. We found no hassle to integrate both in the same page even.
- One of the great benefits that we found of using a CSS pre-processor like SASS is the ability to use variables. A variable allowed us to store a value or a set of values, and to reuse these variables throughout our SASS files as many times we wanted and wherever wanted. Easy, powerful, and useful!
- Another fantastic amenity of CSS pre-processor is their improved syntax. SASS
 allowed us to use a nested syntax, which is code contained within another piece of code
 that performs a wider function. In SASS, nesting allows a cleaner way of targeting
 elements

JavaScript

Familiarization: JavaScript is most commonly used as a client-side scripting language. This means that JavaScript code is written into an HTML page. When a user requests an HTML page with JavaScript in it, the script is sent to the browser and it's up to the browser to do something with it. [11] [12]

Usage on the Project: We used JavaScript because it was very efficacious to implement. All we needed to do is put our code in the HTML document and tell the browser that it is JavaScript. The following are some of the implementations of JavaScript to our project –

- The fundamental help that we got from the JavaScript is it works on web users' computers even when they are offline!
- JavaScript permitted us to create highly responsive interfaces for each type of users chef, DSP and normal users. Thus, it has improved the user experience and provided dynamic functionality, without having to wait for the server to react and show another page.
- JavaScript can load content into the document if and when the user needs it, without reloading the entire page this is commonly referred to as Ajax.
- We implemented some timer with the help of JavaScript and Ajax.
- If we had any browser problems or patch holes in browser support, JS was there to sort that out for example fixing CSS layout issues in certain browsers.

Bootstrap

Familiarization: Bootstrap is the most popular HTML, CSS, and JS framework for developing responsive, mobile first projects on the web. It is an open source toolkit for developing with HTML, CSS, and JS. Bootstrap includes HTML and CSS based design templates for typography, forms, buttons, tables, navigation, modals, image carousels and many other, as well as optional JavaScript plugins. ^[13]

Usage on the Project: It eliminated our much effort to establish the project as cross platformed. We did the following things with Bootstrap –

• We could quickly adjoin our rudimentary prototype with Bootstrap which was created by HTML5, CSS3 and JS and coded the entire app with the Bootstrap provided Sass variables and mixins, responsive grid system, extensive prebuilt components, and powerful plugins built on jQuery.

- Had faced no issue to use it as Bootstrap is compatible with all modern browsers (Chrome, Firefox, Internet Explorer, Safari, and Opera)
- As we used PhpStorm as our main development tool, Bootstrap was easy to set up with the software and created a working layout in less than an hour
- As Bootstrap's components are well-adopted to the ecosystem of popular JS MVC Frameworks like Angular. Bootstrap provides several ways to include it into our project.
- It is Laravel friendly so we could use anywhere in the controllers, views or any of the Laravel View element with no hassle.

jQuery

Familiarization: jQuery is a fast, small, and feature-rich JavaScript library. It makes things like HTML document traversal and manipulation, event handling, animation, and Ajax much simpler with an easy-to-use API that works across a multitude of browsers. With a combination of versatility and extensibility, jQuery has changed the way that millions of people write JavaScript. [14]

Usage on the Project: We have implemented the following features with the jQuery –

- Using jQuery has been very simpler to use it along the JavaScript.
- We have used almost 8 10 jQuery Plugins such as bar rating, countdown, counter up, jquery .ui, jquery easing.
- jQuery easily integrates with the PhpStorm, Bracket or Sublime Text editor which are our development environments.
- Another big reason to be dependent on jQuery because pages with jQuery coded load faster.
- As a precautionary measure, we used jQuery because it can be SEO friendly when we will do SEO after launching the project.

5.3 Backend technologies

The backend (or "server-side") is the portion of the website which is responsible for storing and organizing data, and ensuring everything on the client-side actually works. The backend communicates with the front-end, sending and receiving information to be displayed as a web page. Whenever someone fills out a contact form, types in a web address, or makes a purchase (any user interaction on the client-side), the browser sends a request to the server-side, which returns information in the form of frontend code that the browser can interpret and display. Backend technologies include many programming languages and advanced frameworks.

PHP

Familiarization: PHP is a general-purpose scripting language that is especially suited to server-side web development, in which case PHP generally runs on a web server. Any PHP code in a requested file is executed by the PHP runtime, usually to create dynamic web page content or dynamic images used on websites or elsewhere. [15]

Usage on the Project:

• We needed a lot of dynamic page content such as after creating order – automatically load Payment details page or notifications going to the chef, system admin and DSP while creation of an order. PHP was there to help us!

- We could efficiently create, open, read, write, delete, and close files on the server.
- There are lots of forms in our system, to handle and collect data from these, PHP was there to help them.
- To send and receive cookies.
- To add, delete, modify data in our KhaniDaani database
- To control user-access
- PHP is compatible with almost all servers used today (Apache, IIS, etc.)
- PHP supports a wide range of databases.
- We could easily learn and work efficiently.

Laravel

Familiarization: Laravel is a web application framework with expressive, elegant syntax. We believe development must be an enjoyable, creative experience to be truly fulfilling. Laravel attempts to take the pain out of development by easing common tasks used in the majority of web projects, such as authentication, routing, sessions, and caching.

