PROJECT REPORT
ON
SMART CONTACT MANAGER
Submitted

in partial fulfilment

for the award of the Degree of

Bachelor of Technology

In

Computer Science Engineering

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Candidate's Declaration

I hereby declare that the work, which is being presented in the Industrial Training report, entitled "**SMART CONTACT MANAGER**" in partial fulfilment for the award of Degree of "Bachelor of Technology" in Department of Computer Science & Engineering with Specialization in Computer Engineering and submitted to the Department of Computer Science & Engineering, Arya Institute of Engineering & Technology, is a record of my own investigations carried under the Guidance of Mr. Satish Kumar Alaria, Associate Professor, Department of Computer Science & Engineering.

(Signature of Candidate)

Mohit Kumar Sharma
Shivansh Vashistha
Mohit Bhojak
Pratap Singh

Acknowledgement

"There are times when silence speaks so much more loudly than words of praise to only as good as be little person, whose words do not express, but only put a veneer over true feelings, which are of gratitude at this point of time." "Presentation, inspiration and motivation have always played a key role in the success of any venture." I express my sincere thanks to Dr. Yogesh Bhoomia, Principal, Arya institute of engineering and technology, Kukas, Jaipur. I pay my deep sense of gratitude to Dr. Manish Kumar Mukhija, Head of Department, Arya institute of engineering and technology, Kukas, Jaipur to encourage me to the highest peak and to provide me the opportunity to prepare the project. I am immensely obliged to my friends for their elevating inspiration, encouraging guidance and kind supervision in the completion of my project. I feel to acknowledge my indebtedness a deep sense of gratitude to my guide Mr. Satish Kumar Alaria, Training Coordinator, Arya institute of engineering and technology. Last, but not the least, my parents are also an important inspiration for me and also like to thank all those who directly or indirectly helped me throughout my work. So, with due regards, I express my gratitude to them.

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Abstract
<u>Contact MANAGER System:</u>

The purpose of Contact MANAGER System is to automate the existing manual system by the help of computerized equipments and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. The required software and hardware are easily available and easy to work with.

Contact MANAGER System, as described above, can lead to error free, secure, reliable and fast MANAGER system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus it will help organization in better utilization of resources. The organization can maintain computerized records without redundant entries. That means that one need not be distracted by information that is not relevant, while being able to reach the information.

The aim is to automate its existing manual system by the help of computerized equipments and full-fledged computer software, fulfilling their requirements, so that their valuable data/information can be stored for a longer period with easy accessing and manipulation of the same. Basically the project describes how to manage for good performance and better services for the clients.

Introduction of the Project
Contact MANAGER System:

The "Contact MANAGER System" has been developed to override the problems prevailing in the practicing manual system. This software is supported to eliminate and in some cases reduce the hardships faced by this existing system. Moreover this system is designed for the particular need of the company to carry out operations in a smooth and effective manner.

The application is reduced as much as possible to avoid errors while entering the data. It also provides error message while entering invalid data. No formal knowledge is needed for the user to use this system. Thus by this all it proves it is user-friendly. Contact MANAGER System ,as described above, can lead to error free, secure, reliable and fast MANAGER system. It can assist the user to concentrate on their other activities rather to concentrate on the record keeping. Thus it will help organization in better utilization of resources.

Every organization, whether big or small, has challenges to overcome and managing the information of Credential, Contact, Profile, Mobile, Emails. Every Contact MANAGER System has different Contact needs, therefore we design exclusive employee MANAGER systems that are adapted to your managerial requirements. This is designed to assist in strategic planning, and will help you ensure that your organization is equipped with the right level of information and details for your future goals. Also, for those busy executive who are always on the go, our systems come with remote access features, which will allow you to manage your workforce anytime, at all times. These systems will ultimately allow you to better manage resources.

Objective of Project on Contact MANAGER System:

The main objective of the Project on Contact MANAGER System is to manage the details of Contact, Credential, Telephone, Profile, Images, Emails. It manages all the information about Contact, Mobile, Emails, Image, Description, Contact. The project is totally built at administrative end and thus only the administrator is guaranteed the access. The purpose of the project is to build an application program to reduce the manual work for managing the Contact, Credential, Mobile, Telephone. It tracks all the details about the Telephone, Profile, Emails.

Functionalities provided by Contact MANAGER System are as follows:

- Provides the searching facilities based on various factors. Such as Contact, Telephone, Profile, Emails
- Contact MANAGER System also manage the Mobile details online for Profile details, Emails details, Contact.
- It tracks all the information of Credential, Mobile, Profile etc
- Manage the information of Credential
- Shows the information and description of the Contact, Telephone
- To increase efficiency of managing the Contact, Credential
- It deals with monitoring the information and transactions of Profile.
- Manage the information of Contact
- Editing, adding and updating of Records is improved which results in proper resource MANAGER of Contact data.
- Manage the information of Profile
- Integration of all records of Emails.

Scope of the project
<u>Contact MANAGER System</u>

It may help collecting perfect MANAGER in details. In a very short time, the collection will be obvious, simple and sensible. It will help a person to know the MANAGER of passed year perfectly and vividly. It also helps in current all works relative to Contact MANAGER System. It will be also reduced the cost of collecting the MANAGER & collection procedure will go on smoothly.

Our project aims at Business process automation, i.e. we have tried to computerize various processes of Contact MANAGER System.

- In computer system the person has to fill the various forms & number of copies of the forms can be easily generated at a time.
- In computer system, it is not necessary to create the manifest but we can directly print it, which saves our time.
- To assist the staff in capturing the effort spent on their respective working areas.
- To utilize resources in an efficient manner by increasing their productivity through automation.
- The system generates types of information that can be used for various purposes.
- It satisfy the user requirement
- Be easy to understand by the user and operator
- Be easy to operate
- Have a good user interface
- Be expandable
- Delivered on schedule within the budget.

