ERp System for eBay.in Sellers

A project

Submitted to the Department of Computer Science and Engineering Bangladesh University Of Business And Technology (BUBT), Dhaka In partial fulfillment of the requirements for the degree of

BACHELOR OF SCIENCE
IN
COMPUTER SCIENCE AND ENGINEERING
SEMESTER: Fall 2018-2019

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January 2019

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Certificate

This is to certify that this is a bonafide record of the project presented by the students whose names are given below in partial fulfillment of the requirements of the course Web Database Programming Lab(CSE 458) for the degree of Bachelor of Science in Computer Science and Engineering.

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ABSTRACT

This is a Desktop-based project which was developed for ERp System for eBay.in Seller. It is useful to the trader to maintain the Employee details, Sales details, Company items and services. Manager,employee could Manage products and informant ion from this site. authorized user can check the item from the Application and manage the product by creating their authorized own account. Regarding the registration module, it contains the information about newly joined employee details like name of the user, password etc. product info and payment detail will contain the details like Actual Amount to be paid. Searching is having the details of the Products.

ACKNOWLEDGMENTS

Praise to Allah, the most magnificent and the most merciful, without whose patonnage and blessing this project would not have been successfully completed. He gave us zeal, confidence, power of determination and courage and vanquished all the stumbling hardness that we faced on the way.

It is an auspicious occasion for us as students of Department of Computer Science and Engineering, one of the prestigious academic centers of the Bangladesh University of Business and Technology(BUBT), to express our deep feelings of gratitude to the department . We are immensely indebted to our supervisor, Ms. Sadah Anjum Shanto, Lecturer, Department of Computer Science and Technology, for his wonderful guidance, inspiration, encouragement and also for through review and correction of this dissertation work that could not be finalized without his astute supervision. We would also thank to our honorable Chairman of Department of CSE for his support and giving us permission to use the computer labs whenever we needed.

We pay profound regard to all of our teachers of the department for their very valuable directives and special attention. We would thank to our departmental staff for their service. Our parents are very much keen and hopeful in the best performance of the dissertation we are going to submit. We wish we could fulfill their aspiration. We also pay regards to our friends in the department who, through their interest and work, are our contestant source of inspiration.

With Best Regards,

Md. Azizur Rahman

Md. Nazmul Hoque

DEDICATION

We dedicate this project to God Almighty our creator, our strong pillar, our source of inspiration, wisdom, knowledge and understanding. He has been the source of my strength throughout this program and on His wings only we have soared. We also dedicate this work to our parents who has encouraged us all the way and whose encouragement has made sure that we give it all it takes to finish that which we have started. We dedicate my dissertation work to my family and many friends. A special feeling of gratitude to our loving parents, whose words of encouragement and push for tenacity ring in my ears. We also dedicate this dissertation to my many friends who have supported me throughout the process.

DECLARATION

We hereby declare that the project entitled ERp System for eBay.in Sellers submitted in partial fulfillment of the requirements for the course Web Database Programming Lab for degree of Bachelor of Science in Computer Science and Engineering in the Faculty of Computer Science and Engineering of Bangladesh University of Business and Technology (BUBT) is our own work and that it contains no material which has been accepted for the award to the candidate(s) of any other degree or diploma, except where due reference is made in the text of the project. To the best of our knowledge, it contains no materials previously published or written by any other person except where due reference is made in the project.

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Chapter 1

INTRODUCTION

1.1 Introduction

eBay Inc. is an American multinational internet consumer-to-consumer corporation and it was founded in 1995, eBay India has over 5 million registered users. These users come from over 3,311 cities and approximately 30,000 sellers sell on eBay.in, out of it 40 percent sellers are home seller, 50 percent sellers are small retailers and 10 percent sellers are professional and have their registered company. Selling products on eBay is not an easy task. From listing a product to delivery of product to buyer include many internal process and calculation such as calculate eBay commission, arrange logistic, customer support and maintaining data etc...

To make the above process goes smooth, eBay do have and provide their own selling manager tool like Selling Manager Pro. This tool does not have much features, using this tool seller can Auto list product on eBay site, Auto feedback upon buyer payment and restock alerts. We have moved one step ahead with our project to make the above process easier and more manageable. This project titled "ERP System for eBay Sellers" is an effort to provide sound, efficient and effective tool to eBay sellers. Our ERP system will cover all the main process like Profit and loss calculation, Sales management, Inventory Management and Customer relation management (Mail and SMS). We have concentrated to reduce seller dependency on eBay. Seller can maintain and manage their own data, so that the seller can take future decision and boost their e-commerce business.

1.2 Motivation

The aim of ERP System for eBay.in Sellers is to increase the interaction between employee, manager, customers and traders. Here are some reasons we motivated to develop this project:

1) A Desktop Application is required for eBay.in Sellers.

2) A few desktop- based solutions exist with high price.

3) This attempt is feasible for ERP System User.

4) Ensuring a quality desktop-based solution for eBay.in Sellers.

1.3 Objectives

The following are the Objective of this project :

1) a) (i) A budget friendly web-based solution.
   (ii) Increase system reliability.
   (iii) Increase Manager, employee relationship
   (iv) Upgrading marketing strategy in modern day basis.
   (v) Can upgrade these business processes more faster and smarter.

1.4 Contribution

In here our contribution is we analyze the eBay.in Sellers recording to the online of our system analysis nancial information about eBay.in Sellers (Financial Services), eBay details viewing into online for the customers, employees, sales, inventory Contingency Planning, Technical etc. For discuss about items:

1.4.1 Financial Services

Will be able to budget for asset procurement, depreciate assets over time, and prepare complete tax documents.

1.4.2 Live eBay.in Sellers Display

eBay details viewing into online for the employee, Inventory, sales, before the manager makes decision about production and sales.

1.4.3 Contingency Planning

Personnel will be able to develop recovery plans for mainframe and oce assets contained within the eBay Management System based on the assets relative importance.

1.4.4 Technical

Personnel will be able to resolve problems more quickly with the information contained within the eBay management system, because they will have a listing of the assets, employee and pay salary contained within a designation of employees and any support or maintenance activities associated on the asset.

1.5 Scope

The eBay.in Sellers discipline encompasses all system and data network elements from the mainframe through the server level to the PC or end component throughout the enterprise. All mainframe and data network-based hardware and software assets must be identied and entered into the eBay.in Sellers. Any changes to these environments must be reected in the eBay.in Sellers Management System. Financial and technical product information must be available through the eBay.in Sellers, as needed to support the functional responsibilities of personnel within the nance and contracts of management departments.

1.6 Organization of Project Report

1.6.1 Literature Review

This chapter were providing the theoretical background which is related to the project development and make reference to existence of other systems. In this chapter we will be discuss software and programming language. The sources are referring from the book, articles, journals and also sources from internet.

1.6.2 System Analysis and Requirement

This project is a combination of desktop based and web based so we have used technologies and programming language for the development. System analysis and design deal with planning the development of information systems through under-standing and specifying in detail what a system should do and how the components of the system should be implemented and work together. System analysts solve business problems through analyzing the requirements of information systems and designing such systems by applying analysis and design techniques. This course deals with the concepts, skills, methodologies, techniques, tools, and perspectives essential for systems analysts. The practical component of COMP 361 is object oriented and use-case driven, requiring students to go through the steps of system analysis and design to solve a real-life business problem.

1.6.3 Methodology

This chapter will describe methodology and the technique that will be followed by us to develop our application.

1.6.4 Project Design

Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm and area of application.

1.6.5 Development

The primary goal during the Developing Phase is to build the solution components code as well as documentation. Some development work may, however, continue into the Stabilizing Phase in response to testing.

1.6.6 User Manual

This chapter will show the Graphical User Interface (GUI) of the system through screen shots and user guides that how will they operate the application. A complete direction for a user to properly execute the business system solution.

1.7 Conclusion

The project, observation and the analysis has been done to the existing system in order to make sure that the new system will cover all the function that the existing system does not have and to make sure that the new system is much better than the existing one.

Chapter 2

Document Structure

2.1 Introduction

This chapter were providing the theoretical background which is related to the project development and make reference to existence of other systems. In this chapter we will be discuss software and programming language. The sources are referring from the book, articles, journals and also sources from internet.

2.2 Intend Audience

Our eBay.in Sellers information view and sale details Management is designed for business startups and small or middle business of eBay.in Sellers but they want to grow in a very large scale. We have made a single database for the system so that they do not need to pay a large amount of money for their server. It also shows the sales data so that will be easy for an owner to take proper and perfect decision for business.

2.3 Background

The main goal of this project is to develop smarter customer-trader interaction online. The website will consist of several basic elements:

1) Microsoft Access Server

2) Desktop Application for viewing or managing employees and inventory, sales.

3) Financial and record for eBay.in Sellers.

2.4 Scope

The eBay.in Sellers discipline encompasses all system and data network elements from the mainframe through the server level to the PC or end component throughout the enterprise. All mainframe and data network-based hardware and software assets must be identied and entered into the eBay.in Sellers. Any changes to these environments must be reected in the Online eBay.in Sellers. Financial and technical product information must be available through the eBay.in Sellers, as needed to support the functional responsibilities of personnel within the nance and contracts of management departments.

2.5 Project Goal

2.5.1 Avoid Stock-Outs

Making sure that your customers have access to products when they need or want them is a key service issue in inventory of car show-room control. This system should include a well-outlined replenishment system, where critical level at a store result in swift shipment from manager of Agent distribution center or directly from a vendor. Given the time and eort put into promoting cars to attract customer interest, when customer want car on show-room when they come to buy.

2.5.2 Maximize Prot Margins

Well managed inventory control is often a key in meeting prot margin objectives. Gross prot margin is dierence between revenue earned from sales and cost of good sold. Take away xed costs including salesman, car transaction from abroad and Agent get to Operating margin.

Log-in and Access Restriction

A nominated user can log-in to the application for using further functionality. But there be access restriction due to provide information safety. Owner, manager, employee etc. are not eligible to access all contents. Only owner can access all these stus. Other users are only eligible to access all those stus according to their designation.

Marketing and Customer Relation

This section will be covered by the Desktop Application from where consumer nd trader for their dream product. By this, business to consumer interaction becomes more exible and eective for growing the business.

Marketing and Customer Relation

Owner should notied by system after every important activity like a new employee added in inventory or a product sold with his/her desired information.

2.5.3 Stategic Benits

- Flexible to use
- Extra employment not required.
- Reducing exceptional time and cost and boosts tangible and intangible profit.
- Better customer interaction and easy to provide customer support.
- Modern and efficient approach of marketing.

2.5.4 Disadvantge of Online Judge

- System maintenance expenses.

- Need well educated stuffs to use this.
- Risk on business data.

2.6 Contribution

In here our contribution is we studied the theory behind the system. Tried to enrich the user experiences from this type of another systems.

2.7 Conclusion

User has got informative basic information about this project. They understand about our application. How it is and why it is better, we discuss about next chapter.

Chapter 3

SYSTEM ANALYSIS REQUIREMENT

3.1 Introduction

This project is actually a combination of desktop so we have used technologies and programming language for the development. System analysis and design deal with planning the development of information systems through under-standing and specifying in detail what a system should do and how the components of the system should be implemented and work together. System analysts solve business problems through analyzing the requirements of information systems and designing such systems by applying analysis and design techniques. This course deals with the concepts, skills, methodologies, techniques, tools, and perspectives essential for systems analysts. The practical component of COMP 361 is object oriented and use-case driven, requiring students to go through the steps of system analysis and design to solve a real-life business problem.

3.2 System Analysis

The Merriam-Webster dictionary denes system analysis as the process of studying a procedure or business in order to identify its goals and purposes and create systems and procedures that will achieve them in an ecient way. Another view sees system analysis as a problem-solving technique that breaks down a system into its component pieces for the purpose of the studying how well those component parts work and interact to accomplish their purpose. The eld of system analysis relates closely to requirements analysis or to operations research. It is also an explicit formal inquiry carried out to help a decision maker identify a better course of action and make a better decision than she might otherwise have made. System analysis is conducted for the purpose of studying a system or its parts in order to identify its objectives. It is a problem-solving technique that improves the system and ensures that all the components of the system work eciently to accomplish their purpose.

3.3 Existing Systems

At present, most of the eBay seller.in traders executing their business without maintaining websites. Those who maintain websites are not appropriate concern about their website and most of their website is lack of information and not supportive to build a better interaction with customers and also security issue.

3.4 Information Gathering

Information gathering is the most initial part of a system analysis. To build and eective and ecient system, it is required to learn and understand the system, how it executes and also about related stus like human resources etc. There be several methods to gather information.

- Interactive Method, by which analyst fetch information from audiences and end users through interviewing, etc. Actually, this method is direct interaction between analyst and end users.
- Unobtrusive Method, by which analyst observe the system and audiences without directly interacting with them.

We followed both of these method to gather information from targeted audiences.

3.5 Requirement Analysis

In systems engineering and software engineering, requirements analysis encompasses those tasks that go into determining the needs or conditions to meet for a new or altered product or project, taking account of the possibly conicting requirements of the various stakeholders, analyzing, documenting, validating and managing software or system requirements. Requirements analysis is critical to the success or failure of a systems or software project. The requirements should be documented, actionable, measurable, testable, traceable, related to identied business needs or opportunities, and dened to a level of detail sucient for system design. Requirement Analysis, also known as Requirement Engineering, is the process of dening user expectations for a new software being built or modied. In software engineering, it is sometimes referred to loosely by names such as requirements gathering or requirements capturing. Requirements analysis encompasses those tasks that go into determining the needs or conditions to meet for a new or altered product or project, taking account of the possibly conicting requirements of the various stakeholders, analyzing, documenting, validating and managing software or system requirements.

3.5.1 System Requirement

After gathering information and analyzing requirements we specied several requirements. Here those requirements mentioned.

Non Functional Requirement

1) Efficiency : Our application is an action designed to achieve efficiency.
2) Reliability : Our application should be reliable.
3) Usability : Our application should be use-able.
4) Maintainability: Our application must have to be highly maintainable.
5) Consistency: Our application have to be consistent.
6) Flexibility: Our application should be flexible.

7) Re-usability: Application must have to highly reusable.

Functional Requirment

1) A quick response after performing any action.
2) A simplified User Interface design.
3) Access control based on infrastructural responsibilities.
4) Notify owner every major activities via email.
5) User friendliness.

3.6 Feasibility Study

A feasibility study is an analysis of how successfully a project can be completed, accounting for factors that aect it such as economic, technological, legal and scheduling factors. Project managers use feasibility studies to determine potential positive and negative outcomes of a project before investing a considerable amount of time and money into it.