Laravel aims to make the development process a pleasing one for the developer without sacrificing application functionality. Happy developers make the best code. To this end, we've attempted to combine the very best of what we have seen in other web frameworks, including frameworks implemented in other languages, such as Ruby on Rails, ASP.NET MVC, and Sinatra. [16] [17] [18]

Usage on the Project: Among all the other PHP frameworks, Laravel is the best we have chosen it to use for the following reasons –

- Authorization Technique: Laravel let us to implement of authentication techniques very simple. Almost everything is configured extraordinarily. Laravel has also provided us a simple way to organize authorization logic and control access to our KhaniDaani resources.
- Object-Oriented Libraries: One of the top reasons to use the Laravel Framework is it has Object Oriented libraries and many other pre-installed ones, which are not found in any other popular PHP frameworks. One of the pre-installed libraries is the Authentication library. Although it is easy to implement, it has many advanced features, such as checking active users, password reset, CSRF (Cross-site Request Forgery) protection, and encryption. We did not that much PHP raw coding to handle our Forms.
- Artisan: Laravel offers a build in tool named as Artisan. A developer has to usually interact with the Laravel framework using a command line that creates and handles the Laravel project environment. Laravel provides a built-in tool for command-line called Artisan. This tool has allowed us to perform the majority of those repetitive and tedious programming tasks that most of the developers avoid performing manually.
- MVC Support: It supported us to use Laravel MVC model which include Routing, Controller, View and Modal and by the usage of these, we could flexibly manage our logic and Presentation.
- **Database Migration:** With Laravel database migrations, database sync is extremely easy. After the long work hours, we had to make a lot of changes to the database and, in our option, MySQL Workbench is not a great way to sync databases between the development machines.
- **Blade Templating Engine:** The Blade templating engine of Laravel is very intuitive and has helped us to work with the typical PHP/HTML spaghetti so much better, that's

it one of the best features of the framework. If we ever had to chop up an if statement with HTML inside of it, it would have been a hazardous task for us. But with blade, it's almost effortless.

Laravel restful API

Familiarization: REST is short for 'Representational State Transfer', and it designates a programming paradigm for communication between the applications via a stateless protocol (usually HTTP). This is particularly relevant for distributed systems, particularly for web services. And API stands for - Application Programming Interface which is a software-to-software interface that enables two applications to exchange data among each other. [19]

Usage on the Project: We had to create a rest API to eliminate the complexity of using codes again and again. Furthermore, it helped us in the following ways –

- We needed to call the API for using various functions and snippets of codes instead of writing long boring code
- The Laravel Rest has provided us an API Secure framework to assure data protection.
- It has been easy to handle.
- It has provided us a good community support.
- It assisted when we have created the Android Version of KhaniDaani in greater extent

Ajax

Familiarization: AJAX stands for Asynchronous JavaScript and XML. AJAX is a new technique for creating better, faster, and more interactive web applications with the help of XML, HTML, CSS, and Java Script. [20]

Usage on the Project: With the facile techniques of Ajax, we could optimize our project in various ways. Such as -

- It has helped us to make requests to the server without reloading the page
- Receiving and working with data from the server is very easy.
- Requesting data from a server after the page has loaded
- Receiving data from a server after the page has loaded
- Send data to a server in the background.
- It has helped us to create the KhaniDaani Notification and real time messaging system.

MySQL

Familiarization: A database is a structured collection of data. It may be anything from a simple shopping list to a picture gallery or the vast amounts of information in a corporate network. To add, access, and process data stored in a computer database, you need a database management system such as MySQL Server. Since computers are very good at handling large amounts of data, database management systems play a central role in computing, as standalone utilities, or as parts of other applications. ^[21]

Usage on the Project:

- It is the best and most common database system on which we could certainly relied on.
- MySQL is open source we could run it through different operating systems.
- MySQL is very fast, reliable, and easy to use.
- MySQL uses standard SQL which will help us building the android Version of KhaniDaani.
- MySQL is free to download and use we did not pay anything!
- The data in a MySQL database are stored in systematic reliable tables.

5.4 Minimum software requirements

Here is some basic information about the software which we have used for the system development-

PhpStorm: JetBrains PhpStorm is a commercial, cross-platform IDE for PHP ^[1] built on JetBrains' IntelliJ IDE A platform. PhpStorm provides an editor for PHP, HTML and JavaScript with on-the-fly code analysis, error prevention and automated refactoring for PHP and JavaScript code. PhpStorm code completion supports PHP 5.3, 5.4, 5.5, 5.6 & 7.0 ^[2] (modern and legacy projects), including generators, coroutines, the finally keyword, list in foreach, namespaces, closures, traits and short array syntax. It includes a full-fledged SQL editor with editable query results. PhpStorm is built on IntelliJ IDEA, which is written in Java. Users can extend the IDE by installing plugins created for the IntelliJ Platform or write their own plugins. All features available in WebStorm are included in PhpStorm, which adds support for PHP and databases. WebStorm ships with pre-installed JavaScript plugins (such as for Node.js). ^[22]

ER Assistant: When we have started developing the KhaniDaani system, we were instructed to create the Database design first. So, we have searched for a software which could help us not only to create the database tables, but also assist us to establish the required relationship between the tables. We have found this ER Assistant software as such a handy tool. We have used it for the following tasks –

- ER-Assistant application allowed us to create, edit, and print entity relationship diagrams for KhaniDaani system.
- With ER flexible GUI, we could easily add the required table entities and attributes with SQL data types.
- We established relationships among KhaniDaani tables with cardinality and participation constraints.
- The generalization hierarchies helped us when we build eloquent relationship models by Laravel.