Reports of Contact MANAGER System:

- It generates the report on Contact, Credential, Mobile
- Provide filter reports on Telephone, Profile, Emails
- You can easily export PDF for the Contact, Mobile, Profile
- Application also provides excel export for Credential, Telephone, Emails
- You can also export the report into csv format for Contact, Credential, Emails

Modules of Contact MANAGER System:

- Contact MANAGER Module: Used for managing the Contact details.
- Emails Module : Used for managing the details of Emails
- Mobile Module : Used for managing the details of Mobile
- Credential MANAGER Module: Used for managing the information and details of the Credential.
- Telephone Module : Used for managing the Telephone details
- Profile Module : Used for managing the Profile information
- Login Module: Used for managing the login details
- Users Module : Used for managing the users of the system

Input Data and Validation of Project on Contact MANAGER System

- All the fields such as Contact, Telephone, Emails are validated and does not take invalid values
- Each form for Contact, Credential, Mobile can not accept blank value fields
- Avoiding errors in data
- Controlling amount of input
- Integration of all the modules/forms in the system.
- Preparation of the test cases.
- Preparation of the possible test data with all the validation checks.
- Actual testing done manually.
- Recording of all the reproduced errors.
- Modifications done for the errors found during testing.
- Prepared the test result scripts after rectification of the errors.
- Functionality of the entire module/forms.
- Validations for user input.
- Checking of the Coding standards to be maintained during coding.
- Testing the module with all the possible test data.
- Testing of the functionality involving all type of calculations etc.
- Commenting standard in the source files.

The software quality plan we will use the following SQA Strategy:

- In the first step, we will select the test factors and rank them. The selected test factors such as reliability, maintainability, portability or etc, will be placed in the matrix according to their ranks.
- The second step is for identifying the phases of the development process. The phase should be recorded in the matrix.
- The third step is that identifying the business risks of the software deliverables. The risks will be ranked into three ranks such as high, medium and low.

Features of the project Contact MANAGER System:

- Product and Component based

- Creating & Changing Issues at ease

- Query Issue List to any depth

- Reporting & Charting in more comprehensive way

- User Accounts to control the access and maintain security

- Simple Status & Resolutions

- Multi-level Priorities & Severities.

- Targets & Milestones for guiding the programmers

- Attachments & Additional Comments for more information

- Robust database back-end

- Various level of reports available with a lot of filter criteria's

- It contain better storage capacity.

- Accuracy in work.

- Easy & fast retrieval of information.

- Well designed reports.

- Decrease the load of the person involve in existing manual system.

- Access of any information individually.

- Work becomes very speedy.

- Easy to update information

Software Requirement Specification:

The Software Requirements Specification is produced at the culmination of the analysis task. The function and performance allocated to software as part of system engineering are refined by establishing a complete information description, a detailed functional and behavioral description, an indication of performance requirements and design constraints, appropriate validation criteria, and other data pertinent to requirements.

The proposed system has the following requirements:

- System needs store information about new entry of Contact.
- System needs to help the internal staff to keep information of Credential and find them as per various queries.
- System need to maintain quantity record.
- System need Hibernate Frame Work.
- System need Spring Frame Work.
- System need to update and delete the record.
- System also needs a search area.
- It also needs a security system to prevent data.

Identification of need:

The old manual system was suffering from a series of drawbacks. Since whole of the system was to be maintained with hands the process of keeping, maintaining and retrieving the information was very tedious and lengthy. The records were never used to be in a systematic order. there used to be lots of difficulties in associating any particular transaction with a particular context. If any information was to be found it was required to go through the different registers, documents there would never exist anything like report generation. There would always be unnecessary consumption of time while entering records and retrieving records. One more problem was that it was very difficult to find errors while entering the records. Once the records were entered it was very difficult to update these records.

The reason behind it is that there is lot of information to be maintained and have to be kept in mind while running the business .For this reason we have provided features Present system is partially automated (computerized), actually existing system is quite laborious as one has to enter same information at three different places.

Following points should be well considered:

- Documents and reports that must be provided by the new system: there can also be few reports, which can help MANAGER in decision-making and cost controlling, but since these reports do not get required attention, such kind of reports and information were also identified and given required attention.
- Details of the information needed for each document and report.
- The required frequency and distribution for each document.
- Probable sources of information for each document and report.
- With the implementation of computerized system, the task of keeping records in an organized manner will be solved. The greatest of all is the retrieval of information, which will be at the click of the mouse. So the proposed system helps in saving the time in different operations and making information flow easy giving valuable reports.

Feasibility Study:

After doing the project Contact MANAGER System, study and analyzing all the existing or required functionalities of the system, the next task is to do the feasibility study for the project. All projects are feasible - given unlimited resources and infinite time. Feasibility study includes consideration of all the possible ways to provide a solution to the given problem. The proposed solution should satisfy all the user requirements and should be flexible enough so that future changes can be easily done based on the future upcoming requirements.

A. Economical Feasibility

This is a very important aspect to be considered while developing a project. We decided the technology based on minimum possible cost factor.

- All hardware and software cost has to be borne by the organization.
- Overall we have estimated that the benefits the organization is going to receive from the proposed system will surely overcome the initial costs and the later on running cost for system.

B. Technical Feasibility

This included the study of function, performance and constraints that may affect the ability to achieve an acceptable system. For this feasibility study, we studied complete functionality to be provided in the system, as described in the System Requirement Specification (SRS), and checked if everything was possible using different type of frontend and backend plaformst.

C. Operational Feasibility

No doubt the proposed system is fully GUI based that is very user friendly and all inputs to be taken all self-explanatory even to a layman. Besides, a proper training has been conducted to let know the essence of the system to the users so that they feel comfortable with new system. As far our study is concerned the clients are comfortable and happy as the system has cut down their loads and doing.

System Design of Contact MANAGER System

In this phase, a logical system is built which fulfils the given requirements. Design phase of software development deals with transforming the clients's requirements into a logically working system. Normally, design is performed in the following in the following two steps:

1. **Primary Design Phase:**

   In this phase, the system is designed at block level. The blocks are created on the basis of analysis done in the problem identification phase. Different blocks are created for different functions emphasis is put on minimising the information flow between blocks. Thus, all activities which require more interaction are kept in one block.

2. **Secondary Design Phase:**

   In the secondary phase the detailed design of every block is performed.

The general tasks involved in the design process are the following:

1. Design various blocks for overall system processes.
2. Design smaller, compact and workable modules in each block.
3. Design various database structures.
4. Specify details of programs to achieve desired functionality.
5. Design the form of inputs, and outputs of the system.
6. Perform documentation of the design.
7. System reviews.

User Interface Design

User Interface Design is concerned with the dialogue between a user and the computer. It is concerned with everything from starting the system or logging into the system to the eventually presentation of desired inputs and outputs. The overall flow of screens and messages is called a dialogue.

The following steps are various guidelines for User Interface Design:

1. The system user should always be aware of what to do next.

2. The screen should be formatted so that various types of information, instructions and messages always appear in the same general display area.