1) Technical Feasibility
2) Operational Feasibility
3) Economical Feasibility

3.6.1 Technical Feasibility

Technical feasibility study is the complete study of the project in terms of input, processes, output, elds, programs and procedures. It is a very eective tool for long term planning and trouble shooting. The technical feasibility study should most essentially support the nancial information of an organization. The technical feasibility's of this project are given below:

1) Existing stuffs are able to cope up with new system.
2) Have enough hardware and software resources to adopt the new system.
3) Budget friendly.

3.6.2 Operational Feasibility

Operational feasibility refers to the measure of solving problems with the help of a new proposed system. It helps in taking advantage of the opportunities and fullls the requirements as identied during the development of the project. It takes care that the management and the users support the project. The operational feasibility's of this project are given below:

1) Will optimize business processes.
2) Improve transparency.
3) No extra employment required.

3.6.3 Economic Feasibility

Economic feasibility analysis is the most commonly used method for determining the eciency of a new project. It is also known as cost analysis. It helps in identifying prot against investment expected from a project. Cost and time are the most essential factors involved in this eld of study. The economic possibilities of this project are given below:

1) Budget friendly.

2) Will reduce unusual expenses.

3) Flexible maintenance.

3.7 Conclusion

The project, observation and the analysis has been done to the existing project in order to make sure that the new project will cover all the function that the existing project does not have and to make sure that the new project is much better than the existing one.

Chapter 4

METHODOLOGY

4.1 Introduction

This chapter will describe methodology and the technique that will be followed by us to develop our application.The methodology is the general research strategy that outlines the way in which research is to be undertaken and, among other things, identies the methods to be used in it. These methods, described in the methodology, dene the means or modes of data collection or, sometimes, how a specic result is to be calculated. Methodology does not dene specic methods, even though much attention is given to the nature and kinds of processes to be followed in a particular procedure or to attain an objective. When proper to a study of methodology, such processes constitute a constructive generic framework, and may therefore be broken down into sub-processes, combined, or their sequence changed. A paradigm is similar to a methodology in that it is also a constructive framework.

In theoretical work, the development of paradigms satises most or all of the criteria for methodology. An algorithm, like a paradigm, is also a type of constructive framework, meaning that the construction is a logical, rather than a physical, array of connected elements. Any description of a means of calculation of a specic result is always a description of a method and never a description of a methodology. It is thus important to avoid using methodology as a synonym for method or body of methods. Doing this shifts it away from its true epidemiological meaning and reduces it to being the procedure itself, or the set of tools, or the instruments that should have been its outcome. A methodology is the design process for carrying out research or the development of a procedure and is not in itself an instrument, or method, or procedure for doing things.

4.2 Methodology

Methodology is the systematic, theoretical analysis of the methods applied to a eld of study. It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge. Typically, it encompasses concepts such as paradigm, theoretical model, phases and quantitative or qualitative techniques.

4.3 Developing the Report Generation and Analytical Functionalities

The systems development life cycle (SDLC), also referred to as the application development life-cycle, is a term used in systems engineering, information systems and software engineering to describe a process for planning, creating, testing, and deploying an information system. The systems development lifecycle concept applies to a range of hardware and software congurations, as a system can be composed of hardware only, software only, or a combination of both.

4.4 Use of Agile

The agile approach is a software development approach based on values, principles, and core practices. The four values are communication, simplicity, feedback, and courage. We recommend that systems analysts adopt these values in all projects they undertake, not just when adopting the agile approach. In order to a project, adjustments often need to be made in project management. In Chapter 6 we will see that agile methods can ensure successful completion of a project by adjusting the important resources of time, cost, quality, and scope. When these four control variables are properly included in the planning, there is a state of balance between the resources and the activities needed to complete the project. Taking development practices to the extreme is most noticeable when one pursues practices that are unique to agile development. In Chapter 6 we discuss four core agile practices: short releases, the 40-hour workweek, hosting an onsite customer, and using pair programming. At a glance these practices appear extreme, but as you will see, we can learn some important lessons from incorporating many of the values and practices of the agile approach into systems analysis and design projects.

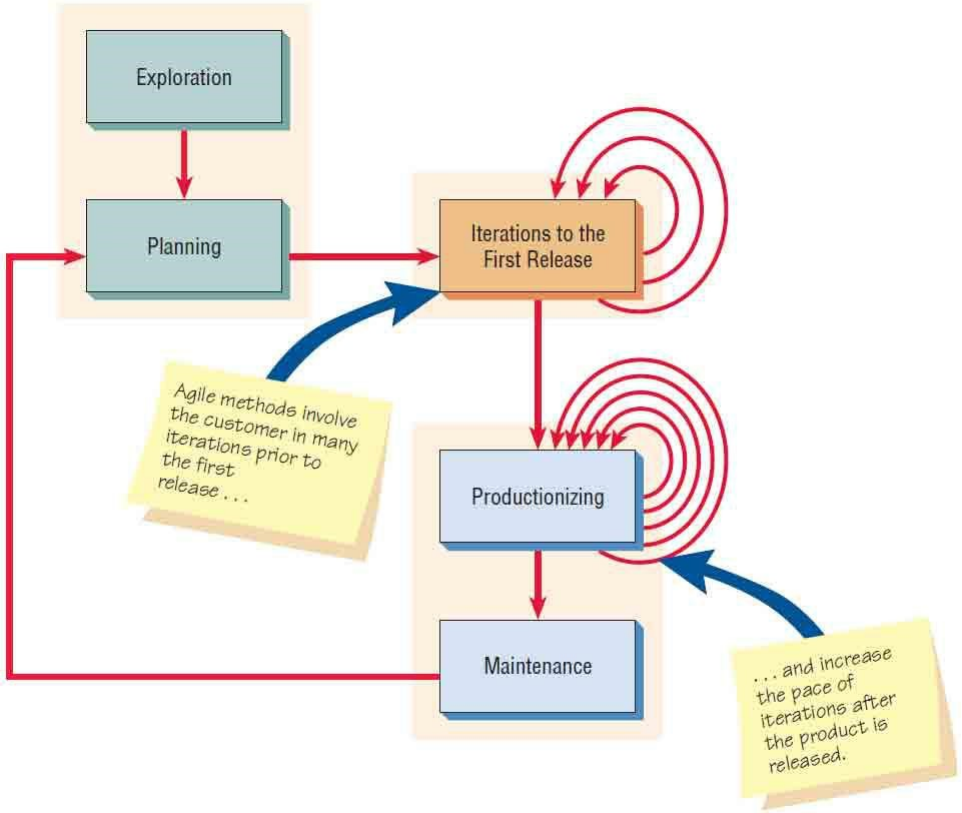

Figure 4.1: The Agile Development Methodology

4.4.1 Exploration

During exploration, you will explore your environment, asserting your conviction that the problem can and should be approached with agile development, assemble the team, and assess team member skills. This stage will take anywhere from a few weeks (if you already know your team members and technology) to a few months (if everything is new). You also will be actively examining potential technologies needed to build the new system. During this stage you should practice estimating the time needed for a variety of tasks. In exploration, customers also are experimenting with writing user stories. The point is to get the customer to renew a story enough so that you can competently estimate the amount of time it will take to build the solution into the system you are planning. This stage is all about adopting a playful and curious attitude toward the work environment, its problems, technologies, and people.

4.4.2 Planning

The next stage of the agile development process is called planning. In contrast to the rst stage, planning may only take a few days to accomplish. In this stage you and your customers agree on a date anywhere from two months to half a year from the current date to deliver solutions to their most pressing business problems (you will be addressing the smallest, most valuable set of stories). If your exploration activities were scient, this stage should be very short. The entire agile planning process has been characterized using the idea of a planning game as devised by Beck. The planning game spells out rules that can help formulate the agile development team's relationship with their business customers. Although the rules form an idea of how you want each party to act during development, they are not meant as a replacement for a relationship. They are a basis for building and

maintaining a relationship. So, we use the metaphor of a game. To that end we talk in terms of the goal of the game, the strategy to pursue, the pieces to move, and the players involved. The goal of the game is to maximize the value of the system produced by the agile team. In order to gore the value, you have to deduct costs of development, and the time, expense, and uncertainty taken on so that the development project could go forward. The strategy pursued by the agile development team is always one of limiting uncertainty (downplaying risk). To do that they design the simplest solution possible, put the system into production as soon as possible, get feedback from the business customer about what's working, and adapt their design from there. Story cards become the pieces in the planning game that brie describe the task, provide notes, and provide an area for task tracking.
There are two main players in the planning game: the development team and the business customer. Deciding which business group in particular will be the business customer is not always easy, because the agile process is an unusually demanding role for the customer to play. Customers decide what the development team should tackle rest. Their decisions will set priorities and check functionalities throughout the process.

4.4.3 Iteration to the rst release

The third stage in the agile development process is composed of iterations to the rest release. Typically, these are iterations (cycles of testing, feedback, and change) of about three weeks in duration. You will be pushing yourself to sketch out the entire architecture of the system, even though it is just in outline or skeletal form. One goal is to run customer-written functional tests at the end of each iteration. During the iterations stage you should also question whether the schedule needs to be altered or whether you are tackling too many stories. Make small rituals out of each successful iteration, involving customers as well as developers. Always celebrate your progress, even if it is small, because this is part of the culture of motivating everyone to work extremely hard on the project.

4.4.4 Productionizing

Several activities occur during this phase. In this phase the feedback cycle speeds up so that rather than receiving feedback for an iteration every three weeks, software revisions are being turned around in one week. You may institute daily brings so everyone knows what everyone else is doing. The product is released in this phase, but may be improved by adding other features. Getting a system into production is an exciting event. Make time to celebrate with your teammates and mark the occasion. One of the watchwords of the agile approach, with which we heartily agree, is that it is supposed to be fun to develop systems.

4.4.5 Maintenance

Once the system has been released, it needs to be kept running smoothly. New features may be added, riskier customer suggestions may be considered, and team members may be rotated on or o the team. The attitude you take at this point in the developmental process is more conservative than at any other time. You are now in a keeper of the game mode rather than the playful one you experienced during exploration.

4.4.6 Track Monitor

Operation and maintenance have been neglected in the past, or been discussed and introduced only after a project was completed. This neglect or delay in applying proper operation and maintenance has adversely acted the credibility of the investments made, the functioning of the services, the well-being of rural populations, and the development of further projects. However, the importance of OM has gained considerable visibility over the past few years, and it appears that policy-makers and project designers are now more conscious of the direct links between improved OM practices and the sustainability of water supply and sanitation services. There is also greater recognition of the need to approach these projects in a comprehensive way, emphasizing not only the design and construction but also post-construction activities.

4.5 Conclusion

The methodology used is the Agile approach because it is the most suitable method for this project. This method has more advantages when compared with other methods. The next chapter covers the design part of this project.

Chapter 5

PROJECT DESIGN

5.1 Introduction

Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm and area of application. Design is the rst step in the development phase for any engineered product or system. The designer's goal is to produce a model or representation of an entity that will later be built. Beginning, once system requirement has been specied and analyzed, system design is the rst of the three technical activities -design, code and test that is required to build and verify software.

5.2 Database Design

In this section of this report, we describe the database design method for the development of ERP System for eBay.in Sellers.

5.2.1 Relational DBMS (RDBMS)

The RDBMS (Relational Database Management System) is a system complying to the relational model developed by IBM's E F Cod. It allows the user to construct, modify and administer a relational database. Most of the databases that exist today are an extension of this age-old model. The data is structured in database tables, elds and records. The stored data is allowed to be manipulated using relational operators in Relational Database Management System. SQL is used as the data query language in this system.

Features of RDBMS

The system caters to a wide variety of applications and quite a few of its stand out features enable its worldwide use. The features include:

1) First, its number one feature is the ability to store data in tables. The fact that the very storage of data is in a structured form can signicantly reduce iteration time.

2) Data persists in the form of rows and columns and allows a facility primary key to dene unique identication of rows.

3) It creates indexes for quicker data retrieval.

4) Allows for various types of data integrity like (i) Entity Integrity; wherein no duplicate rows in a table exist, (ii)Domain Integrity; that enforces valid entries for a given column by ltering the type, the format, or the wide use of values, (iii)Referential Integrity; which disables the deletion of rows that are in use by other records and (iv)User Dened Integrity providing some specic business rules that do not fall into the above three.

5) Also allows for the virtual table creation which provides a safe means to store and secure sensitive content.

6) Common column implementation and also multi user accessibility is included in the RDBMS features.

We used RDBMS because it has following advantage:

- Data is stored only once and hence multiple record changes are not required. Also deletion and modication of data becomes simpler and storage eciency is very high.
- Complex queries can be carried out using the Structure Query Language. Terms like 'Insert', 'Update', 'Delete', 'Create' and 'Drop' are keywords in SQL that help in accessing a particular data of choice.
- Better security is oered by the creation of tables. Certain tables can be protected by this system. Users can set access barriers to limit access to the available content. It is very useful in companies where a manager can decide which data is provided to the employees and customers. Thus a customized level of data protection can be enabled.
- Provision for future requirements as new data can easily be added and appended to the existing tables and can be made consistent with the previously available content. This is a feature that no at le database has.

5.2.2 Entity Relationship Diagram (ER-Diagram)

An Entity Relationship Diagram (ERD) is a visual representation of dierent data using conventions that describe how these data are related to each other. It shows the logical structure or ow of data in a database. Entity-Relationship Diagrams are very important in planning a database structure. They hold the basic concepts of the data exchange between dierent entities in a database. They are also very important in making logical and ecient databases. ER Diagrams consists of entities and their relationship with each other.

1) Entity
2) Weak entity
3) Attribute
4) Multi valued attribute
5) Derived attribute
6) Relationship

Entity

An entity is something that exists as itself, as a subject or as an object, actually or potentially, concretely or abstractly, physically or not. It need not be of material existence. In particular, abstractions and legal ctions are usually regarded as entities. In general, there is also no presumption that an entity is animate, or present. The word is abstract in intention. It may refer, for example, to Bucephalus, the horse of Alexander; to a stone; to a cardinal number; to a language; or to ghosts or other spirits. The word entitative is the adjective form of the noun entity. Something that is entitative is considered in its own right.

Weak entity

A weak entity is an entity that depends on the existence of another entity. In more technical terms it can dened as an entity that cannot be identied by its own attributes. It uses a foreign key combined with its attributed to form the primary key. An entity like order item is a good example for this. The order item will be meaningless without an order so it depends on the existence of order. It is represented by double rectangle.