Brackets: Brackets is a source code editor with a primary focus on web development. It natively supports many programming languages and markup languages, and functions can be added by users with plugins, typically community-built and maintained under free-software licenses. We took the advantages of various functionalities of the Brackets and implemented these on our project. ^[23] For example -

- Cross-platform (We could easily adopt on our Windows and macOS pcs) and Supportive Plugins for cross-platform.
- For quick keyboard invocation of arbitrary commands, we used the adaptive matching features by "Command palette".

- We could do Simultaneous editing: simultaneously make the same interactive changes to multiple selected areas.
- Used many useful plugins such as Emmet, bracket git, live reload and auto prefixer etc.
- There were many authentic Project-specific preferences
- Most importantly, we used the extensive customizability via JSON settings files, including project-specific and platform-specific settings
- Cross-platform (We could easily adopt on our Windows and macOS pcs) and Supportive Plugins for cross-platform.
- We could quickly navigate through any lines, files, symbols or pages by "Go to Anything".

Sublime Text Editor: Sublime Text is a proprietary cross-platform source code editor with a Python application programming interface (API). It natively supports many programming languages and markup languages, and functions can be added by users with plugins, typically community-built and maintained under free-software licenses. [24]

Features that we used on our project:

- Goto Anything," quick navigation to files, symbols, or lines
- "Command palette" uses adaptive matching for quick keyboard invocation of arbitrary commands
- Simultaneous editing: simultaneously make the same interactive changes to multiple selected areas
- Python-based plugin API
- Project-specific preferences
- Extensive customizability via JSON settings files, including project-specific and platform-specific settings
- Cross-platform (Windows, macOS, and Linux) and Supportive Plugins for cross-platform.

XAMPP: XAMPP is the most PHP development environment. It is completely free, easy to install Apache distribution containing MySQL, PHP and Perl. The XAMPP open source package has been set up to be incredibly easy to install and to use. Self-contained, multiple instances of XAMPP can exist on a single computer, and any given instance can be copied from one computer to another. [25]

We have utilized the total functionalities of the software to handle the database and raw data to be saved in the Apache server and SQL database. We did the following by this software:

Android Studio: A software development kit that enables developers to create application for the software platform. We have used the Android SDK for developing the android version of our KhaniDaani system. Our projects include source code package, development tools all the required libraries to build app. At first, we developed the app version with the help of previously created REST API by Laravel. Then, we worked to implement the notification system into our KhaniDaani App which means that it will provide notifications when some kind activity occurs on someone's profile such as if someone messages or if any order is received. A restriction here is that – a user must have the internet connectivity active on the device otherwise there will be no notification. We have handled necessary errors that might occur. The minimum SDK is 25 because we have future plans to work on the material design and for advance secure payment. [26]

5.5 Web browsers

A web browser (commonly referred to as a browser) is a software application for accessing information on the World Wide Web. The most popular web browsers are Chrome, Firefox, Safari, Internet Explorer, and Edge. Each individual web page, image, and video is identified by a distinct URL, enabling browsers to retrieve and display them on the user's device.

In order to connect to and display websites on our device, we needed to have a web browser installed on our pc. We were mostly dependent on Chrome as it supports legally all web standards, and is more speedy, reliable, nicer user interface than the other popular web browsers.

5.6 Operating systems used for development

An operating system (OS), in its most general sense, is software that allows a user to run other applications on a computing device. While it is possible for a software application to interface directly with hardware, the vast majority of applications are written for an OS, which allows them to take advantage of common libraries and not worry about specific hardware details. The project was regularly tested and designed to display and function correctly in a wide variety of operating systems and browsers. We have used the most common Oss and tested whether our project goes well suited or not and become independent of all platforms. The list of OSs that we used are –

- Windows 10
- macOS High Sierra
- Android and iOS

5.7 Minimum hardware requirement

Although the KhaniDaani project does not focus on any specific hardware, but as a web-based software it needs some minimum hardware components to run the project and compiler swiftly. Here is some hardware combination and their performance given below.