3. Message, instructions or information should be displayed long enough to allow the system user to read them.

4. Use display attributes sparingly.

5. Default values for fields and answers to be entered by the user should be specified.

6. A user should not be allowed to proceed without correcting an error.

7. The system user should never get an operating system message or fatal error.

Preliminary Product Description:

The first step in the system development life cycle is the preliminary investigation to determine the feasibility of the system. The purpose of the preliminary investigation is to evaluate project requests. It is not a design study nor does it include the collection of details to describe the business system in all respect. Rather, it is the collecting of information that helps committee members to evaluate the merits of the project request and make an informed judgment about the feasibility of the proposed project.

Analysts working on the preliminary investigation should accomplish the following objectives:

- Clarify and understand the project request
- Determine the size of the project.
- Assess costs and benefits of alternative approaches.
- Determine the technical and operational feasibility of alternative approaches.
- Report the findings to MANAGER, with recommendations outlining the acceptance or rejection of the proposal.

- ### Benefit to Organization

The organization will obviously be able to gain benefits such as savings in operating cost, reduction in paperwork, better utilization of human resources and more presentable image increasing goodwill.

- ### The Initial Cost

The initial cost of setting up the system will include the cost of hardware software (OS, add-on software, utilities) & labour (setup & maintenance). The same has to bear by the organization.

- **Running Cost**

Besides, the initial cost the long term cost will include the running cost for the system including the AMC, stationary charges, cost for human resources, cost for update/renewal of various related software.

- **Need for Training**

The users along with the administrator need to be trained at the time of implementation of the system for smooth running of the system. The client will provide the training site.

We talked to the MANAGER people who were managing a the financial issues of the center, the staff who were keeping the records in lots of registers and the reporting manager regarding their existing system, their requirements and their expectations from the new proposed system. Then, we did the system study of the entire system based on their requirements and the additional features they wanted to incorporate in this system.

Reliable, accurate and secure data was also considered to be a complex task without this proposed system. Because there was no such record for keeping track of all the activities, which was done by the Contact MANAGER System on the daily basis.

The new system proposed and then developed by me will ease the task of the organization in consideration. It will be helpful in generating the required reports by the staff, which will help them to track their progress and services.

Thus, it will ease the task of MANAGER to a great extent as all the major activities to be performed, are computerized through this system.

Project Category

Relational Database MANAGER System (RDBMS) : This is an RDBMS based project which is currently using MySQL for all the transaction statements. MySQL is an opensource RDBMS System.

Brief Introduction about RDBSM :

A relational database MANAGER system (RDBMS) is a database MANAGER system (DBMS) that is based on the relational model as invented by E. F. Codd, of IBM's San Jose Research Laboratory. Many popular databases currently in use are based on the relational database model.

RDBMSs have become a predominant choice for the storage of information in new databases used for financial records, manufacturing and logistical information, personnel data, and much more since the 1980s. Relational databases have often replaced legacy hierarchical databases and network databases because they are easier to understand and use. However, relational databases have been challenged by object databases, which were introduced in an attempt to address the object-relational impedance mismatch in relational database, and XML databases.
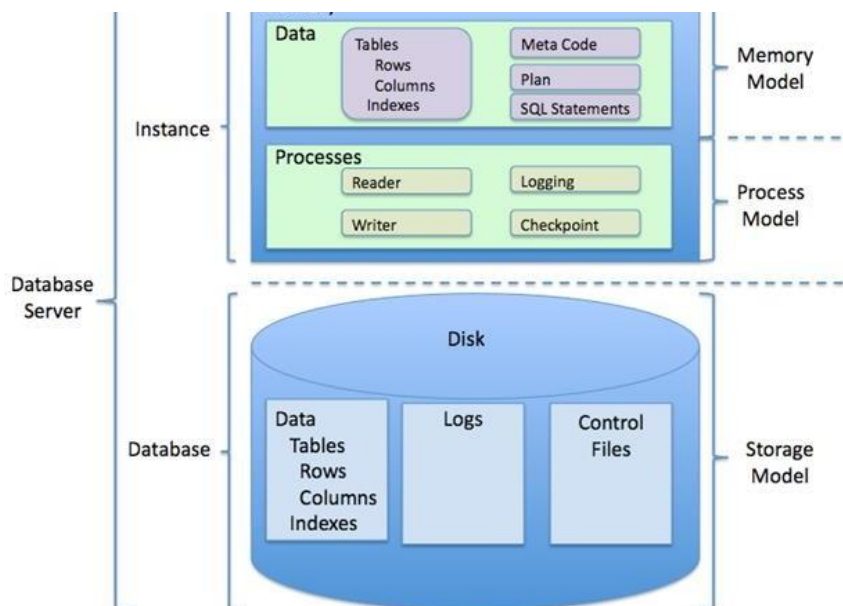
Implementation Methodology:

Model View Controller or MVC as it is popularly called, is a software design pattern for developing web applications. A Model View Controller pattern is made up of the following three parts:

- **Model** - The lowest level of the pattern which is responsible for maintaining data.
- **View** - This is responsible for displaying all or a portion of the data to the user.
- **Controller** - Software Code that controls the interactions between the Model and View.

MVC is popular as it isolates the application logic from the user interface layer and supports separation of concerns. Here the Controller receives all requests for the application and then works with the Model to prepare any data needed by the View. The View then uses the data prepared by the Controller to generate a final presentable response. The MVC abstraction can be graphically represented as follows.