Attribute

An attribute is a property, trait, or characteristic of an entity, relationship, or another attribute. An entity can have as many attributes as necessary. Meanwhile, attributes can also have their own specic attributes. Attributes are usually represented in oval shape.

Multi valued attribute

If an attribute can have more than one value it is called an multi valued attribute. It is important to note that this is dierent to an attribute having its own attributes. For example a teacher entity can have multiple subject values. It is represented by adouble ellipse.

5.2.3 Mapping Cardinality

Cardinality refers to the number of entity objects on each side of the relationship. In e-r diagram there are four types of mapping cardinalities. For example: a customer can order products one after another.

1) One-to-One

2) One-to-Many or Many-to-One (dependent on the direction)

3) Many-to-One

4) Many-to-Many

1.One-to-One

A one-to-one relationship is the simplest relationship between two beans. One entity bean relates only to one other entity bean. For example: a customer can be kept only in one word/cell at a time.

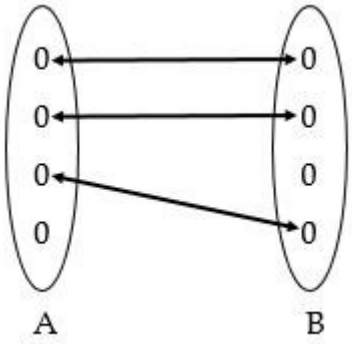

Figure 5.1: One to One

2.One-to-Many

In a one-to-many relationship, one object can reference several instances of another.A one-to-many relationship is a type of cardinality that refers to the relationship between two entities (see also entity–relationship model) A and B in which an element of A may be linked to many elements of B, but a member of B is linked to only one element of A. For instance, think of A as mothers, and B as children. A mother can have several children, but a child can have only one biological mother.

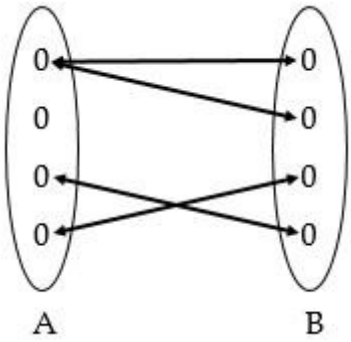

Figure 5.2: One-to-Many

3.Many-to-One

In a many-to-one relationship, many objects can reference one instance of another.A many-to-one relationship is where one entity (typically a column or set of columns) contains values that refer to another entity (a column or set of columns) that has unique values.

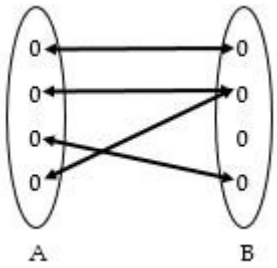

Figure 5.3: Many-to-One

4.Many-to-Many

A many-to-many relationship is complex. In a many-tomany relationship, many objects can reference many objects. This cardinality is the most dicult to manage.

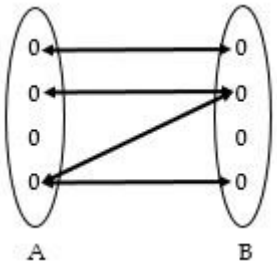

Figure 5.4: Many-to-Many

And this is the ER Diagram of the database we used in our project.

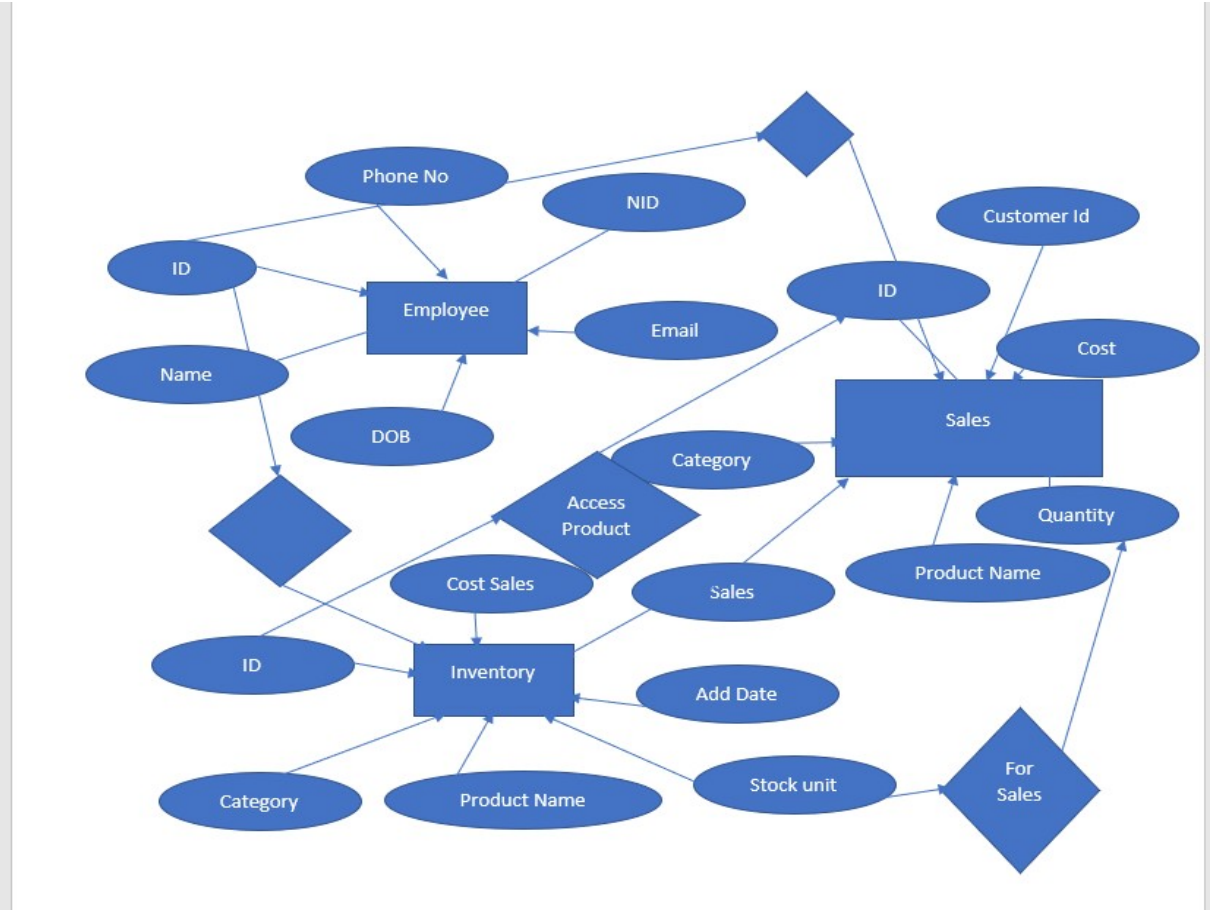

Figure 5.5: ERD of Project Database

5.3 Use Case Diagram

To model a system, the most important aspect is to capture the dynamic behavior. Dynamic behavior means the behavior of the system when it is running/operating. Only static behavior is not sucient to model a system rather dynamic behavior is more important than static behavior. In UML, there are ve diagrams available to model the dynamic nature and use case diagram is one of them. Now as we have to discuss that the use case diagram is dynamic in nature, there should be some internal or external factors for making the interaction. These internal and external agents are known as actors. Use case diagrams consists of actors, use cases and their relationships. The diagram is used to model the system/subsystem of an application. A single use case diagram captures a particular functionality of a system. Hence to model the entire system, a number of use case diagrams are used.

- **LogIn Page** This is rst page of our application. Everybody can see this page without authentication.
- **Admin Dashboard** when a admin login with predefined user name password, Admin Can Access all of the functionality in this projects.Admin has all functionality authorization.
- **Inventory Dashboard** this page only accessible by admin, Production managers.

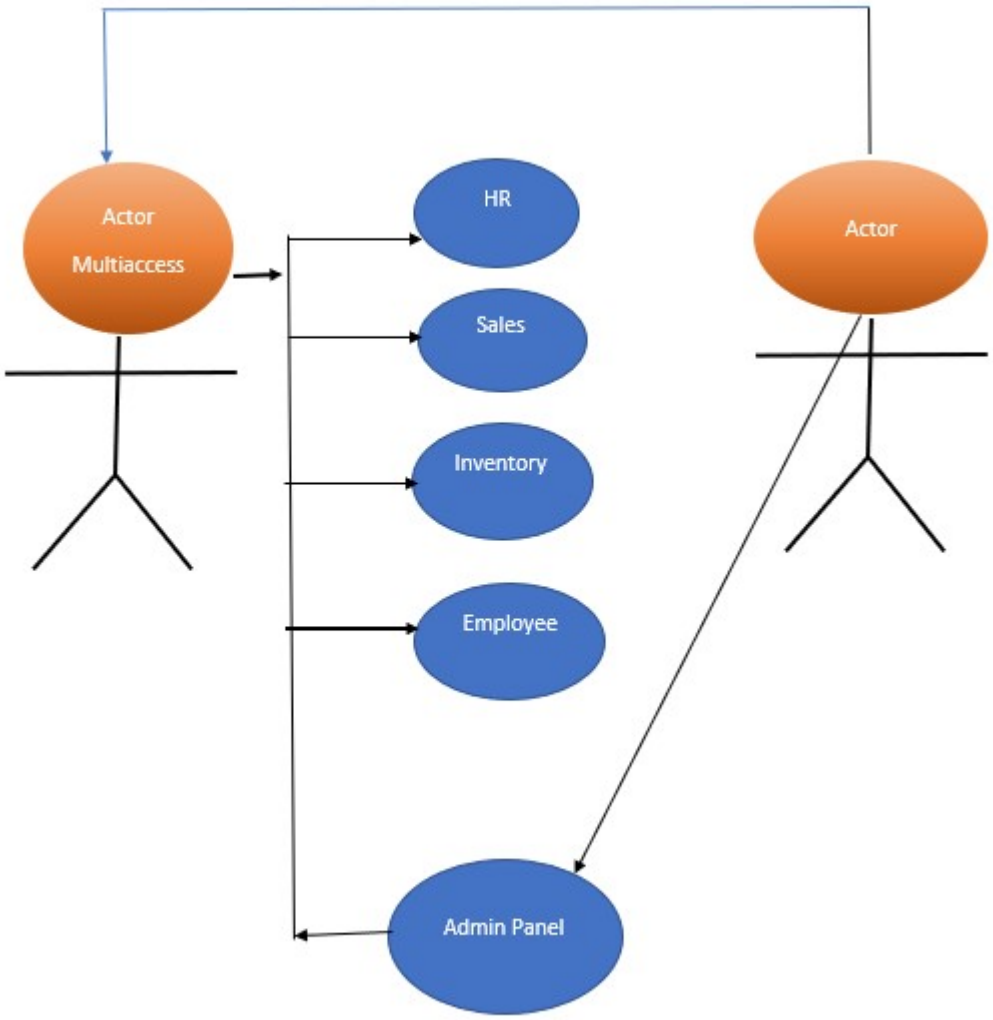

Figure 5.6: Use Case Diagram

- **Sales Dashboard** this page only accessible by admin, sales managers.

5.3.1 Purpose of Use Case Diagram

The purpose of use case diagram is to capture the dynamic aspect of a system. However, this denition is too generic to describe the purpose, as other four diagrams (activity, sequence, collaboration, and State chart) also have the same purpose. We will look into some specic purpose, which will distinguish it from other four diagrams. Use case diagrams are used to gather the requirements of a system including internal and external inuences. These requirements are mostly design requirements. Hence, when a system is analyzed to gather its functionalities, use cases are prepared and actors are identied. When the initial task is complete, use case diagrams are modelled to present the outside view. In brief, the purposes of use case diagrams can be said to be as follows

1) Used to gather the requirements of a system.

2) Used to get an outside view of a system.

3) Identify the external and internal factors influencing the system.

4) Show the interaction among the requirements are actors.

5.4 Comparison of Primary Keys to Foreign Keys

Databases are the storehouses of data used in the software systems. The data is stored in tables inside the database. Several tables are created for the manipulation of the data for the system. Two essential settings for a database are

1) Primary Key - the field that is unique for all the record occurrences.

2) Foreign Key - the field used to set relation between tables.

Foreign Key - the eld used to set relation between tables. In this section, the basic structure of the tables composing the database for the project are shown along with information .about primary and foreign keys.

5.5 Conclusion

Project design is an early phase of the project where a project's key features, structure, criteria for success, and major deliverables are all planned out. The point is to develop one or more designs which can be used to achieve the desired project goals, in this chapter we try to design Easy Rent system properly.

Chapter 6

DEVELOPMENT

6.1 Introduction

The primary goal during the Developing Phase is to build the solution components code as well as documentation. Some development work may, however, continue into the Stabilizing Phase in response to testing. The Developing Phase involves more than code development and software developers. The infrastructure is also developed during this phase and all roles are active in building and testing deliverables. The team continues to identify all risks throughout the phase and address new risks as they emerge.

6.2 Starting the development cycle

Guidance for this phase introduces and discusses each code component, discusses how to apply the code, and looks at adapting and extending the components to meet the needs of the project requirements.

6.3 Building a proof of concept

Before development, the team does a nal verication of the concepts from the designs within an environment that mirrors production as closely as possible. Typically, the proof of concept is a continuation of some initial development work (the preliminary proof of concept) that occurred during the Planning Phase. The proof of concept tests key elements of the solution on a non-production simulation of the proposed operational environment. The team walks operations sta and users through the solution to validate their requirements. There may be some solution code or documentation that carries through to the eventual solution development deliverables however, the proof of concept is not meant to be production-ready. The proof of concept is considered throw away development that gives the team a nal chance to verify functional specication content and to address any more issues prior to transitioning into development.

6.4 Developing the solution components

The team develops the solution using the core components and extending them to the specic needs of the solution. The team also develops and conducts unit functional tests to ensure that individual features perform according to specication. MSF recommends that project teams follow a best practice of performing daily builds with their solution.

Building a solution in a form that is executable on a daily basis provides a number of valuable benets simply by putting dierent pieces of the code together. A daily build exposes unanticipated design defects and makes diagnosing defects easier. The daily build should be subjected to as much of the full suite of tests as can be run during the available time. This build validation test pass helps expose integration defects as early as possible. It also allows the team to validate their testing approach and testing infrastructure.

