REPORT

ON

SUMMER TRAINING AT

RELIANCE INDUSTRIES LIMITED

By

Aarya Vishwas Zunjarrao

Department of Computer Engineering

Mahatma Education Society's

Pillai College of Engineering

New Panvel

Guided By

Mr. Kantimahanti Sivananda Kumar

CERTIFICATE

This is to certify that Miss Aarya Vishwas Zunjarrao,

has successfully completed her summer training

At Reliance Patalganga in the partial fulfilment of the Undergraduate Degree course in Computer Engineering, is a bonafide record of project work carried out by her under my supervision.

Mr. K S Kumar

Mentor,

Data Centre Operations

Mr. Sanjay B Shukla

HOD - IT

Acknowledgement

I take immense pleasure in thanking **Mr. Srinivas N Iyer**, HR Learning Dept. for giving me an opportunity to pursue an internship at Reliance Patalganga.

I express my deep gratitude to **Mr. K S Kumar**, Manager IT Operation who has without any hesitation permitted us to undertake the Work Report in Overview of IT System Overview. His dedication and keen interest above all his overwhelming attitude to help his student had been solely and mainly responsible for completing my work.

I also thank **Mr. Sanjay B Shukla**, HOD-IT Dept. for extending his immense support and attention throughout my internship training.

I would also like to extend my thanks to **Mr. Veeresh Mudagal** – Application , **Mr.Narvirsinh Raj** of Network & **Mr. Santosh Vinekar** of Polyester Automation team for their valuable guidance and supervision.

I would also like to extend my thanks to **Mr. Adapa Kaliprasad** for the support and guidance to give us a project on database linking to a webform in Visual Studio using C#.

My special thanks to **Dr. Sharvari S Govilkar**, Head of Department, Computer Engineering for her kind help and cooperation throughout the project.

Last but not the least, I express my profound gratitude to those who helped me directly or indirectly in my endeavour and infused their help for the success of this summer training.

Aarya Zunjarrao

Table of Contents :

1. Safety Training

1.1 Introduction

A Safety Management System (SMS) is a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures. As per ICAO requirements, service providers are responsible for establishing an SMS, which is accepted and overseen by their State.

1.2 Safety Equipment:

• Safety shoes :

A steel-toe boot (also known as a safety boot, steel-capped boot or safety shoe) is a durable boot or shoe that has a protective reinforcement in the toe which protects the foot from falling objects or compression, usually combined with a mid-sole plate to protect against punctures from below.

• Safety Helmets:

A hard hat is a type of helmet predominantly used in workplace environments such as industrial or construction sites to protect the head from injury due to falling objects, impact with other objects, debris, rain, and electric shock. Suspension bands inside the helmet spreads the helmet's weight and the force of any impact over the top of the head.

• Safety gloves:

Safety gloves are hand garments meant for the protection of the wrist, hand, fingers, and thumbs from adverse processes or conditions. These items are virtually limitless in application and find employment in both industrial and commercial marketplaces. Their functionality is determined by the material and design of the glove.

• Safety Goggles: Goggles or safety glasses are forms of protective eyewear that usually enclose or protect the area surrounding the eye in order to prevent particulates, water or chemicals from striking the eyes. They are used in chemistry laboratories and in woodworking. They are often used in snow sports as well, and in swimming. Goggles are often worn when using power tools such as drills or chainsaws to prevent flying particles from damaging the eyes.

1.3 Zero Tolerance:

A zero-tolerance policy is one which imposes strict punishment for infractions of a stated rule, with the intention of eliminating undesirable conduct.

Zero-tolerance policies have been adopted in all around RIL Industries. These policies are usually promoted as preventing smoking, drinking and prohibiting mobile phones. Staff members, workers and other visitors, who possess a banned item or perform any prohibited action for any reason are automatically punished.

Zero Tolerance Rules:

1.) No Smoking, No Drugs, No Alcohol, No Ignition sources.

2.) No Violation of Work Permit Conditions.

3.) No Line Break Without Authorization.

4.) No Entering Confined Space Without Authorization.

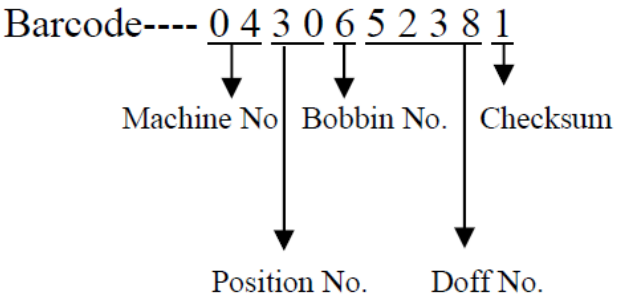
2.Automated Product Handling System

2.1 Introduction to APHS:

More than 120 automation systems installed worldwide, Salmoiraghi may certainly be considered as the absolute market leader. Our Automated Handling System featuring high efficiency and excellent cost performance ratio incorporates highly innovative solutions developed along the years (many of which are protected by international patents). We offer a wide range of field-proven solutions for handling and computerized tracking of yarn bobbins all the way from the winding machines to packings.