MVC (Model View Controller Flow) Diagram

DATA FLOW DIAGRAMS
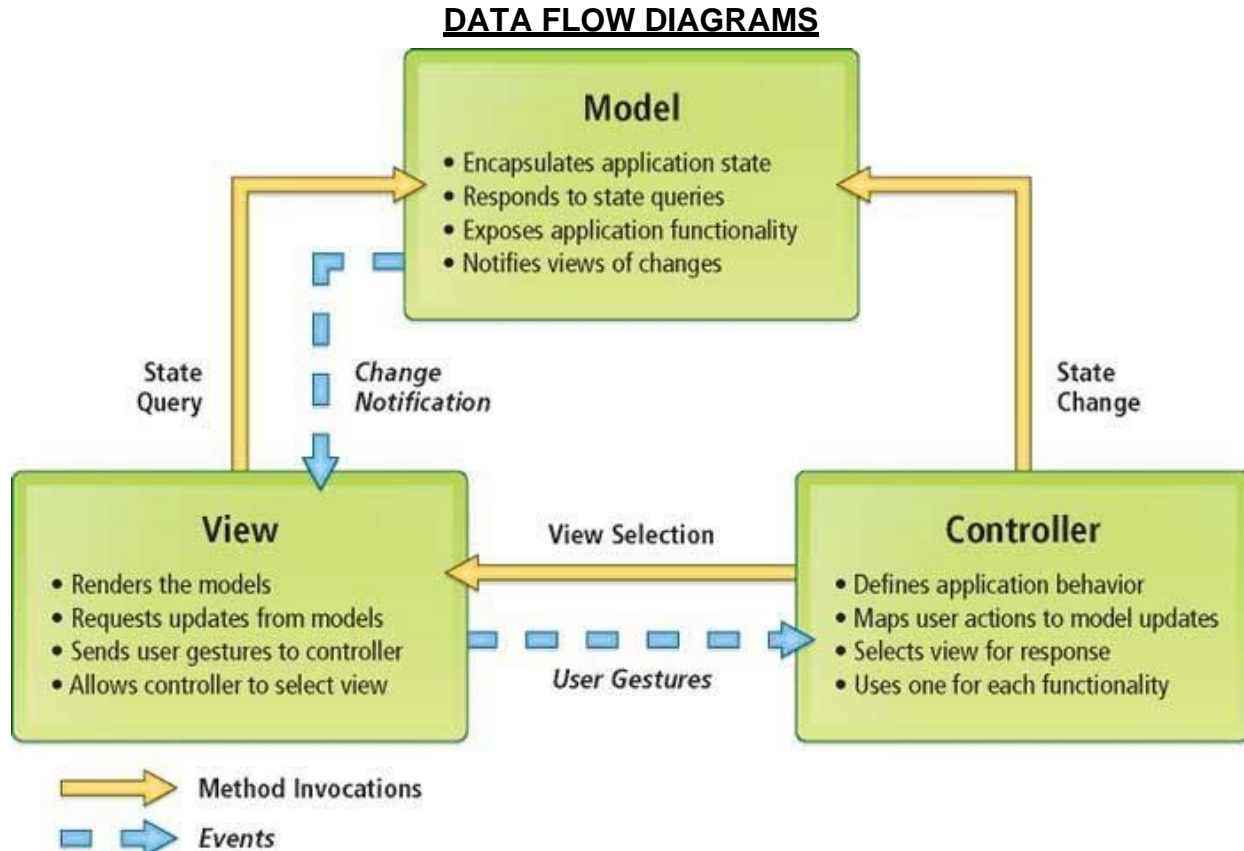
Project Planning

Software project plan can be viewed as the following:

1) **Within the organization:** How the project is to be implemented? What are various constraints (time, cost, staff)? What is market strategy?

2) **With respect to the customer:** Weekly or timely meetings with the customer with presentation on status reports. Customers feedback is also taken and further modification and developments are done. Project milestones and deliverables are also presented to the customer.

For a successful software project, the following steps can be followed:

- Select a project

    o Identifying project's aims and objectives

    o Understanding requirements and specification

    o Methods of analysis, design and implementation

    o Testing techniques

    o Documentation

- Project milestones and deliverables

- Budget allocation

    o Exceeding limits within control

- Project Estimates

    o Cost

    o Time

    o Size of code

- o Duration

- Resource Allocation

    - o Hardware

    - o Software

    - o Previous relevant project information

    - o Digital Library

- Risk MANAGER

    - o Risk avoidance

    - o Risk detection

Project Scheduling:

An elementary Gantt chart or Timeline chart for the development plan is given below.

The plan explains the tasks versus the time (in weeks) they will take to complete.

	October				November				December			
Requirement Gathering	■											
Analysis		■										
Design				■								
Coding						■	■		■			
Testing										■	■	
Implement												■
	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4

Wi's are weeks of the months, for i =1, 2, 3,

Tools/Platform, Hardware and Software Requirement specifications:

Software Requirements:

Name of component	Specification
Operating System	Windows 10
Language	Java 2 Runtime Environment
Database	MySQL Server
Browser	Any of Mozilla, Opera, Chrome, etc
Web Server	Tomcat 9
Software Development Kit	Java JDK 1.11 or Above
Scripting Language Enable	HTML With Thymeleaf
Database JDBC Driver	MySQL Jconnector

Hardware Requirements:

Name of component	Specification
Processor	Pentium III 630MHz
RAM	128 MB
Hard disk	20 GB
Monitor	15" color monitor
Keyboard	122 keys

Project Profile

There has been continuous effort to develop tools, which can ease the process of software development. But, with the evolving trend of different programming paradigms today's software developers are really challenged to deal with the changing technology. Among other issues, software re-engineering is being regarded as an important process in the software development industry. One of the major tasks here is to understand software systems that are already developed and to transform them to a different software environment. Generally, this requires a lot of manual effort in going through a program that might have been developed by another programmer. This project makes a novel attempt to address the issued of program analysis and generation of diagrams, which can depict the structure of a program in a better way. Today, UML is being considered as an industrial standard for software engineering design process. It essential provides several diagramming tools that can express different aspects/ characteristics of program such as

Use cases: Elicit requirement from users in meaningful chunks. Construction planning is built around delivering some use cases n each interaction basis for system testing.

Class diagrams: shows static structure of concepts, types and class. Concepts how users think about the world; type shows interfaces of software components; classes shows implementation of software components.

Interaction diagrams: shows how several objects collaborate in single use case.

Package diagram: show group of classes and dependencies among them.

State diagram: show how single object behaves across many use cases.

Activity diagram: shows behavior with control structure. Can show many objects over many uses, many object in single use case, or implementations methods encourage parallel behavior, etc.

The end-product of this project is a comprehensive tool that can parse any vb.net program and extract most of the object oriented features inherent in the program such as polymorphism, inheritance, encapsulation and abstraction.

What is UML?

UML stands for Unified Modeling Language is the successor to the wave of Object Oriented Analysis and Design (OOA&D) methods that appeared in the late 80's. It most directly unifies the methods of Booch, Rumbaugh (OMT) and Jacobson. The UML is called a modeling language, not a method. Most methods consist at least in principle, of both a modeling language and a process. The Modeling language is that notation that methods used to express design.

Notations and meta-models:

The notation is the graphical stuff; it is the syntax of the modeling language. For instance, class diagram notation defines how items are concepts such as class, association, and multiplicity is represented. These are:

Class Diagram: The class diagram technique has become truly central within object-oriented methods. Virtually every method has included some variation on this technique. Class diagram is also subject to the greatest range of modeling concept. Although the basic elements are needed by everyone, advanced concepts are used less often. A class diagram describes the types of objects in the system and the various kinds of static relationship that exist among them. There are two principal kinds of static relationship:

- Association
- Subtype

Class diagram also show the attributes and operations of a class and the constraints that apply to the way objects are connected.