Performance table for personal computer

Processor	Hard disk	RAM	Can perform	Comment
Pentium-2	40GB/80GB	128 MB/512MB	Yes	Too slow
Pentium-3	40GB/80GB	128 MB/512MB	Yes	slow
Pentium-4	40GB/80GB/180GB	512MB	Yes	Little slow
Above Pentium-4	500GB/1TB	4GB+	Yes	Faster

Performance table for personal mobile

OS	Stoarage	RAM	Can perform	Comment
Below And	4GB/8GB	128MB/256MB	Yes	Too slow
Above iOS 4	16GB/256GB	512MB/3GB	Yes	Faster
Below Android 3.0	4GB/8GB	128MB/1GB	Yes	Too slow
Above Android 4.0	16GB/128GB	512MB/8GB	Yes	Faster

5.8 Version control and Bitbucket

Version control systems are a category of software tools that help a software team manage changes to source code over time. Version control software keeps track of every modification to the code in a special kind of database. If a mistake is made, developers can turn back the clock and compare earlier versions of the code to help fix the mistake while minimizing disruption to all team members. [27]

5.8.2 Version control system

Version Control Systems (VCS) have seen great improvements over the past few decades and some are better than others. VCS are sometimes known as SCM (Source Code Management) tools or RCS (Revision Control System). One of the most popular VCS tools in use today is called Git. Git is a Distributed VCS, a category known as DVCS, more on that later. Like many of the most popular VCS systems available today, Git is free and open source.

5.8.3 Bitbucket

Familiarization: Bitbucket is a web-based version control repository hosting service for source code and development projects. Bitbucket offers both commercial plans and free accounts. It offers free accounts with an unlimited number of private repositories (which can have up to five users in the case of free accounts). It integrates with other Atlassian software like Jira, HipChat, Confluence and Bamboo.

It is similar to GitHub, which primarily uses Git. Bitbucket has traditionally marketed its services to professional developers. Bitbucket has 3 deployment models: Cloud, Bitbucket Server and Data Center. [28]

5.8.4 Usage of Bitbucket on the KhaniDaani System

- Bitbucket has made our development lifecycle more than easier. The best performance that
 we utilized that it offers private repositories which another software GitHub does not
 provide (unless you purchase their premium version). So, we have used this useful feature
 to protect our codes from being to be stolen or deleted by other users.
- Bitbucket has provided a complete long-term change history of every file! This means every change made by us over the last couple of months. Changes include the creation and deletion of files as well as edits to the contents. The saving process is very simpler when we have made any changes, just added them on the Repository > committed this file(s) > pushed them on the main directory and lastly merged with the master file. It has recorded our every change, so when we needed any previous files, we could clone it or download it from the KhaniDaani repository. The history includes the author, date and written notes on

the purpose of each change. Having the complete history enables going back to previous versions to help in root cause analysis for bugs and it is crucial when needing to fix problems in older versions of software.

- The next significant benefit we have got is Branching and merging. Having team members work concurrently is a no-brainer, but even each member working on our own can benefit from the ability to work on independent streams of changes. We could create a "branch" in VCS tools keeps multiple streams of work independent from each other while also providing the facility to merge that work back together, enabling developers to verify that the changes on each branch do not conflict. We, the KhaniDaani team members have adopted the practice of branching for each feature or perhaps branching for our first release.
- The most important amenity that the Bitbucket has given us is Traceability. Being able to trace each change made to the software and connect it to project management and bug tracking our rudimental stages of the web application KhaniDaani, and being able to annotate each change with a message describing the purpose and intent of the change has helped us not only with root also caused analysis and other forensics. Having the annotated history of the code at our fingertips when we are reading the code, trying to understand what it is doing and why it is so designed has enabled the KhaniDaani developers to make correct and harmonious changes that are in accord with the intended long-term design of the system. This was especially important for working effectively with legacy code and is crucial in enabling developers to estimate future work with any accuracy.

Project methodology

6.1 Project modules

1. Types of Users

- system admin
- chef
- user as foodies
- delivery service providers
- pickers point services
- customer support

2. Dishes

- what it is
- categories and subcategories.
- 3. Ordering Food
- 4. Notification and chatbot system
- 5. Payment Method

6.2 Overview of implemented topics

6.2.1 Types of Users

There will be 5 types of users in total. A laconic explanation about each one has been provided at the following –

System admin – To incessantly maintain and supervise the operationality, efficacy and provide all in all support at any time. Mainly, we the developers are the system admins and the total admin panel is in our hands. Some of the main tasks of system admins include –

- Observe and handle the user authentication.
- Acknowledge a dish or disapprove any unwanted dishes created by users.
- Check and totally control any miscellaneous work done by any user.
- Intermittently check and solve any system fault.

Chef – A chef is a registered user who will create dishes. There are predefined categories and subcategories from which a chef can create varieties of dishes. A chef is proprietor of his account. S/he can create, edit, update or delete any information at any time. Even, s/he can sell any number of dishes, although there is an option for limiting orders. After a successful order completion by any foodies, the only task of a chef is to prepare the ordered dish within time interval. So, time management is very crucial for a chef. After a deadline, a user can cancel the order. At that time, a chef cannot do anything, either has to admit the late delivery failure or can still manipulate the orderer to accept the order. When a successful order is completed, the orderer will mark the order as completed (there is also an auto completed option after one day) and rate the order (optional) and only then the price of the dish will be transferred to the chef's KhaniDaani balance. S/he can withdraw the balance with the help of system admins by the only available option – Bkash.

Foodies – Foodies or food lovers are those who are the normal registered users. They are the heart of the system. They can search any dish they want to consume, check the chef's

availability, read the description, check out the price and can order the dish at any preferred time. There are options for payment - KhaniDaani balance and Bkash.