6.5 Developing the testing tools and tests

The team develops a testing infrastructure and populates it with test cases that help ensure the entire solution performs according to specication. This solution test suite typically incorporates, as a subset, the individual feature tests used by developers in building the solution components. MSF advocates preparing frequent builds of all the components of the solution for testing and review. This approach is recommended for developing code as well as for builds of hardware and software components. The process of creating interim builds allows a team to nd issues early in the development process, which shortens the development cycle and lowers the cost of the project. Daily builds are the practice of assembling all the components working toward the nal goal of a solution. This enables the team to determine earlier rather than later that all components will work together. This method also allows the team to add functionality onto a stable build. The idea is to have a shippable product ready at any point in time. In this way, the stability of the total solution is well understood and has ample test data prior to being released into production.

6.6 Building the solution

A series of daily, or frequent, builds culminate with major internal builds and signify points where the development team is delivering on key features of the solution. These builds are subjected to some or all of the project test suite as a way of tracking overall progress of the solution and of the solution test suite itself.

6.7 Closing the Developing Phase

The team completes all features, delivers the code and documentation, and considers the solution complete, thus entering the approval process for the Scope Complete Milestone.

6.8 Conclusion

The Developing Phase culminates in the Scope Complete Milestone. At this milestone, all features are complete and the solution is ready for external testing and stabilization. This milestone is the opportunity for customers and users, operations and support personnel, and key project stakeholders to evaluate the solution and identify any remaining issues they need to address before beginning the transition to stabilization and ultimately to release.

Chapter 7

USER MANUAL

7.1 Introduction

This chapter will show the Graphical User Interface (GUI) of the system through screenshots and user guides that how will they operate the application. A complete direction for a user to properly run Online Judge.

7.2 Hardware requirements

To be used eciently, all computer software needs certain hardware components or other software resources to be present on a computer. These prerequisites are known as (computer) system requirements and are often used as a guideline as opposed to an absolute rule. Most software denes two sets of system requirements: minimum and recommended. With increasing demand for higher processing power and resources in newer versions of software, system requirements tend to increase over time. Industry analysts suggest that this trend plays a bigger part in driving upgrades to existing computer systems than technological advancements. A second meaning of the term of System requirements is a generalization of this rst denition, giving the requirements to be met in the design of a system or sub-system. Typically an organization starts with a set of Business requirements and then derives the System requirements from there. So the most important hardware requirements are

Component	Minimum	Recommended
Processor	1.5 gigahertz Single Core (GHz)	Dual Core processors
RAM	256 MB	512 MB
Disk	NTFS file system–formatted partition with a minimum of 20 MB of free space	NTFS file system–formatted partition with 100 MB of free space
Display	800 × 600	1024 × 768 or higher resolution monitor
Network	256kbps kilobits per second (Kbps) connection between client computers and server	512Kbps or faster connection between client computers and server
Operating System	Windows 7,Windows 8	Windows 7
Platform	X86	
Pre-Requested	.Net Framework 4.0	

Figure 7.1: Hardware requirements

7.2.1 Computer

A computer is a device that can be instructed to carry out arbitrary sequences of arithmetic or logical operations automatically. The ability of computers to follow generalized sets of operations, called programs, enables them to perform an extremely wide Range of tasks.

7.3 Software requirements

In the software development process, requirement phase is the rst software engineering activity. This phase is a user-dominated phase and translates the ideas or views into a requirements document. Note that dening and documenting the user requirements in a concise and unambiguous manner is the rst major step to achieve a high-quality product.

- Visual Studio 2017
- Microsoft Access SQL Server Management Studio

- Adobe Illustrator .

7.4 Users / Actors Of System

Admin /HR / Managers

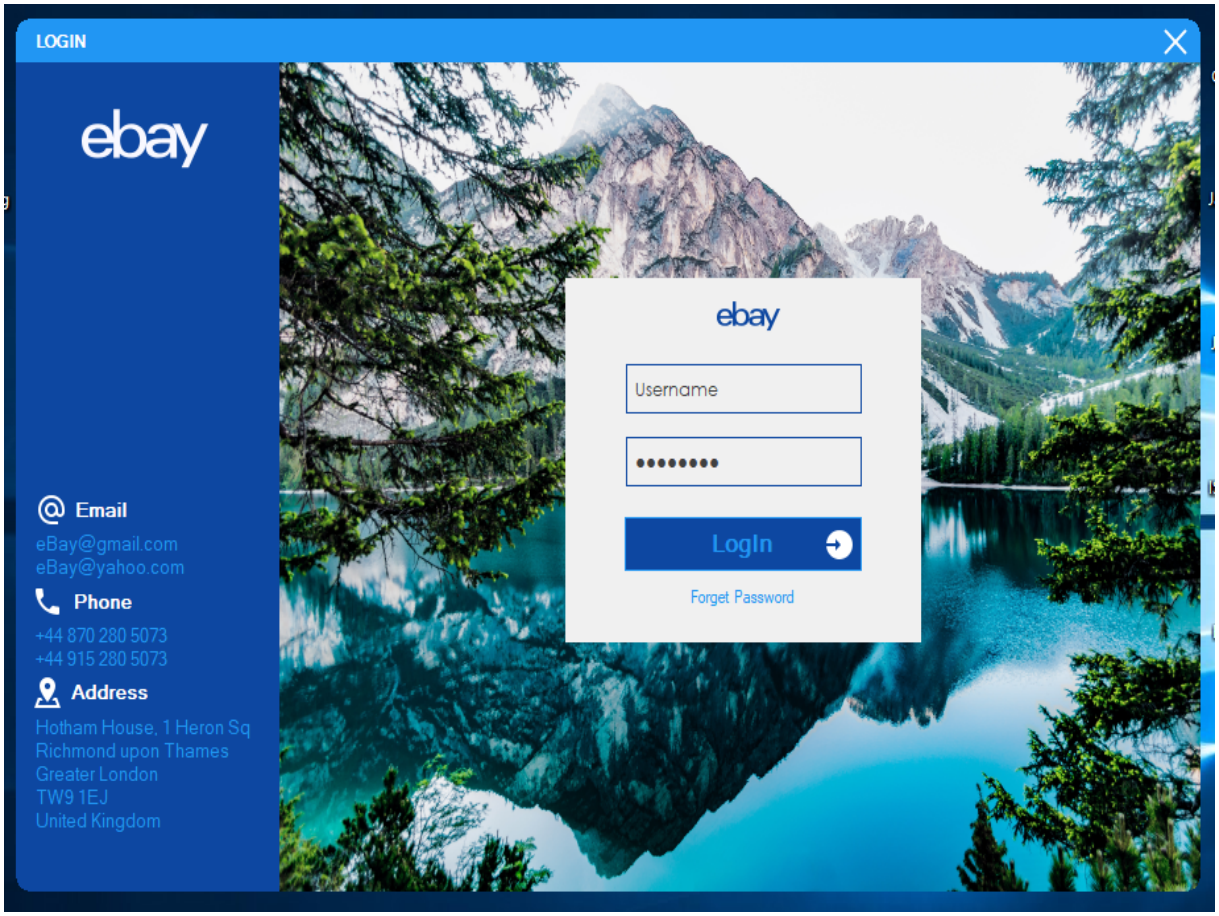

Figure 7.2: Users

7.5 Forget Password

By fill-up this form user can easily change their password.

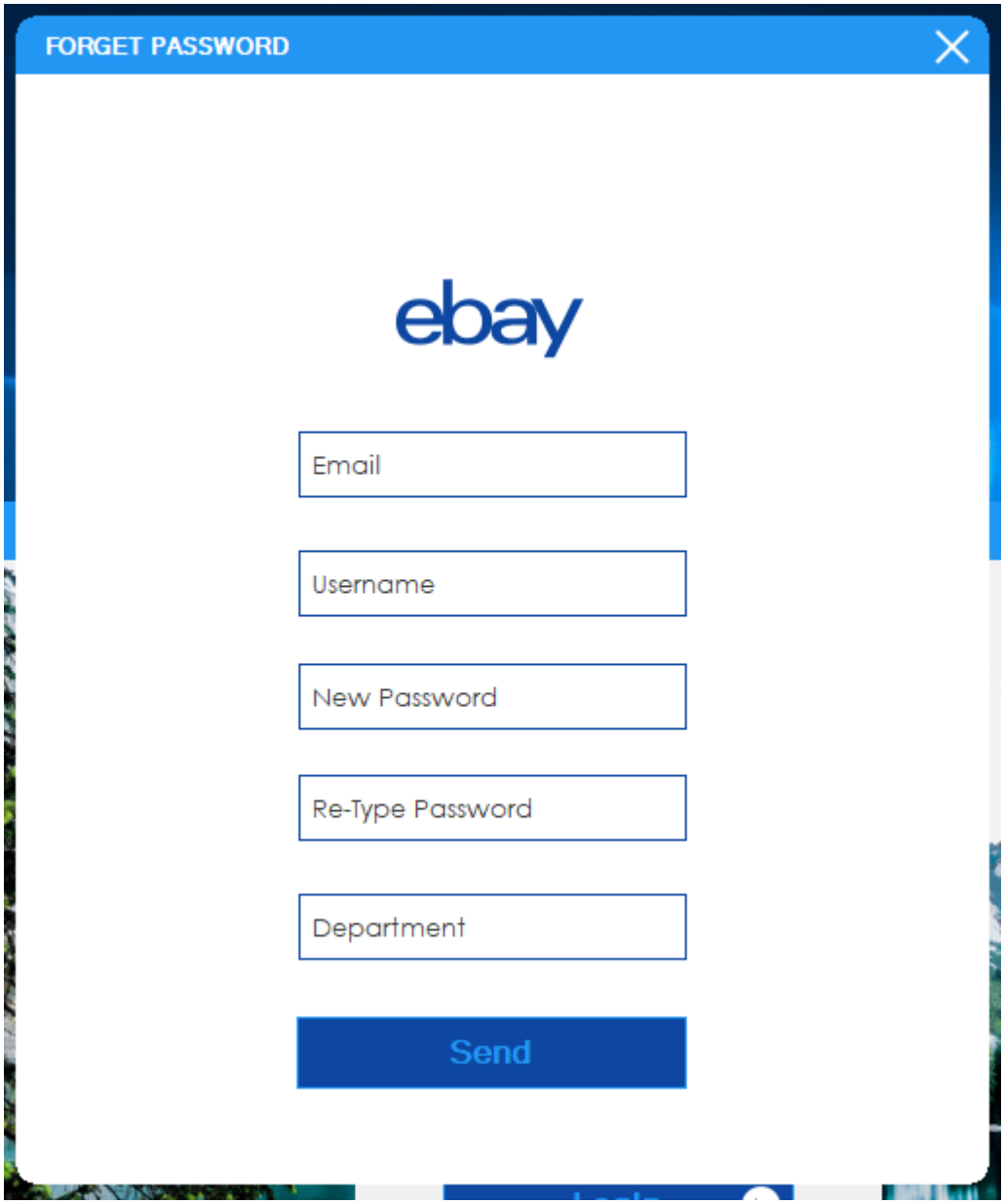

Figure 7.3: Forget Password

7.6 Admin Dashboard

Admin can directly access Hr,Inventory and sales department.

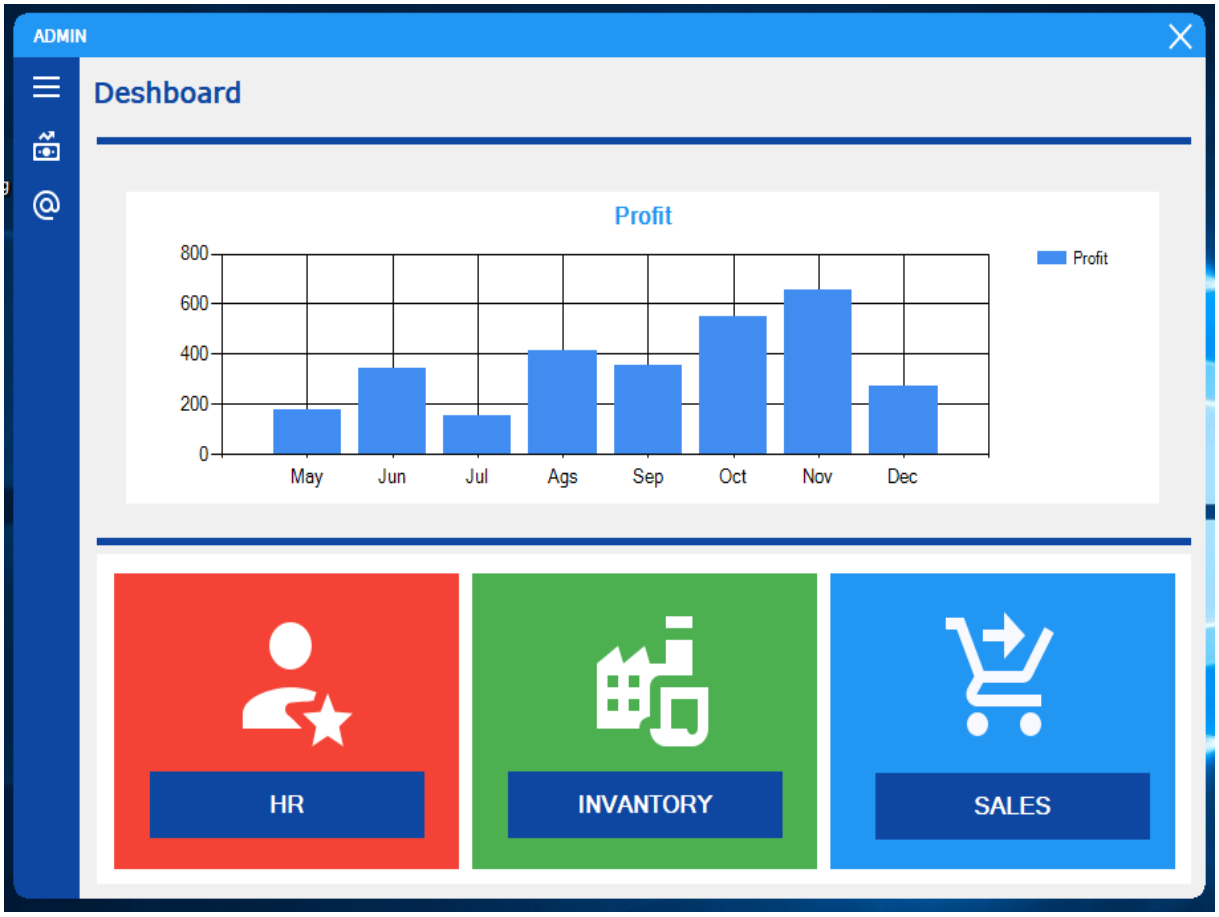

Figure 7.4: Admin Dashboard

7.7 HR Dashboard

Hr play the rule of Adding employees , views employees list and also updated list.