Association: Association represent between instances of class. From the conceptual perspective, association represents conceptual relations between classes. Each association has two roles. Each role is a direction on the association. A role also has multiplicity, which is a indication of how many object may participate in the given relationship.

Generalization: A typical example of generalization evolves the personal and corporate customer of a business. They have differences but also many similarity. The similarities can be placed in generalization with personal customer and corporate customer sub type.

Aggregation: aggregation is the part of relationship. It is like saying a car has engine and wheels as its parts. This sounds good, but difficult thing is considering, what is the difference is aggregation and association.

Interaction: interaction diagrams are models that describes how groups of objects collaboration in some behavior.

Typically, an interaction diagram captures the behavior a single use cases. The diagram shows a number of example objects and the messages that are passed between these objects in use cases. These are following approaches with simple use case that exhibits the following behavior.

Objects can send a message to another. Each message is checks with given stock item. There are two diagrams: Sequence and Collaboration diagram.

Package Diagram: One of the oldest questions in software methods is: how do you break down a large system into smaller systems? It becomes difficult to understand and the changes we make to them.

Structured methods used functional decomposition in which the overall system was mapped as a function broken down into sub function, which is further broken down into sub function and so forth. The separation of process data is gone, functional decomposition is gone, but the old question is still remains. One idea is to group the classes together into higher-level unit. This idea, applied very loosely, appears in many

objects. In UML, this grouping mechanism is package. The term package diagram for a diagram that shows packages of classes and the dependencies among them.

A dependency exists between two elements if changes to the definition of one element may cause to other. With classes, dependencies exist for various reasons: one class sends a message to another; one class has another as part of its data; one class mentions another as a parameter to an operation. A dependency between two packages exists; and any dependencies exist between any two classes in the package.

State diagram: State diagram are a familiar technique to describe the behavior of a system. They describe all the possible states a particular object can get into and how the objects state changes as a result of events that reach the objects. In most OO technique, state diagrams are drawn for a single class to show the lifetime behavior of a singe object. There are many form of state diagram, each with slightly different semantics. The most popular one used in OO technique is based on David Harel's state chart.

Use Case Model of the Project:

The use case model for any system consists of "use cases". Use cases represent different ways in which the system can be used by the user. A simple way to find all the use case of a system is to ask the questions "What the user can do using the system?" The use cases partition the system behavior into transactions such that each transaction performs some useful action from the users' point of view.

The purpose of the use case to define a piece of coherent behavior without reveling the internal structure of the system. An use case typically represents a sequence of interaction between the user and the system. These interactions consists of one main line sequence is represent the normal interaction between the user and the system. The use case model is an important analysis and design artifact (task).Use cases can be represented by drawing a use case diagram and writing an accompany text elaborating the drawing.

In the use case diagram each use case is represented by an ellipse with the name of use case written inside the ellipse. All the ellipses of the system are enclosed with in a rectangle which represents the system boundary. The name of the system being moduled appears inside the rectangle. The different users of the system are represented by using stick person icon. The stick person icon is normally referred to as an Actor. The line connecting the actor and the use cases is called the communication relationship. When a stick person icon represents an external system it is annotated by the stereo type<<external system>>.

Dataflow Diagram

Data flow diagram is the starting point of the design phase that functionally decomposes the requirements specification. A DFD consists of a series of bubbles joined by lines. The bubbles represent data transformation and the lines represent data flows in the system. A DFD describes what data flow rather than how they are processed, so it does not hardware, software and data structure.

A **data-flow diagram** (**DFD**) is a graphical representation of the "flow" of data through an information system. DFDs can also be used for the visualization of data processing (structured design). A **data flow diagram** (DFD) is a significant modeling technique for analyzing and constructing information processes. DFD literally means an illustration that explains the course or movement of information in a process. DFD illustrates this flow of information in a process based on the inputs and outputs. A DFD can be referred to as a Process Model.

The data flow diagram is a graphical description of a system's data and how to

Process transform the data is known as Data Flow Diagram (DFD).

Unlike details flow chart, DFDs don't supply detail descriptions of modules that graphically describe a system's data and how the data interact with the system. Data flow diagram number of symbols and the following symbols are of by DeMarco.

process

Data store

Source/sink

Data Flow

DeMarco &
Yourdon

symbols
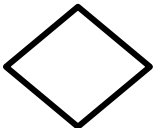Gane & Sarson symbols
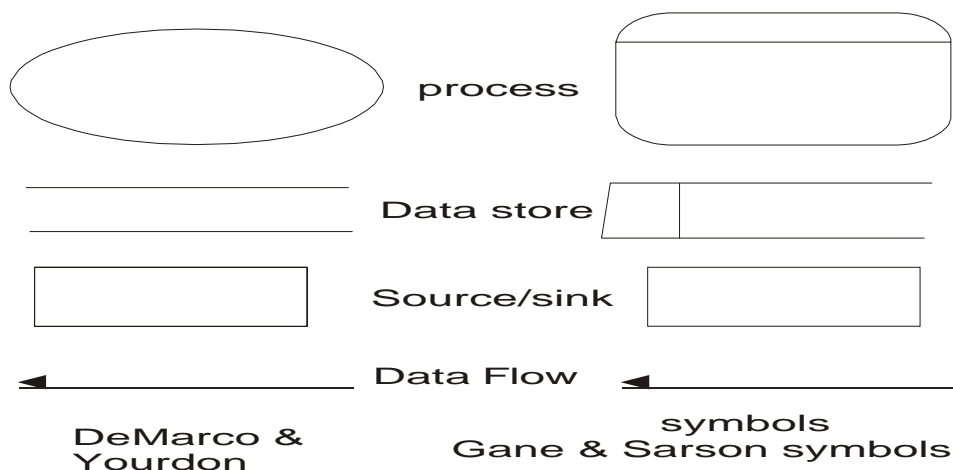
About ER Diagram:

Entity Relationship Diagram

E-R Model is a popular high level conceptual data model. This model and its variations are frequently used for the conceptual design of database application and many database design tools employ its concept.

A database that confirms to an E-R diagram can be represented by a collecton of tables in the relational system. The mapping of E-R diagram to the entities are:

- Attributes

- Relations

    o Many-to-many

    o Many-to-one

    o One-to-many

    o One-to-one

- Weak entities

- Sub-type and super-type

The entities and their relationshops between them are shown using the following conventions.

- An entity is shown in rectangle.

- A diamond represent the relationship among number of entities.

- The attributes shown as ovals are connected to the entities or relationship by lines.

- Diamond,oval and relationships are labeled.

- Model is an abstraction process that hides super details while highlighting details relation to application at end.