Delivery Service Providers (DSPs) – Delivery Service Providers are the registered users who will serve the ordered dish item(s) to the orderer from the chef. To be connected with our system, a delivery service provider must select the service area(s) and add his/her service charge. The fundamental task of a DSP is to be there when an order is started by any orderer and wait until the related chef send him a notification about the completion of a prepared dish, and then send it to the destination.

Pick-up Point Hosts: They are the type of registered users who own a personal store, house, shop, or any type of business place which will be near a stand. From there, the serviceman will take the readymade dish item from a chef (with a reference id) and keep the dish until the actual orderer come and take it from the point. In a word, it will serve as a hackneyed place for the both orderer and the chef.

6.2.2 Dishes

What it is - This entity is the backbone of the system. Every created dish with its defined attributes such as – name, pictures, descriptions and price etc. belongs to a chef. A chef can create any type of dishes at any time, but authorization is needed by the system admin for the dish to be appeared in search results. There are number of categories and subcategories under which dishes can be created. We have enabled an extra feature for the item – a chef can marketize his/her dishes through the 'trending dish'. Like the Google Search engine, we have developed our own search engine so that no anonymous dish can appear in the top results in searches, it needs to be rated and searched well by its regular purchasers.

Categories and Subcategories: A dish must fit under any of the following categories and subcategories:

Chicken chicken biriyani, chicken masala, jal fry, roast, Kabab, Grilled

Beef beef, beef biriyani, beef masala, beef curry, ginger beef, other,

Mutton mutton curry, mutton korma, mutton biriyani, other, mutton kabab

Fish prawns, Rui, Hilsa, Pabda, Rupchanda, small fish, sea fish, others

Vegetables mixed vegetable, chicken vegetable, beef vegetable, other

Fast Food /Snacks pizza, burger, sandwich, hot dog, noodles, spaghetti, pasta, other

Other Rice/Nan, Desserts, raita, soup, appetizers, sizzling, other

Continental Indian, Italian, Chinese, other

Platter Sale Platter

6.2.3 Ordering Food

Now the game starts! When a logged in user will search over thousands of dishes under hundreds of dish categories, find a preferred one and decide it to buy after being attracted by the price and description of that dish item, then a message needs to be sent to the chef of the dish to check whether s/he is ready to prepare the dish or not! If the chef replies with a positive acknowledgement, it is time to order the dish. S/he will find an option saying 'Proceed to order' and a new page (a HTML form) will appear on the view. Next, it is required to fill up the necessary details – delivery time, amount, type of delivery and so on and after that the system will ask to complete the payment. Payment can be done either of the two process – by Bkash or KhaniDaani balance. This is the stage when an order will start! Notifications will go into the devices of the System admin, chef and to the selected DSP. There will be countdown of time through which everyone will track the improvement of the order. And once the dish is prepared by the cook, an option saying 'the dish is ready' must be tapped as quick as possible so that the DSP can be notified and it will come to the chef's house to take the dish and reach it to the orderer safely and efficiently. After giving it to the orderer, the DSP will tap the button - 'dish has been delivered' and two notifications will go to the ordered and system admins. Now, it's time to mark the order as completed and rate the overall service. If s/he leaves it untouched, the system will automatically complete the order after one day of the delivery. Lastly, the data of the completion report will be synced with the database and balance will be transferred to the accounts of the Chef and DSP.

6.2.4 Notification and chat box system

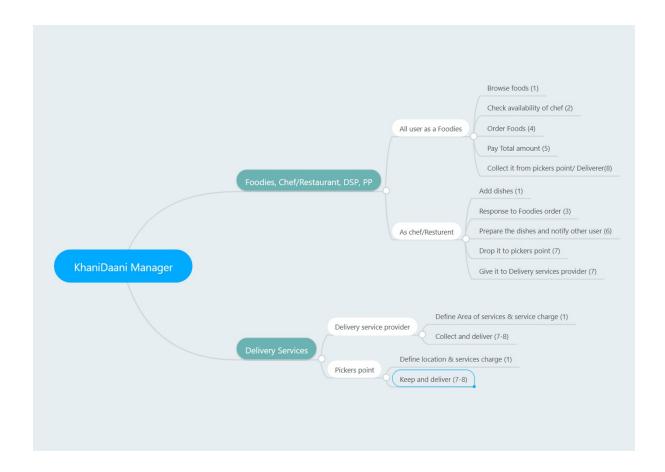
It has been implemented with the advanced Laravel framework, Ajax and advanced JavaScript. All types of notifications and chat system will be in real time.