Dashbord.jpg

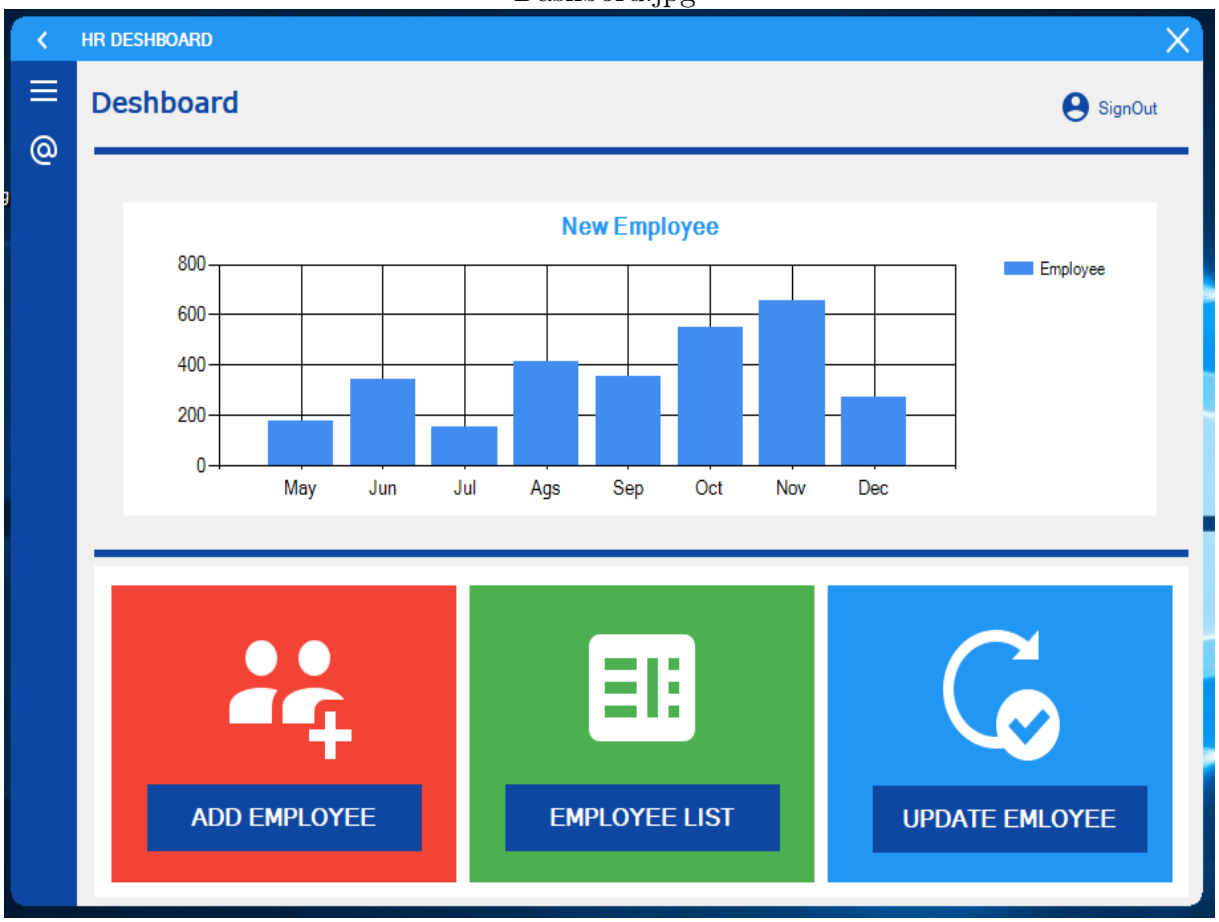

Figure 7.5: HR Dashboard

7.8 Add Employees

Hr and Admin Can add employees.before employee's user name H indicates employee belongs to HR department, user name S indicates employee belongs to Sales department.user name I indicates employee belongs to Inventory department.

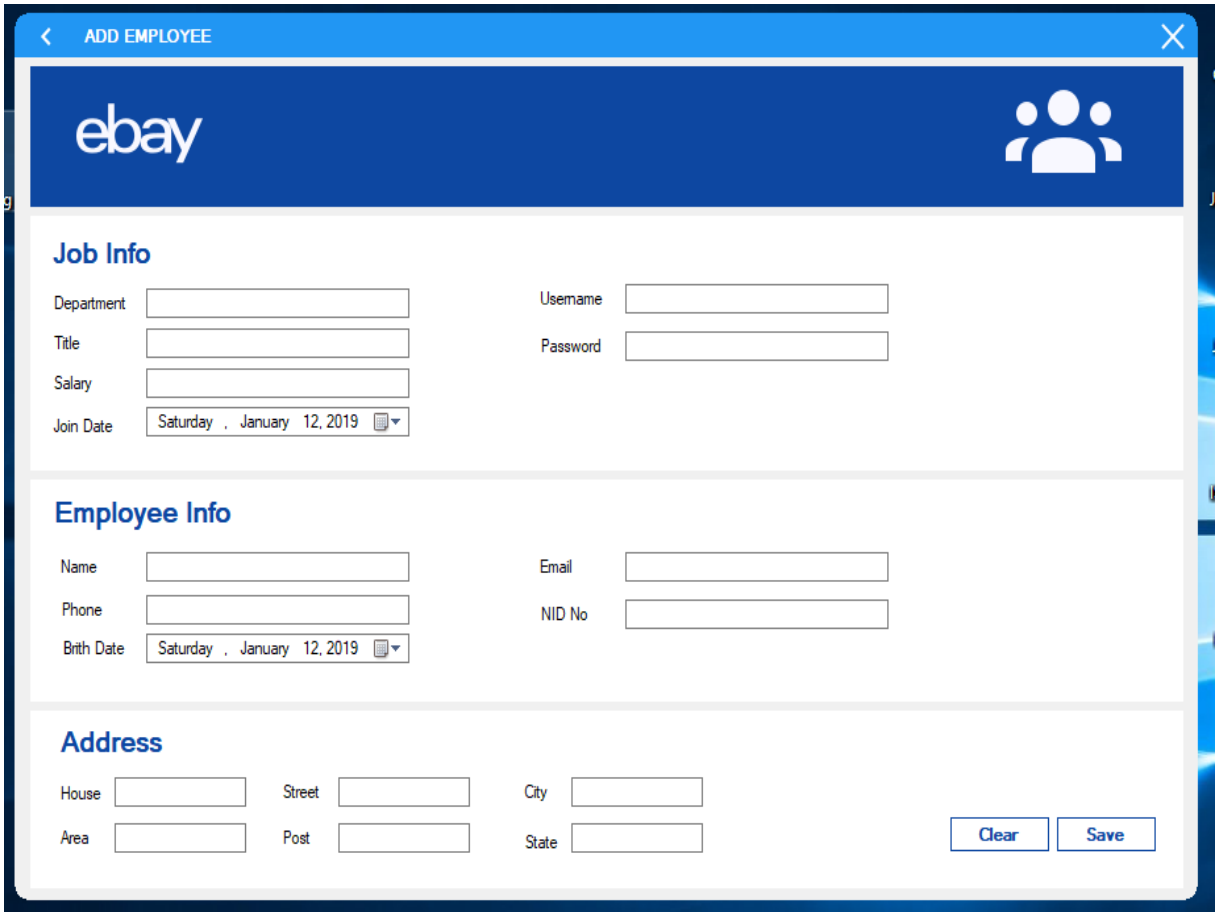

Figure 7.6: Add Employees

7.9 Employees List

views employee's list.

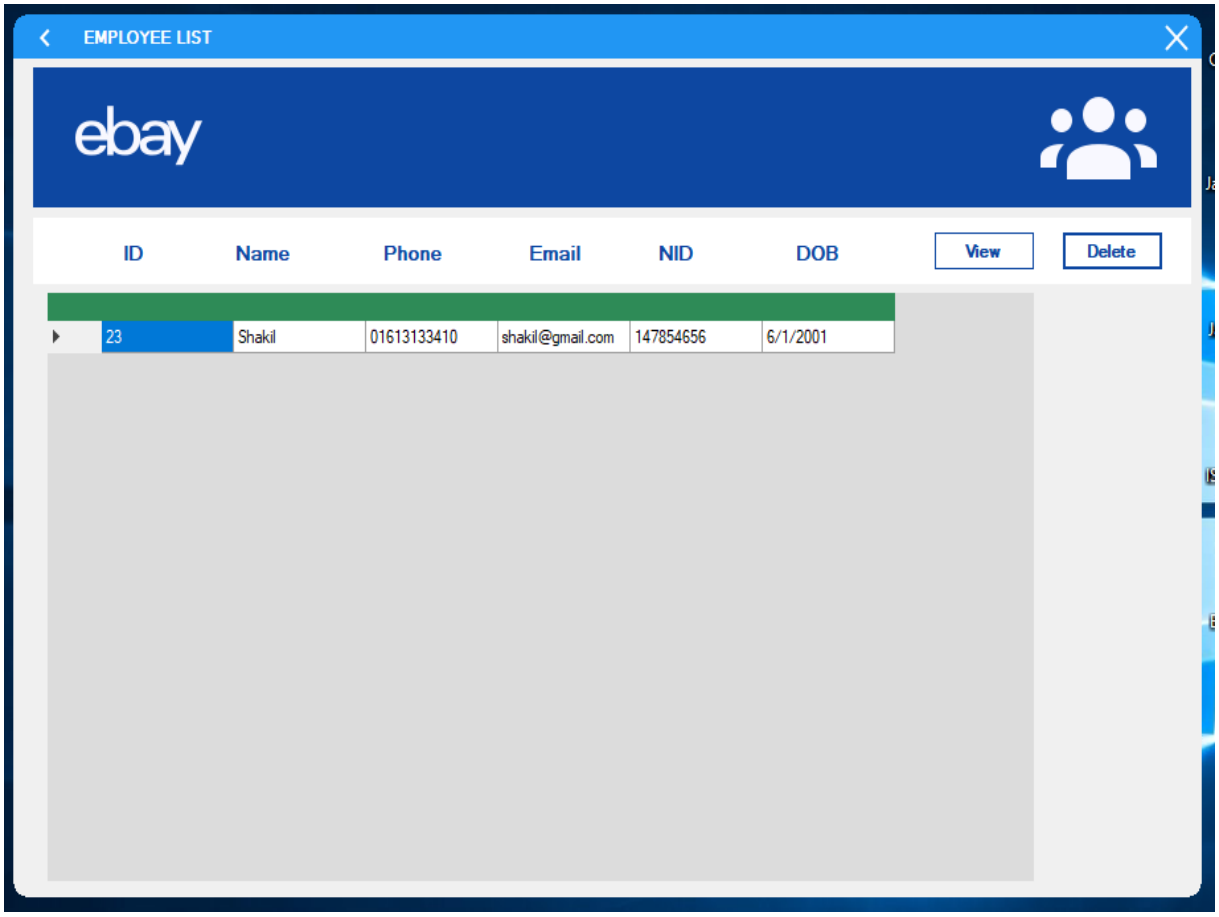

Figure 7.7: Employees List

7.10 Employees Update

Fill-up this form existing employees can be updated.

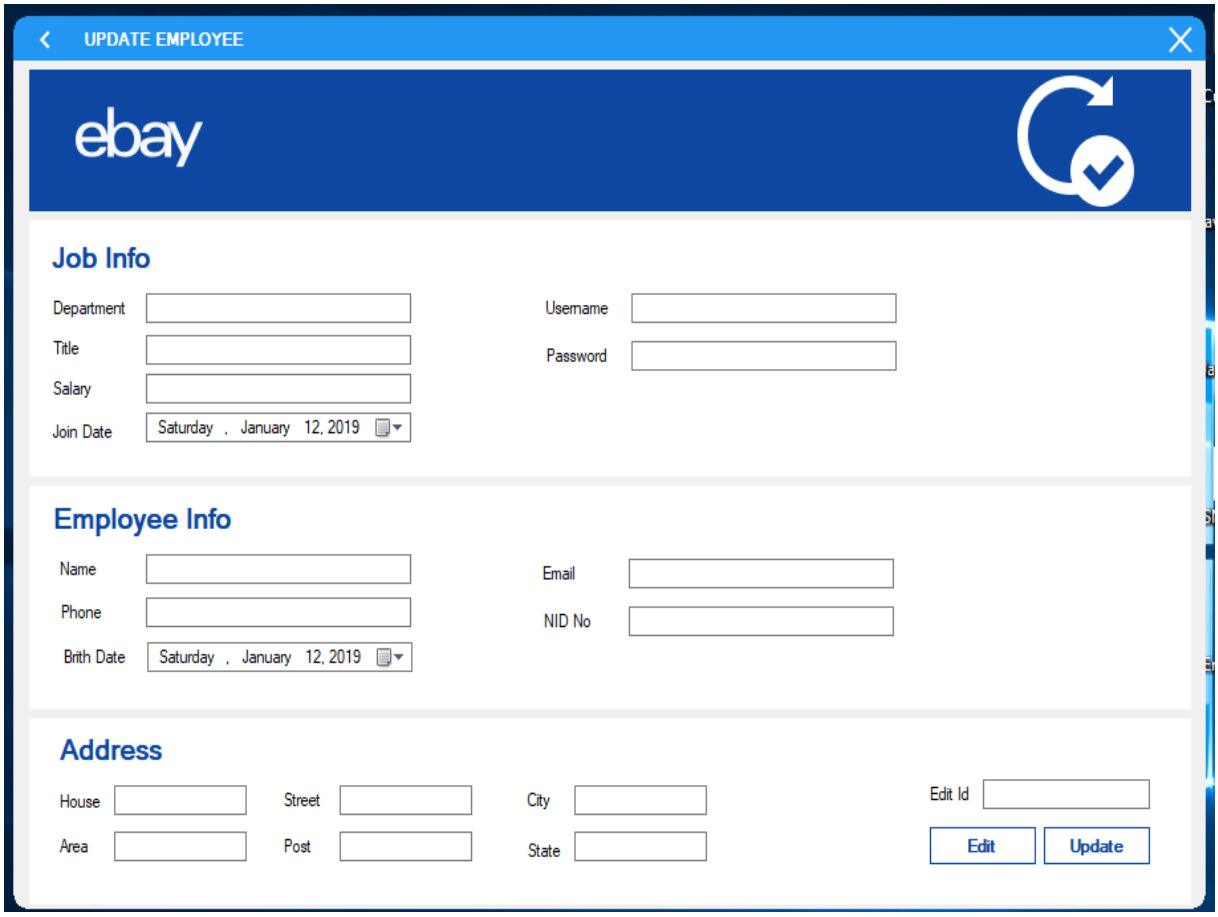

Figure 7.8: Employees Update

7.11 Employees Information

Admin, Hr also Employees can view Employees information.