- A data model is a mechanism that provides this abstraction for database application.

- Data modeling is used for representing entities and their relationship in the database.

- Entities are the basic units used in modeling database entities can have concrete existence or constitute ideas or concepts.

- Entity type or entity set is a group of similar objects concern to an organization for which it maintain data,

- Properties are characteristics of an entity also called as attributes.

- A key is a single attribute or combination of 2 or more attributes of an entity set is used to identify one or more instances of the set.

- In relational model we represent the entity by a relation and use tuples to represent an instance of the entity.

- Relationship is used in data modeling to represent in association between an entity set.

- An association between two attributes indicates that the values of the associated attributes are independent.

Implementation and Software Specification Testings

Detailed Design of Implementation

This phase of the systems development life cycle refines hardware and software specifications, establishes programming plans, trains users and implements extensive testing procedures, to evaluate design and operating specifications and/or provide the basis for further modification.

Technical Design

This activity builds upon specifications produced during new system design, adding detailed technical specifications and documentation.

Test Specifications and Planning

This activity prepares detailed test specifications for individual modules and programs, job streams, subsystems, and for the system as a whole.

Programming and Testing

This activity encompasses actual development, writing, and testing of program units or modules.

User Training

This activity encompasses writing user procedure manuals, preparation of user training materials, conducting training programs, and testing procedures.

Acceptance Test

A final procedural review to demonstrate a system and secure user approval before a system becomes operational.

Installation Phase

In this phase the new Computerized system is installed, the conversion to new procedures is fully implemented, and the potential of the new system is explored.

System Installation

The process of starting the actual use of a system and training user personnel in its operation.

Review Phase

This phase evaluates the successes and failures during a systems development project, and to measure the results of a new Computerized Transystem in terms of benefits and savings projected at the start of the project.

Development Recap

A review of a project immediately after completion to find successes and potential problems in future work.

Post-Implementation Review

A review, conducted after a new system has been in operation for some time, to evaluate actual system performance against original expectations and projections for cost-benefit improvements. Also identifies maintenance projects to enhance or improve the system.

THE STEPS IN THE SOFTWARE TESTING

The steps involved during Unit testing are as follows:

a. Preparation of the test cases.
b. Preparation of the possible test data with all the validation checks.
c. Complete code review of the module.
d. Actual testing done manually.
e. Modifications done for the errors found during testing.
f. Prepared the test result scripts.

The unit testing done included the testing of the following items:

1. Functionality of the entire module/forms.
2. Validations for user input.
3. Checking of the Coding standards to be maintained during coding.

4. Testing the module with all the possible test data.
5. Testing of the functionality involving all type of calculations etc.
6. Commenting standard in the source files.

After completing the Unit testing of all the modules, the whole system is integrated with all its dependencies in that module. While System Integration, We integrated the modules one by one and tested the system at each step. This helped in reduction of errors at the time of the system testing.

The steps involved during System testing are as follows:

- Integration of all the modules/forms in the system.
- Preparation of the test cases.
- Preparation of the possible test data with all the validation checks.
- Actual testing done manually.
- Recording of all the reproduced errors.
- Modifications done for the errors found during testing.
- Prepared the test result scripts after rectification of the errors.

The System Testing done included the testing of the following items:

1. Functionality of the entire system as a whole.
2. User Interface of the system.
3. Testing the dependent modules together with all the possible test data scripts.
4. Verification and Validation testing.
5. Testing the reports with all its functionality.

After the completion of system testing, the next following phase was the Acceptance Testing. Clients at their end did this and accepted the system with appreciation. Thus, we reached the final phase of the project delivery.

There are other six tests, which fall under special category. They are described below:

- Peak Load Test: It determines whether the system will handle the volume of activities that occur when the system is at the peak of its processing demand. For example, test the system by activating all terminals at the same time.

- Storage Testing: It determines the capacity of the system to store transaction data on a disk or in other files.
- Performance Time Testing: it determines the length of time system used by the system to process transaction data. This test is conducted prior to implementation to determine how long it takes to get a response to an inquiry, make a backup copy of a file, or send a transmission and get a response.
- Recovery Testing: This testing determines the ability of user to recover data or re-start system after failure. For example, load backup copy of data and resume processing without data or integrity loss.
- Procedure Testing: It determines the clarity of documentation on operation and uses of system by having users do exactly what manuals request. For example, powering down system at the end of week or responding to paper-out light on printer.
- Human Factors Testing: It determines how users will use the system when processing data or preparing reports.

System Analysis

System analysis is a process of gathering and interpreting facts, diagnosing problems and the information about the Contact MANAGER System to recommend improvements on the system. It is a problem solving activity that requires intensive communication between the system users and system developers. System analysis or study is an important phase of any system development process. The system is studied to the minutest detail and analyzed. The system analyst plays the role of the interrogator and dwells deep into the working of the present system. The system is viewed as a whole and the input to the system are identified. The outputs from the organizations are traced to the various processes. System analysis is concerned with becoming aware of the problem, identifying the relevant and decisional variables, analyzing and synthesizing the various factors and determining an optimal or at least a satisfactory solution or program of action. A detailed study of the process must be made by various techniques like interviews, questionnaires etc. The data collected by these sources must be scrutinized to arrive to a conclusion. The conclusion is an understanding of how the system functions. This system is called the existing system. Now the existing system is subjected to close study and problem areas are identified. The designer now functions as a problem solver and tries to sort out the difficulties that the enterprise faces. The solutions are given as proposals. The proposal is then weighed with the existing system analytically and the best one is selected. The proposal is presented to the user for an endorsement by the user. The proposal is reviewed on user request and suitable changes are made. This is loop that ends as soon as the user is satisfied with proposal. Preliminary study is the process of gathering and interpreting facts, using the information for further studies on the system. Preliminary study is problem solving activity that requires intensive communication between the system users and system developers. It does various feasibility studies. In these studies a rough figure of the system activities can be obtained, from which the decision about the strategies to be followed for effective system study and analysis can be taken.

Existing System of Contact MANAGER System:

In the existing system the exams are done only manually but in proposed system we have to computerize the exams using this application.

- Lack of security of data.
- More man power.
- Time consuming.
- Consumes large volume of pare work.
- Needs manual calculations.
- No direct role for the higher officials

Proposed System of Contact MANAGER System:

The aim of proposed system is to develop a system of improved facilities. The proposed system can overcome all the limitations of the existing system. The system provides proper security and reduces the manual work.

- Security of data.
- Ensure data accuracy's.
- Proper control of the higher officials.
- Minimize manual data entry.
- Minimum time needed for the various processing.
- Greater efficiency.
- Better service.
- User friendliness and interactive.
- Minimum time required.