6.2.5 Payment Method

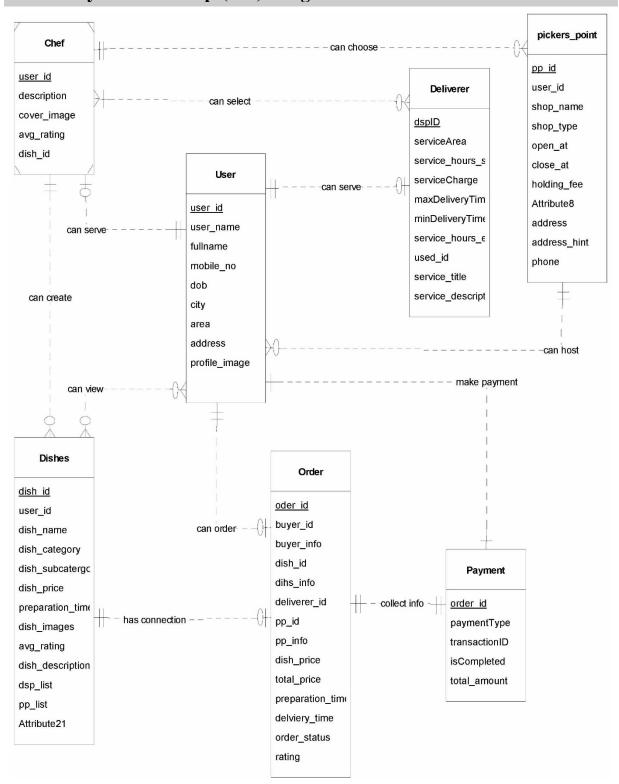
The current implemented payment is just via the Bkash system. When a user is about to order a dish, s/he will first have to pay the required bill via Bkash and after that, has to add the transaction id while filling out the order form. S/he has to wait for some time for approval from the system admins. System admin will check the id if matches perfectly with the sent transaction id to the KhaniDaani Bkash account! If it is matched, then the order will start. In near future, we have plans to integrate the merchant account of Bkash and some other accounts.

Chapter 7 System Design

7.1 Mind mapping of KhaniDaani



7.2 Entity Relationship (ER) Diagram



Coding summary

8.1 Laravel composer commands and dependencies

- To download the composer dependencies, we ran the snippet on command line composer global require "laravel/installer=~1.1"
- Create project via composer composer create-project laravel/laravel {directory} 4.2 --prefer-dist.
- To run Laravel composer successfully on a pc, it has to have Laravel Framework which has some system requirements:
 - PHP >= 5.4
 - MCrypt PHP Extension
- To download Laravel installer composer global require "laravel/installer"
- To update composer composer update –no script

8.2 Laravel basic functions

These are some very common command line and Laravel code snippets that have been frequently used -

- To start the KhaniDaani Project laravel new KhaniDaani
- To use PHP's built-in development server to serve the KhaniDaani application php artisan serve
- To generate Application Key php artisan key: generate
- **Basic Routing** We have defined most of the routes for our KhaniDaani in the app/Http/routes.php file, which is loaded by the App\Providers\RouteServiceProvider class. The most basic Laravel routes simply accept a URI and a Closure.
- To create a table on the database: *php artisan make: migration create_users_table*
- To migrate the database again *php artisan migrate*
- To reissuing the migrate command *composer dump-autoload*
- If we changed something on the Laravel and wanted to collaborate with the database then *php artisan migrate: refresh*
- To input random data in the database php artisan migrate: seed
- To handle logic and behavior of a database class, make a controller for a database: *php* artisan make controller: **UserController**

8.3 Rest API controller functions

- **register_routes():** After instantiating the class for the first time, call register_routes() to register the resource's routes to the server.
- **get items():** Get a collection of existing entities.

- **get_item():** Get an existing entity. If the entity doesn't exist, HTTP error code 404 should be returned. If the requester doesn't have permission to access the entity, a HTTP error code 403 should be returned.
- **create_item():** Create a new entity, given a valid WP_REST_Request. If creation is successful, a WP_REST_Response should be returned with HTTP status=201 and location header to the new resource. If creation errors in some form, the appropriate HTTP error code and message should be returned.
- **update_item():** Update an existing entity, given a valid WP_REST_Request.
- **delete_item():** Delete an existing entity, given a valid WP_REST_Request. If deletion errors in some way, the appropriate HTTP error code should be returned.
- **get_items_permissions_check():** Before calling the callback, check whether a given request has permissions to a collection of a resource.
- **get_item_permissions_check():** Before calling the callback, check whether a given request has permissions to get an individual resource.
- **create_item_permissions_check():** Before calling the callback, check whether a given request has permissions to create an individual resource.
- **update_item_permissions_check():** Before calling the callback, check whether a given request has permissions to update an individual resource.
- **delete_item_permissions_check():** Before calling the callback, check whether a given request has permissions to delete an individual resource.
- **prepare_item_for_response():** Format a resource to match how it should appear in the response.
- **prepare_response_for_collection():** When using prepare_item_for_response() a WP_REST_Response is returned. This helper function wraps all of these responses into one collection.
- **filter_response_by_context():** Filters the response shape based on the provided context parameter.
- **get_item_schema():** Get the resource's schema JSON Schema object

8.4 Git Commands

Same as git commands. The most used commands that we have used are –

- To register to the git git config --global user.name "team JSN" and git config --global user.email teamjsn@gmail.com
- To create a new repository: git init
- To check a repository: git clone /path/to/repository/KhaniDaani
- To add files *git add*

- To commit changes to remote repository git commit -m "A file of KhaniDaani has been changed"
- To send changes to the master branch: git push
- List the changed files *git status*
- Connect to a remote repository: git remote add origin master
- To check out a branch git checkout -b khanidaaniBranch
- Update from the remote repositories: git pull master origin

Testing and result

9.1 Testing objectives

Testing is the process of evaluating a system or its component(s) with the intent to find whether it satisfies the specified requirements or not.