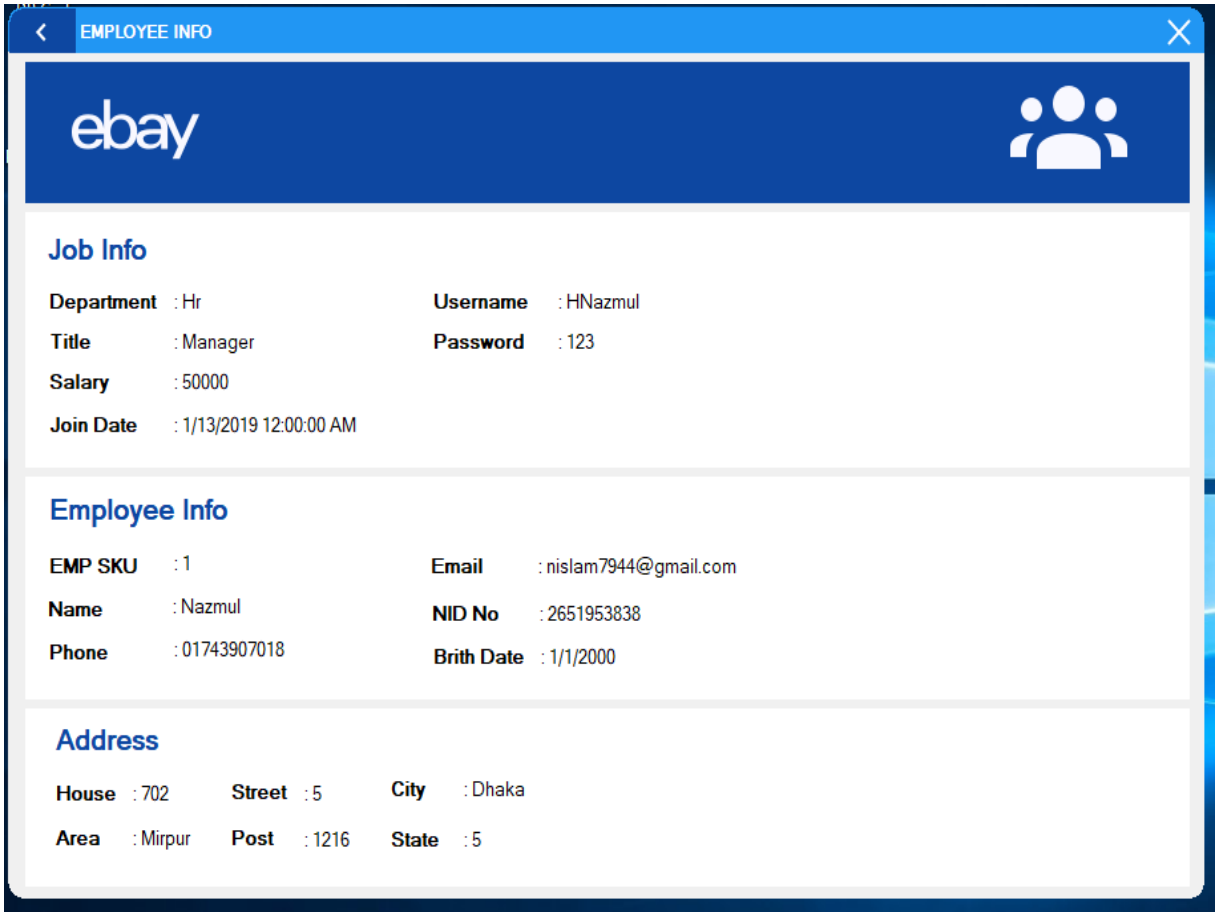

Figure 7.9: Employees Information

7.12 Inventory Dashboard

manufacturer manager can add product, product list , update product.

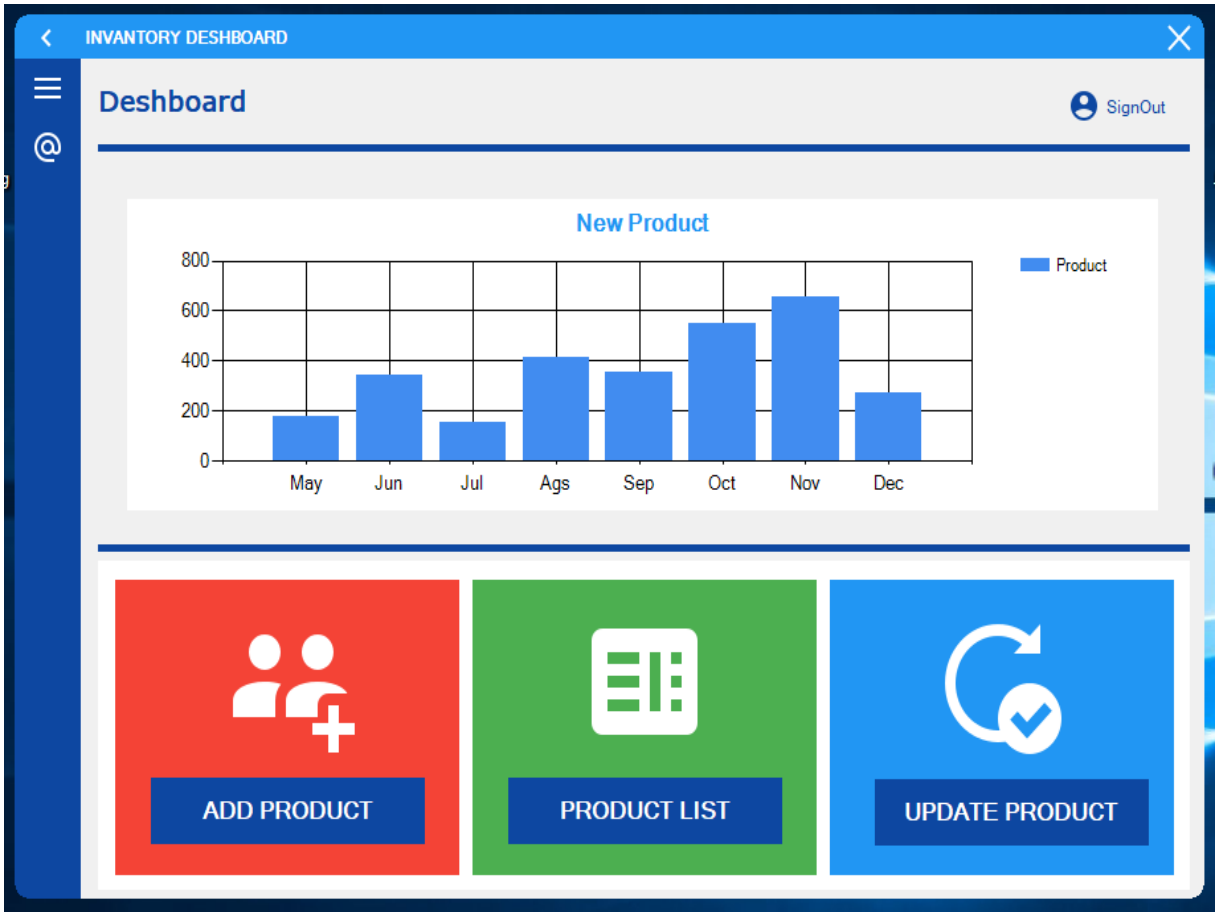

Figure 7.10: Inventory Dashboard

7.13 Add Product

manufacturer manager can add product and also admin has access right.

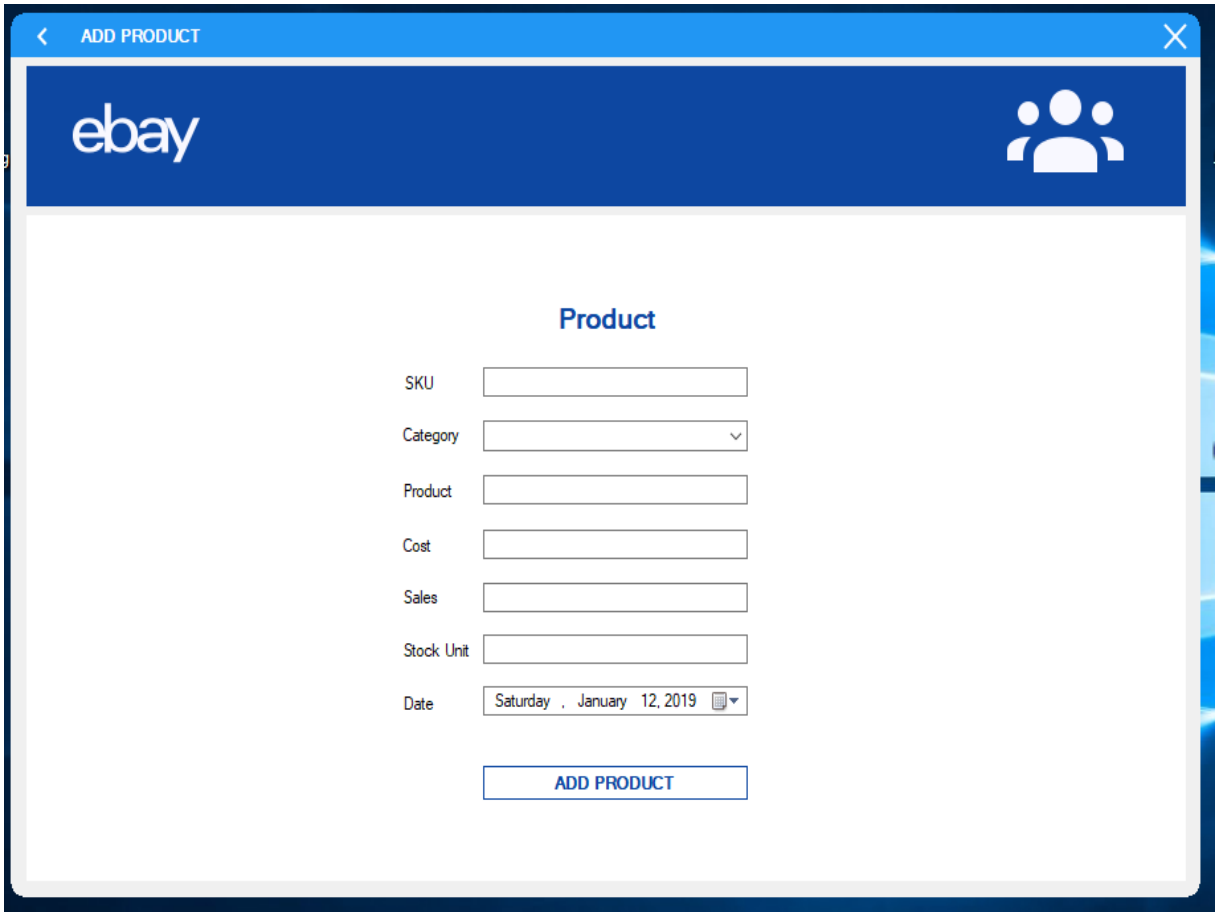

Figure 7.11: Add Product

7.14 Update Product

Manufacturer manager can add product and also admin has access right.

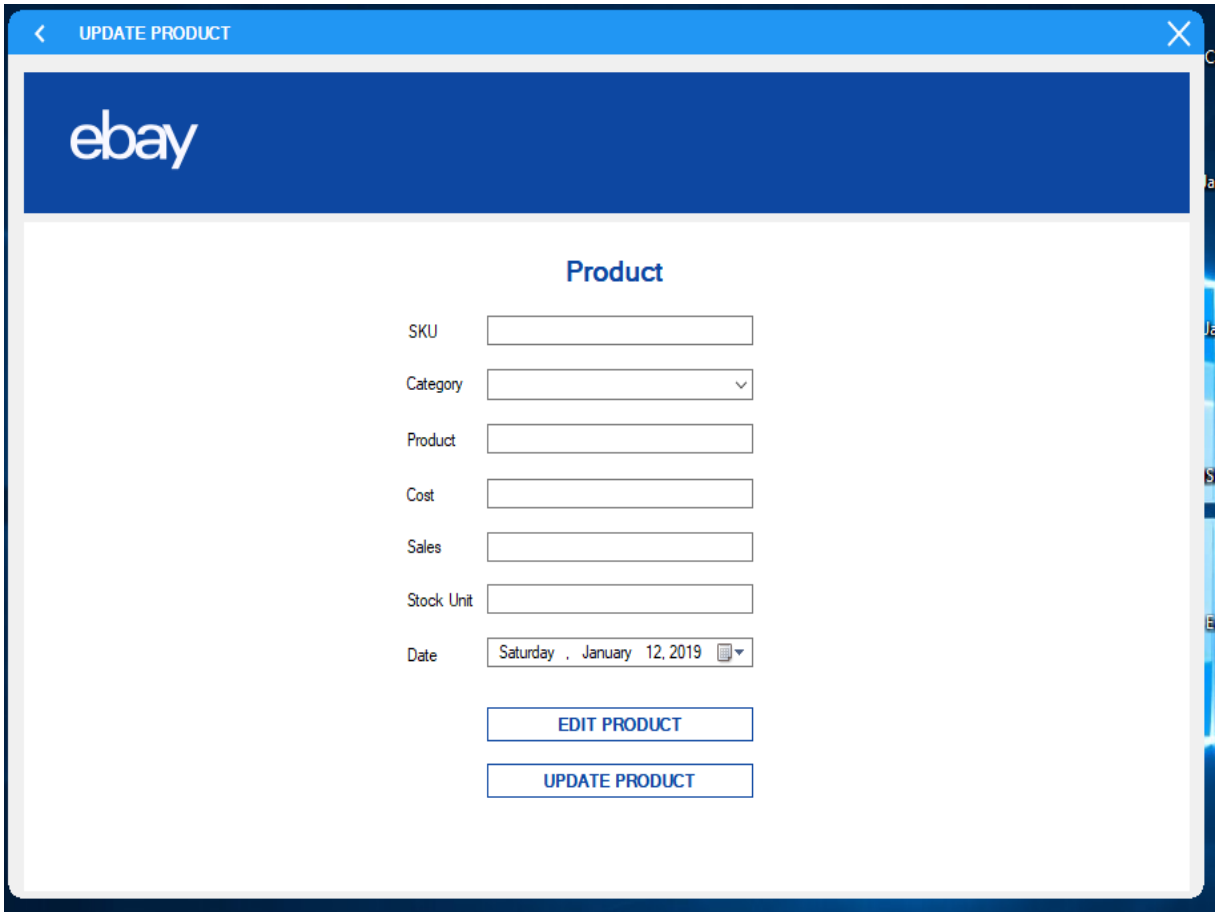

Figure 7.12: Add Product

7.15 Product List

Manufacturer manager can add product and also admin has access right. to views product List.