Conclusion of the Project Contact MANAGER System:

Our project is only a humble venture to satisfy the needs to manage their project work. Several user friendly coding have also adopted. This package shall prove to be a powerful package in satisfying all the requirements of the school. The objective of software planning is to provide a frame work that enables the manger to make reasonable estimates made within a limited time frame at the beginning of the software project and should be updated regularly as the project progresses.

At the end it is concluded that we have made effort on following points…

- A description of the background and context of the project and its relation to work already done in the area.
- Made statement of the aims and objectives of the project.
- The description of Purpose, Scope, and applicability.
- We define the problem on which we are working in the project.
- We describe the requirement Specifications of the system and the actions that can be done on these things.
- We understand the problem domain and produce a model of the system, which describes operations that can be performed on the system.
- We included features and operations in detail, including screen layouts.
- We designed user interface and security issues related to system.
- Finally the system is implemented and tested according to test cases.

Future Scope of the Project:

In a nutshell, it can be summarized that the future scope of the project circles around maintaining information regarding:

- We can add printer in future.
- We can give more advance software for Contact MANAGER System including more facilities
- We will host the platform on online servers to make it accessible worldwide
- Integrate multiple load balancers to distribute the loads of the system
- Create the master and slave database structure to reduce the overload of the database queries
- Implement the backup mechanism for taking backup of codebase and database on regular basis on different servers

The above mentioned points are the enhancements which can be done to increase the applicability and usage of this project. Here we can maintain the records of Contact and Credential. Also, as it can be seen that now-a-days the players are versatile, i.e. so there is a scope for introducing a method to maintain the Contact MANAGER System. Enhancements can be done to maintain all the Contact, Credential, Telephone, Profile, Emails.

We have left all the options open so that if there is any other future requirement in the system by the user for the enhancement of the system then it is possible to implement them.In the last we would like to thanks all the persons involved in the development of the system directly or indirectly. We hope that the project will serve its purpose for which it is develop there by underlining success of process.

## <u>Limitation of Project on Contact MANAGER System</u>

Although I have put my best efforts to make the software flexible, easy to operate but limitations cannot be ruled out even by me. Though the software presents a broad range of options to its users some intricate options could not be covered into it; partly because of logistic and partly due to lack of sophistication. Paucity of time was also major constraint, thus it was not possible to make the software foolproof and dynamic. Lack of time also compelled me to ignore some part such as storing old result of the candidate etc.

Considerable efforts have made the software easy to operate even for the people not related to the field of computers but it is acknowledged that a layman may find it a bit problematic at the first instance. The user is provided help at each step for his convenience in working with the software.

<u>List of limitations which is available in the Contact MANAGER System:</u>

- Excel export has not been developed for Contact, Credential due to some criticality.
- The transactions are executed in off-line mode, hence on-line data for Telephone, Profile capture and modification is not possible.
- Off-line reports of Contact, Emails, Telephone cannot be generated due to batch mode execution.