Testing is executing a system in order to identify any gaps, errors, or missing requirements in contrary to the actual requirements.

- Testing is mainly done for rectifying the error from the program that is designed for particular problem.
- Testing is a process of executing a program with the intent of finding an error.
- A good test case is one that has a high probability of finding an as-yet UN discovered error.
- A successful test is one that uncovers an as-yet undiscovered error.
- If testing is conducted successfully it will uncover error in the software

9.2 Implementations of various testing techniques

Verification testing: We have ensured that all types of the requirements for the development of KhaniDaani system are aggregated accurately and they are up-to-date with modern technologies.

Unit Testing: Each and every module in isolation was tested. We have assured that each function is working properly, data structures are used correctly.

System accuracy test: After the development of whole KhaniDaani system, it has been tested with seeding the database to check the speed of processing, accuracy and correctness of results.

Information Integrity Testing: Verifying correct and up to date collection of information. It was certainly checked about simultaneous record read accesses.

User Interface Testing: We have verified the interface conform to GUI standards. The System has been developed to be easy-to-use and appropriate for the targeted group of mass housewives, youths and common people with a little knowledge of using a smartphone or a device.

Recovery Testing: If the system needs any recovery we should update/add the change. **Configuration Testing:** Configuration testing verifies operation of the software on different software. When we purchased the domain khanidaani.com, we started to check whether it is supported by all the modern android and iPhone devices, also to the MacOS and Windows as well.

Installation Testing: At the verge, the installation process! We had to verify the most significant part - installation. The installation process was authenticated with system admins and all of the requirements were tested if integrated successfully or not.

9.3 Web application testing

Web application testing refers to a software testing technique which exclusively adopted to test the applications that are hosted on web in which the application interfaces and other functionalities are tested.

Functionality Testing

We have testified some of the significant checks that have been performed to authenticate the functionality.

We have done -

- Verification to ensure that there is no dead page or invalid redirects.
- Necessary error handling checks as validating the properties on each field.
- Wrong inputs to perform negative testing.
- Verification to the workflow of the system.
- Authentication to the data integrity.

Usability testing

To verify how the application is easy to use with,

- Test the navigation and controls.
- Content checking.
- Check for user intuition.

Interface testing – We performed to verify the interface and the dataflow from one system to other.

Compatibility testing- Compatibility testing has been performed based on the context of the application.

- Browser compatibility
- Operating system compatibility
- Compatible to various devices like notebook, mobile, etc.

Performance testing – We have verified the server response time and throughput under various load conditions.

Security testing – The KhaniDaani system is SSL certified! So, the KhaniDaani application is secured on web as data theft and unauthorized access are more common issues and below are some of the techniques to verify the security level of the system.

Future Work

10.1 Flexibility for future implications

This project is the first step towards our main destination. We have assessed our work by analyzing and implementing necessary steps to be confirmed that it is totally accomplished system. In this chapter, we enlist the things that were either left open by this project or were opened by the analysis performed and the lessons learned during our interaction with the subject. Our system has flexible modules. Any new feature can be integrated when it requires. Reusability is easily possible in the system in various situations.

Extensibility: Extensibility is a quality of design that takes possible future advances into consideration and attempts to accommodate them. In this regard, our project is full extensible. At first, our target is to launch the system within the city only. Then if we get success, the system will be extended with all the necessary improvements – improved database with dynamic security control. Every manufacturing and

design hierarchy have been processed in thus way. Any future development can easily and efficiently be integrated with the current version. And we master plans to do that!

Reusability: Reusable software reduces design, coding and testing cost by repeated effort over several designs. Reducing the amount of code also simplifies understanding. We have followed both types of reusability: sharing of newly written code within a project and reuse of previously written code on new projects. In almost every case, we have used the latest Laravel framework so there will arise no conflict issue to reuse any feature again in near future.

Understandability: A project file or documentation is understandable if someone other than the writer of the file can understand, as well as the writer can understand after a time period. Our system is documented and cited well so that anyone even from the non-IT fields will conceive the project book.

Our target on this regard is to publish the project book to a local sophisticated journal so that we can reach to an opulence of potential clients.

10.2 Enlisted tasks for future works

Launching the project to the territory

Our first and foremost target is to launch the project to the city. For this, we need a huge plan and budget. We have already talked to some investors of this town and they have given appraisal for our initiative and also confirmed us to assist financially on this regard. In addition, we have visited some houses and took survey from them and they accoladed our idea. Even we have been suggested to add some special features by them on our system. So, if everything goes well, by the grace of God we will launch our system very soon.

Real Time Location Tracking

We have successfully implemented the real time notification and messaging system. To track the user location, we need some paid Google APIs. If we can purchase it and implement to our project, it will help to give the best user experience to a user - s/he can see the list of nearest dish items that will be captured and shown to the display by auto filtering technique.

Native iOS and android apps by using react native framework

We have speculations to launch the KhaniDaani App version both for iOS and Android if our project gets complaisant by the users and used at a greater scale.

Advanced Admin Panel

We will upgrade the current admin panel to a better and sophisticated one by which we can handle and manage all of the works of the system for example – authenticating a user, approving a dish and delivery service, track the status of an order.