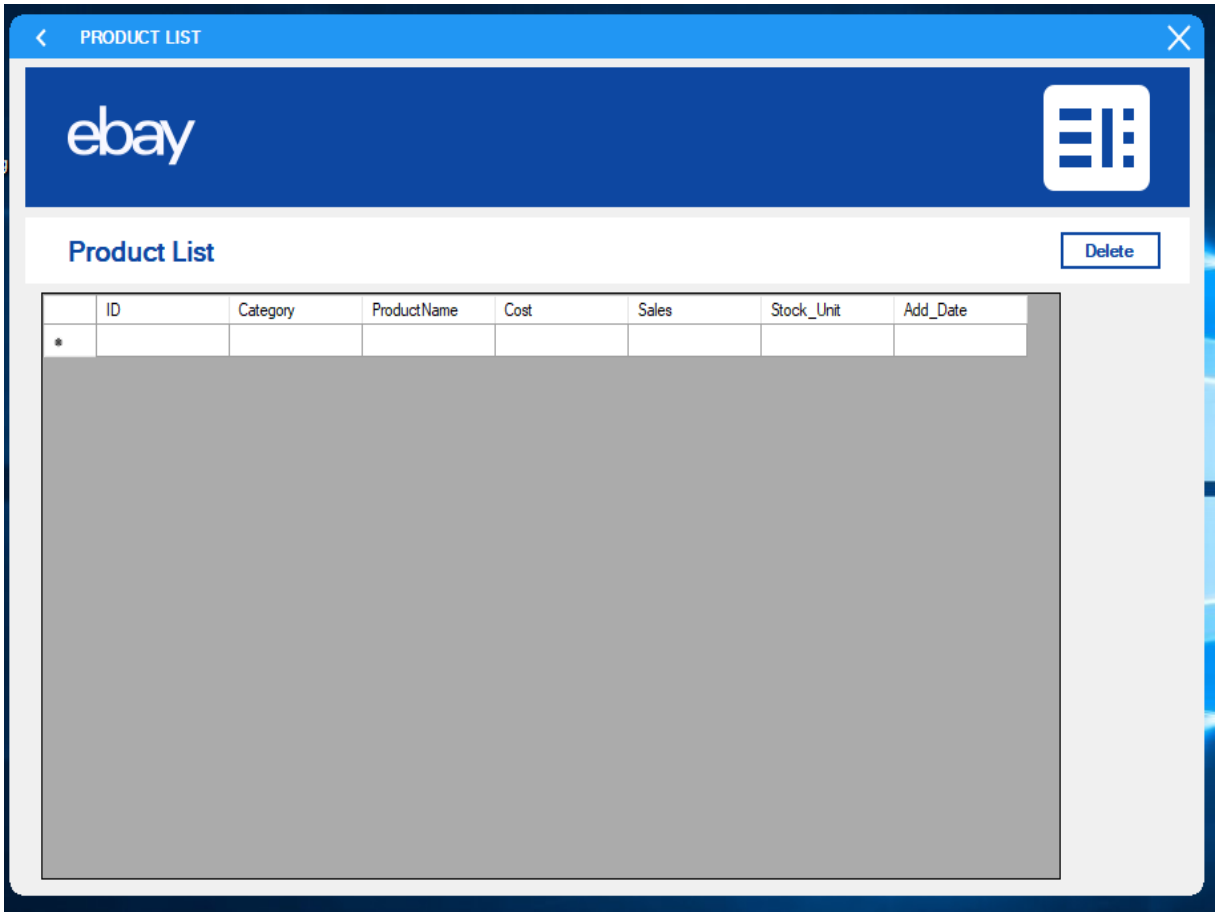

Figure 7.13: Product List

7.16 Sales Dashboard

Sales manager and Admin can add product, product list , update product.

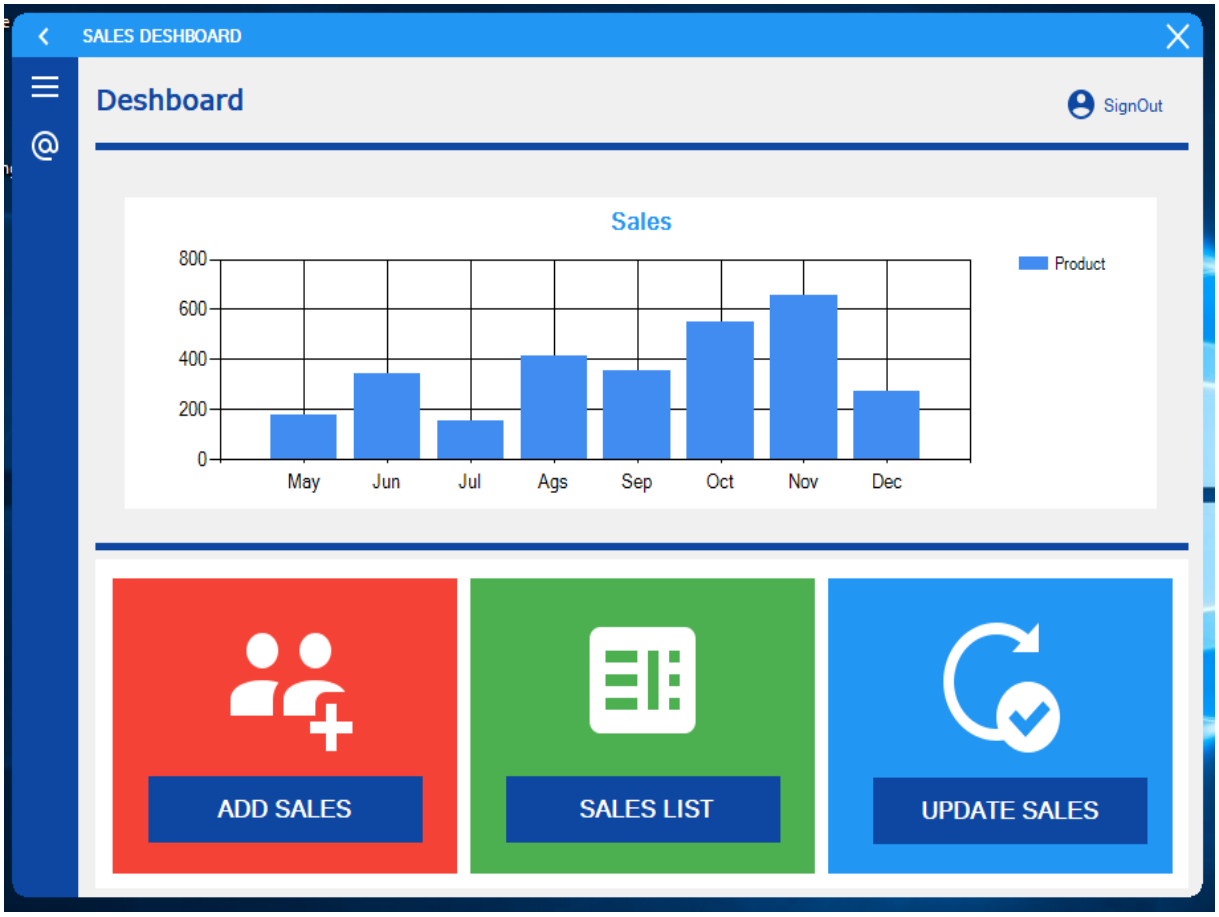

Figure 7.14: Sales Dashboard

7.17 Add Sales Product

Sales manager can add product and also admin has access right.

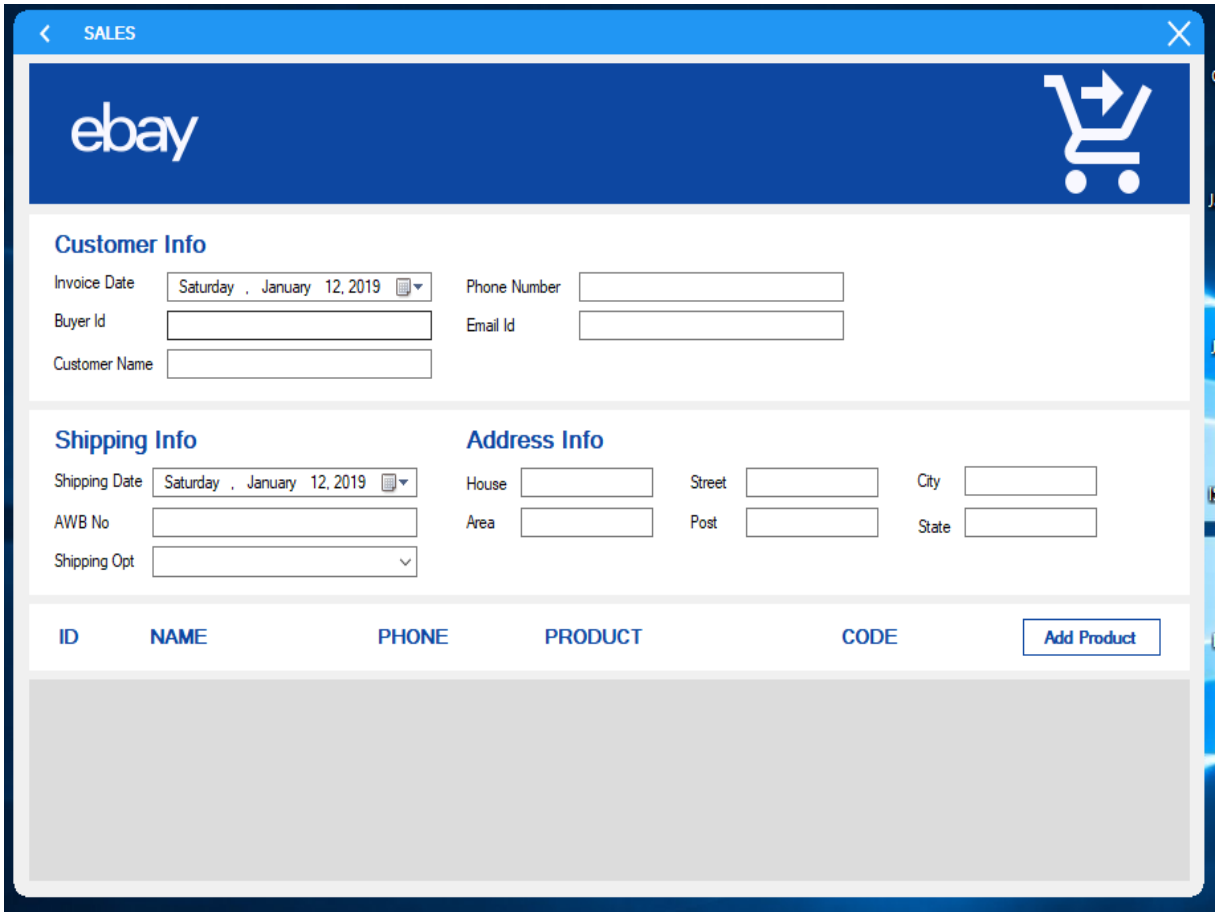

Figure 7.15: Add Sales Product

7.18 Update Sales

Sales manager can add product and also admin has access right.

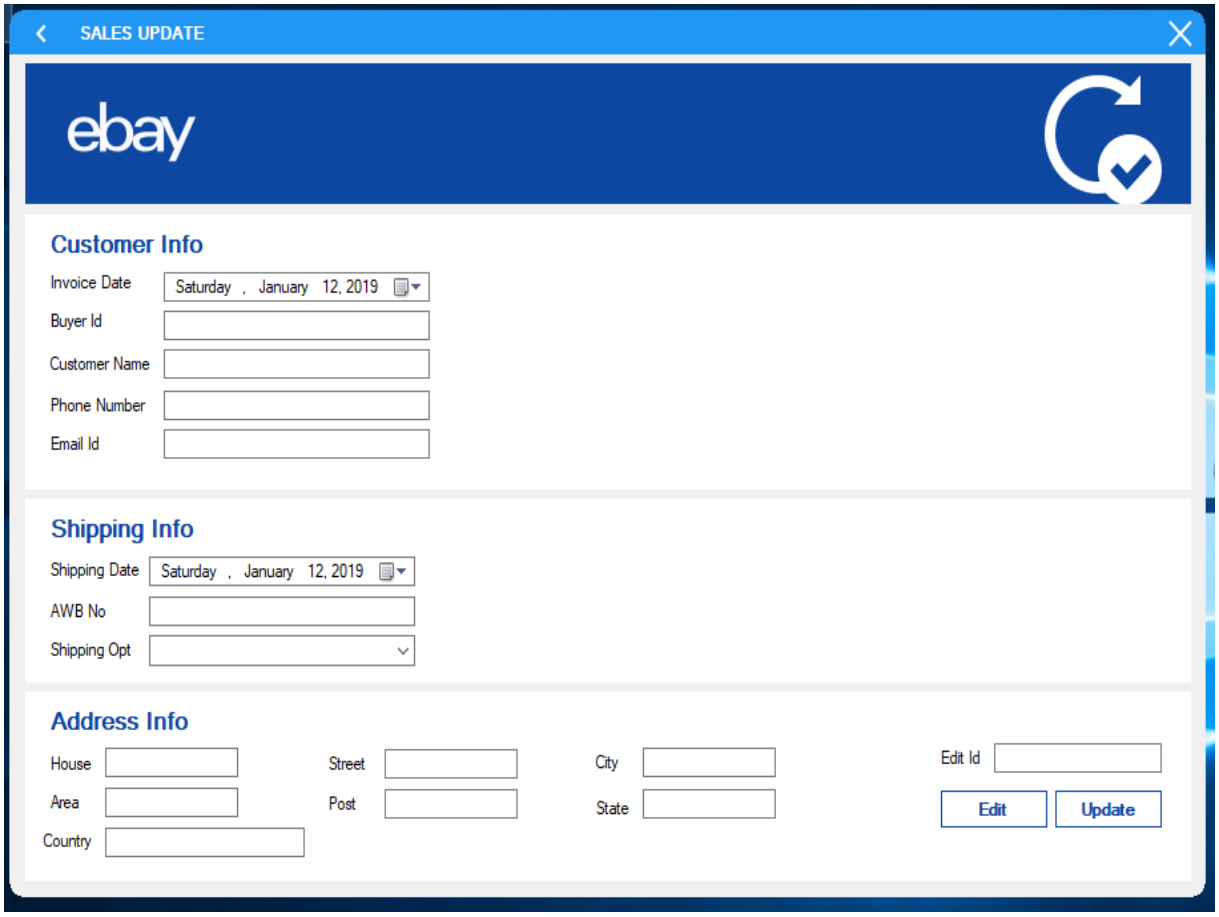

Figure 7.16: Update Sales

7.19 Sales List

Sales manager can add product and also admin has access right. to views product List.