SCREENSHOTS OF PROJECT
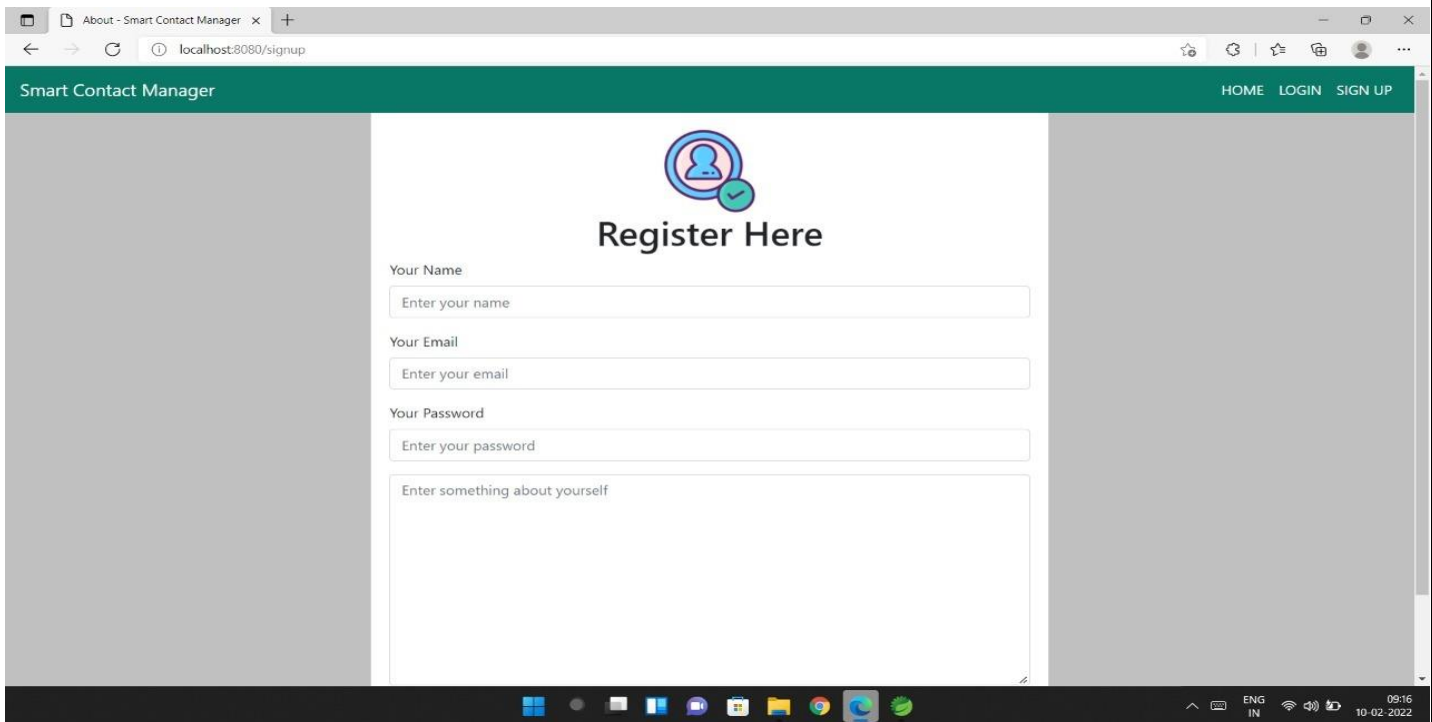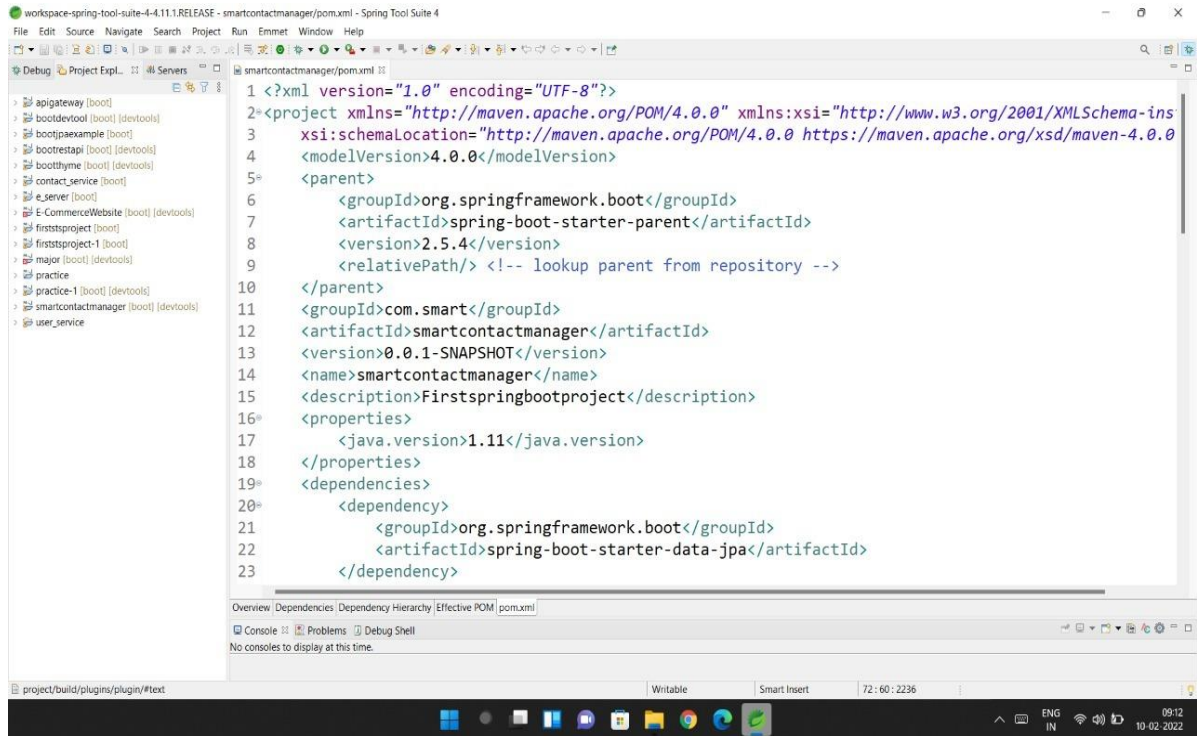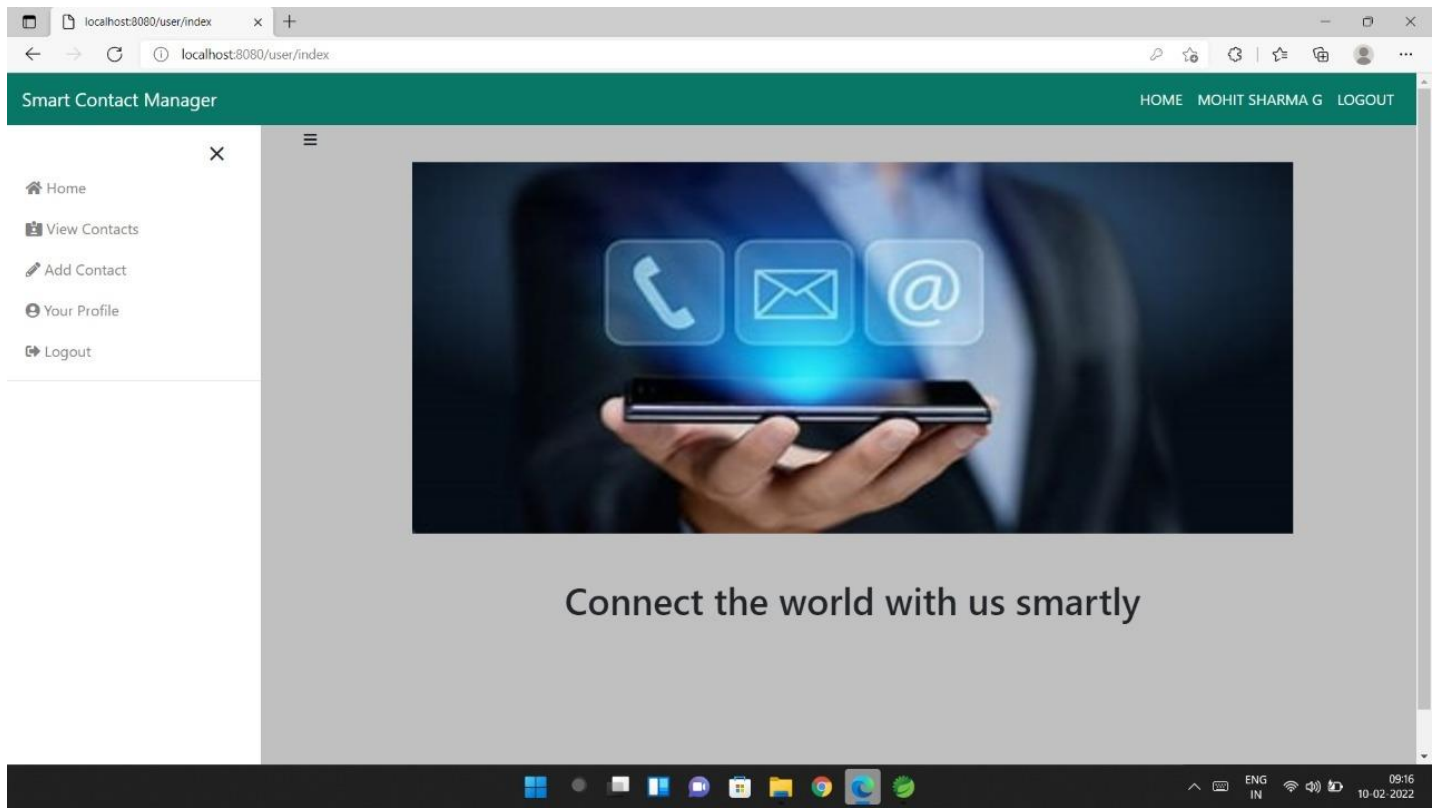
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