Social Media Integration

We will integrate Facebook, Twitter, Google+ and Instagram APIs so that anyone can find, browse, purchase and marketize their products and services to a large amount of crowd.

Revenue Analytics

Every KhaniDaani user will have individual analytics so that anyone can see a summary of his/her monthly transaction status, withdrawal balance, income, sales and so on.

Business Accounts for Restaurants

For now, restaurants will have to registered and do business as a chef, but in near future, a restaurant will find functionalities to do business more efficiently than a normal chef.

Various methods of Payment

To order a food, a person is now dependent to pay by a Bkash account only. But in near future, we will purchase the merchant accounts of Banks, International credit cards, debit cards, master cards etc to pay with more efficacy.

Fund request by govt and investors

To implement all the features and planned tasks, we need a huge budget. Even, to marketize our system, we need a lot money. Therefore, we need investors and financial help from the government. Already, we have showcased our projects on various competitions and we are intermittently doing that and if it is required to go to government to seek help, we are determined to do that also.

10.3 Research plan of the project

It is very much essential to finish the complete research about the project domain to obtain good knowledge about the project we have to carry on. Lots of research should carry out with the aid of essential tools. After the launching the KhaniDaani on internet, our main research task would be intermittently checking its feasibility, user satisfaction, improving UI/UX flexibility on a regular basis, hunt review and online survey from the application users, provide the users best method for transaction, be aware always to solve any arisen customer issues and so on. We will also work on the marketing sector, research the business analytics and improve all kinds of transaction. For security issues, we would research on the best protocol which would be implemented without any doubt and cannot be hacked by any piracy.

Also, if we get succeeded on local market, we will research on the national and international market on how to improve the advertisement and business policy.

10.4 Implementation Issues

Implementation simply means carrying out the activities described in work plan. In computer science, an implementation is a realization of a technical specification or algorithm as a program, software component, or other computer system through computer programming and deployment. Many implementations may exist for a given specification or standard. For example, software development tools contain implementations of programming languages. After carefully planned for our project, we could ready to start the project implementation phase. The implementation phase involves putting the project plan into action. And then starting coordinate and direct project resources to meet the objectives of the project plan and manage each activity, every step of the way. That's what happens in the implementation phase of the project. The implementation phase is where we actually do the project work to produce the deliverables. The word "deliverable" means anything this project delivers. The deliverables for our project include all of the Implement designs using programming languages. Deliverables of the project such as

- Software package
- User manual
- Developers manual
- Documentation

10.5 Project security

We have provided login facilities for all registered user, so that we can ensure that they can log in safe without the threat to corrupt their password. We have also provided password recovery system. In future, we will add the Google Sign in and Facebook Sign in process to ameliorate the registration process.

Recapitulation

11 Recapitulation

We wanted to create such an application by which every person adroit at cooking can earn some money staying at home by preparing some unique recipes. Using this application, it is possible to create any number of food items every now and then. If a dish attracts some customers at first attempts, our system will make this dish trendy so that more and more sales funnel would create. There are flexible transaction systems so that after selling a dish, a chef will instantly get the desired money. We are optimistic that this transaction system will open a new window of income for the potential cookers and when the other payment methods will be integrated with the system, it will be easier to order and sell a food item. On the other hand, normal users who frequently search for different types of hygienic foods, can come to our application and find the desired item easily. As the whole process of ordering a food is synchronized with every related user (system admin, DSP, chef and orderer), there is no chance of missing the ordered item or any kind of deceit. No one can hide or steal the ordered item as the system managers are tracking everything and they have all the personal information. Any kind of mistrustful activities will go against our terms and policy and the culprit will be caught and punished if any illegal activity is occurred. Every type of registered users must abide by the system's rules and regulations all the time. One thing must be added that as there is chatting system within our app, a user and a chef can deal to have transactions out of the system which is totally against our rules. Every transaction will must occur within the KhaniDaani system.

Throughout the journey of the development of our project, we not only focused the design and development phases, we were also concerned with the security system of the system because any kind of unethical scenario happens within or relating our system, we will be responsible for that. For example, if a hacker can hack the database and payment info, no penny will be stored to the system's fund and then we have to compensate the money. In addition, if after receiving a dish from a chef, a DSP can cheat the orderer by serving wrong food or not going to the house of the orderer! We also have to take this situation under control. So, we have given the utmost priority to the system protocol both on online and offline. We are enthusiastic to run the system throughout the city with great service and supervision. In near future, when we will see the tremendous success of this unique business, we will be happier to extend our services to other cities, throughout the nation and even other nations. If we get proper initiative from the local as well as national government to ensure an entrusted security system, we can promise the opulence of the KhaniDaani will be at the apex of its fortune one day.

To recapitulate, it can be opined that the TEAMJSN is adamant to launch this project successfully and to ensure that the team members are working very hard at every aspect. Construction, Development, architecture hierarchy, investment plan, marketing and maintenance plans are all set and ameliorating in proper rhythm. Now, we do not know whether the system will attract the food lovers or not, whether we can manage investors for funds or not, whatever happens! WE ARE COMING! GET READY FOLKS.....

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