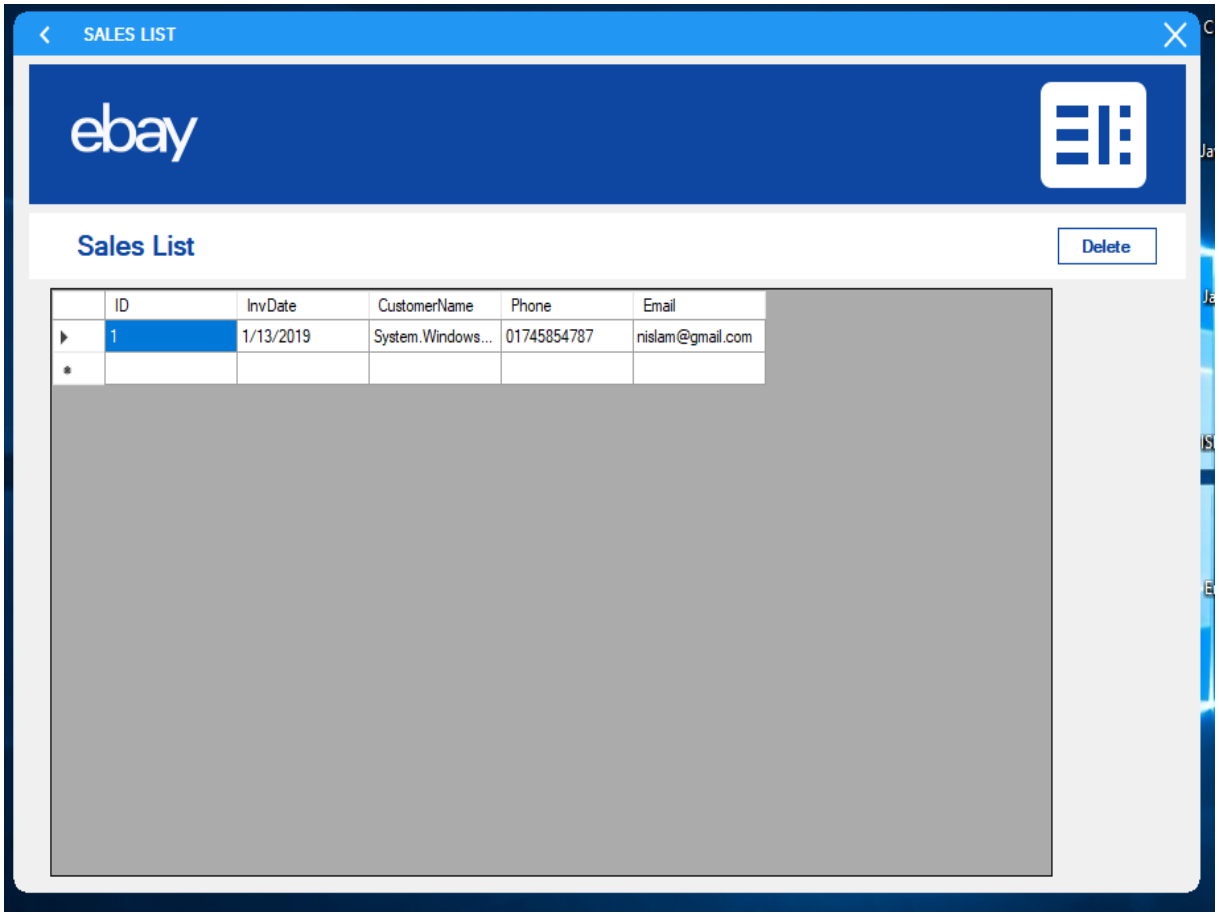

Figure 7.17: Sales List

7.20 Email

Sometimes Need communication one department to another , they can use Email to communicate and communicate with Admin. this process is under construction for in future.....

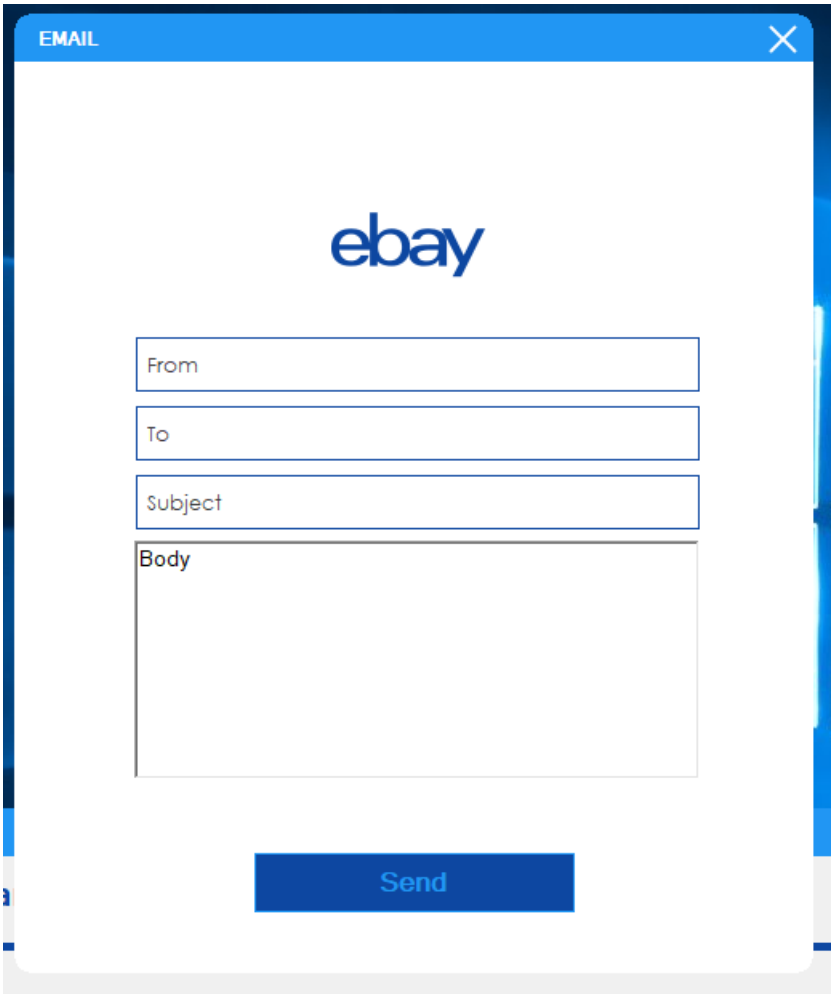

Figure 7.18: Email

7.21 Profit Calculation

Admin Can Easily calculate profit of the product .takes rapid decision process will be developed in future.....

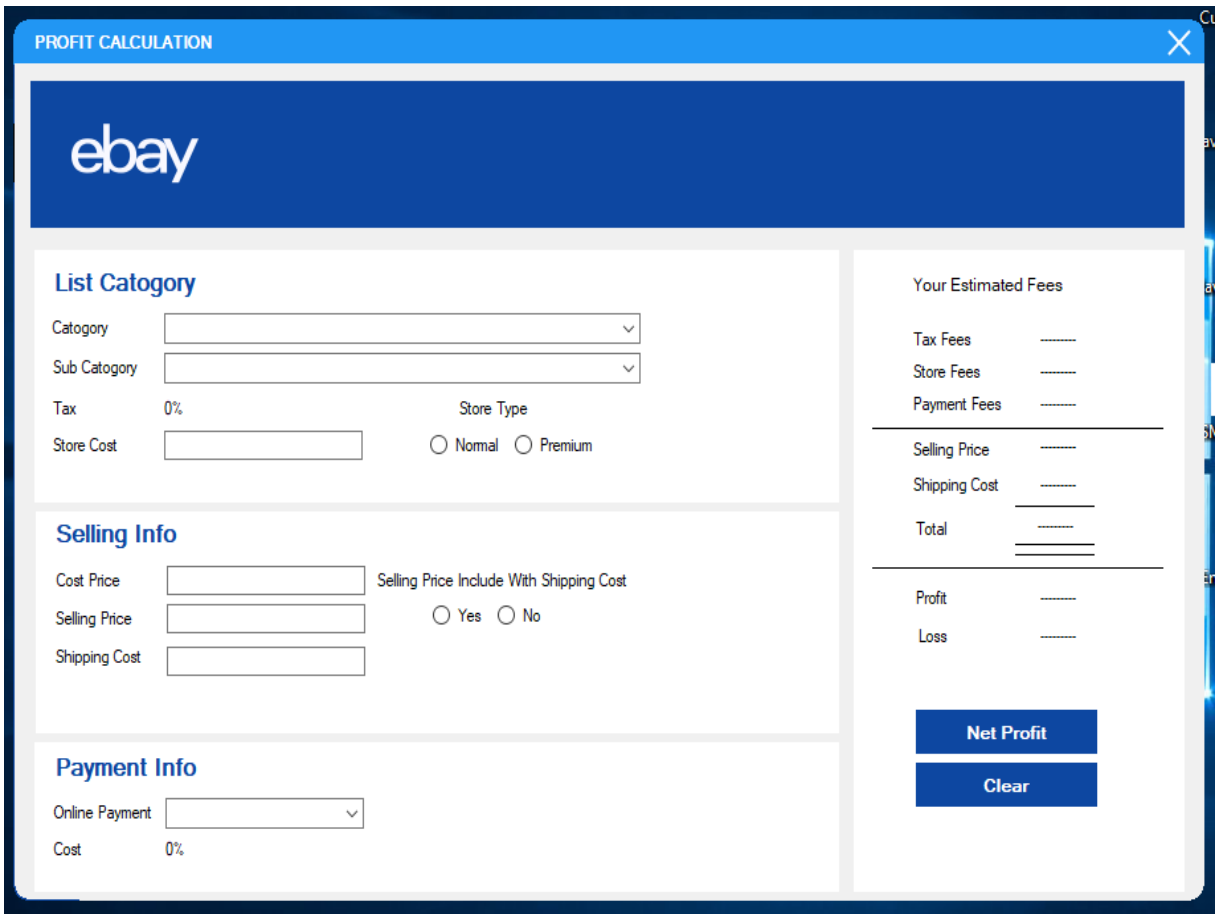

Figure 7.19: Sales List

7.22 Visual Studio 2017

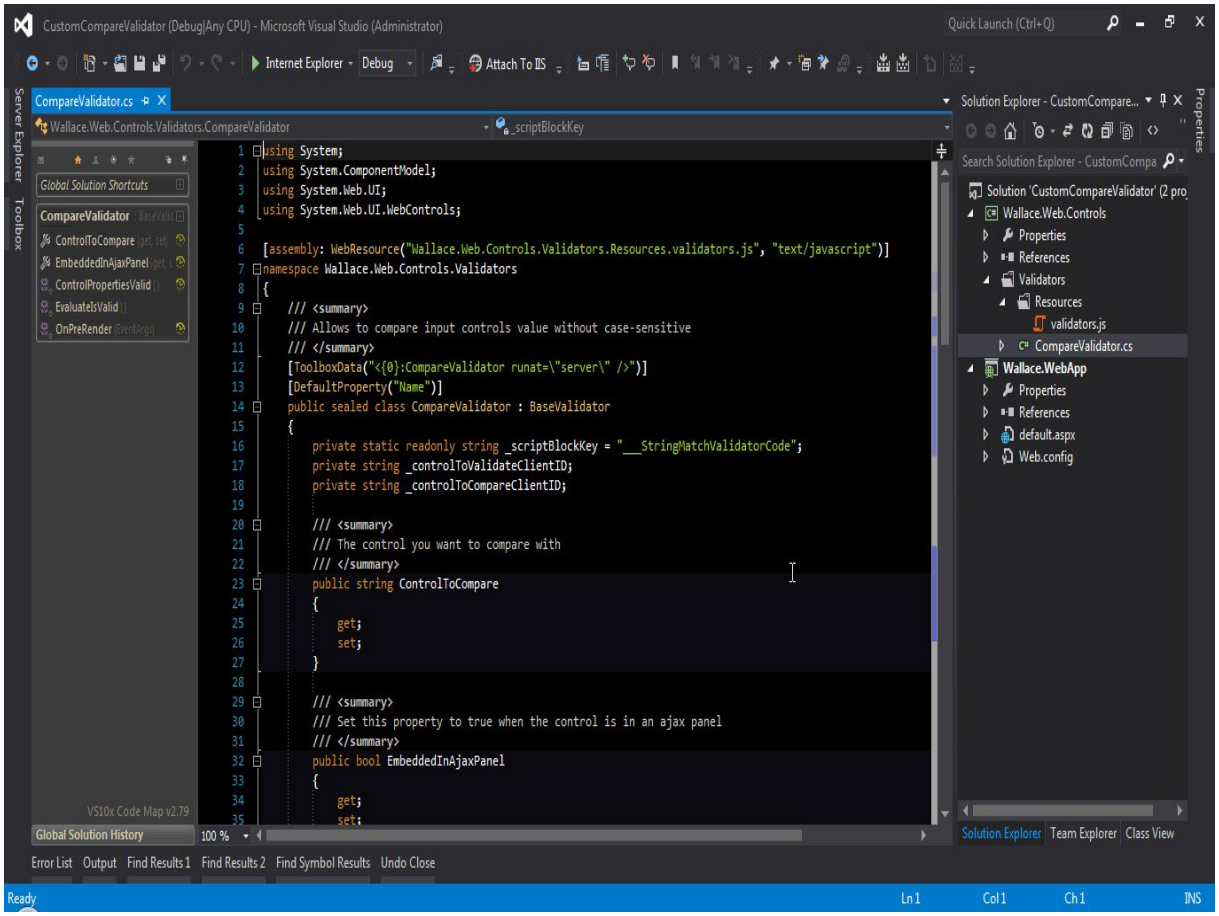

Figure 7.20: Visual Studio 2017

7.23 Conclusion

Now, any user know about this application properly. They use it now easily. This chapter introduced over all interface of our application.

APPENDIX

Tools

itemize

Visual Studio 2017

Microsoft Access SQL Server Management Studio

Adobe Illustrator .