2.2 Overview of APHS :

The end product POY (Partially Oriented Yarn) from the manufacturing division is winded on a single unit called a Bobbin, at the rate of 3000 frequency. On each Doff (bobbins carrying unit) eight bobbins are assembled using an automated shuttle. The shuttle has a scanning machine that scans the barcode of each Doff and assembles accordingly. For example,



This Doff travels through three major station :

1. Physical Testing Station :

Test performed are as follows :

• Cross Section

• Denier

• Draw Tension

• Tenacity Elongation

• Entanglement

2. Pre-visual Inspection Station :

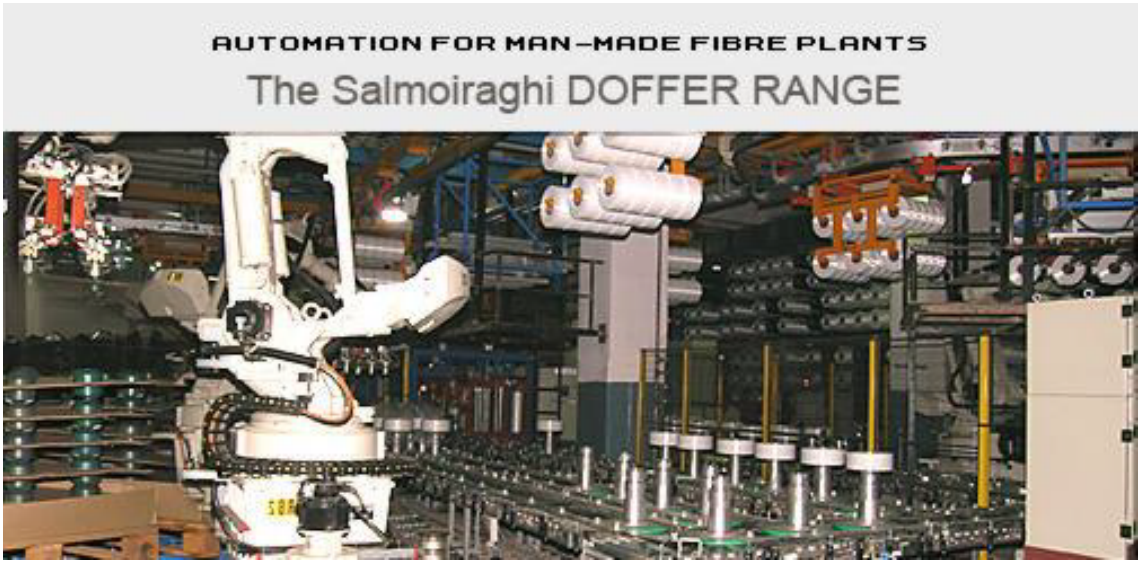
Mirrors are installed on the both ends of the doff through which all sides of bobbins are examined by the examiner and faults are identified.

3. Visual Inspection Stations :

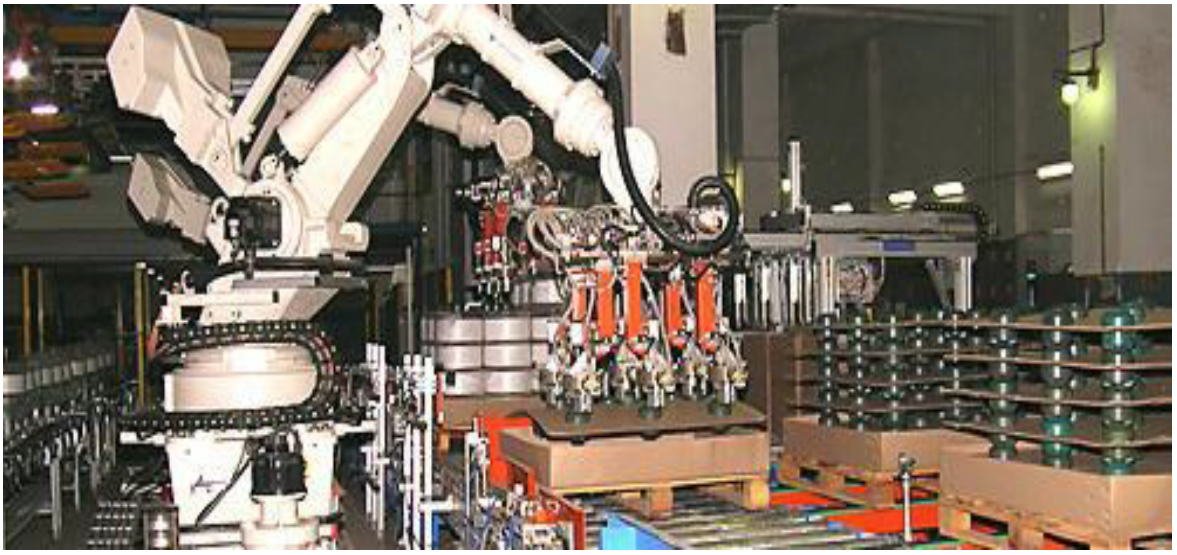
Final weight and grade of the bobbins are determined and accordingly bobbins are accepted or rejected.

The storage area of bobbins is called CAROUSELS. It has 9 Bobbin Storage Towers with the capacity of 27000 bobbins. Each tower has 3 layers- UPPER, MIDDLE, LOWER.

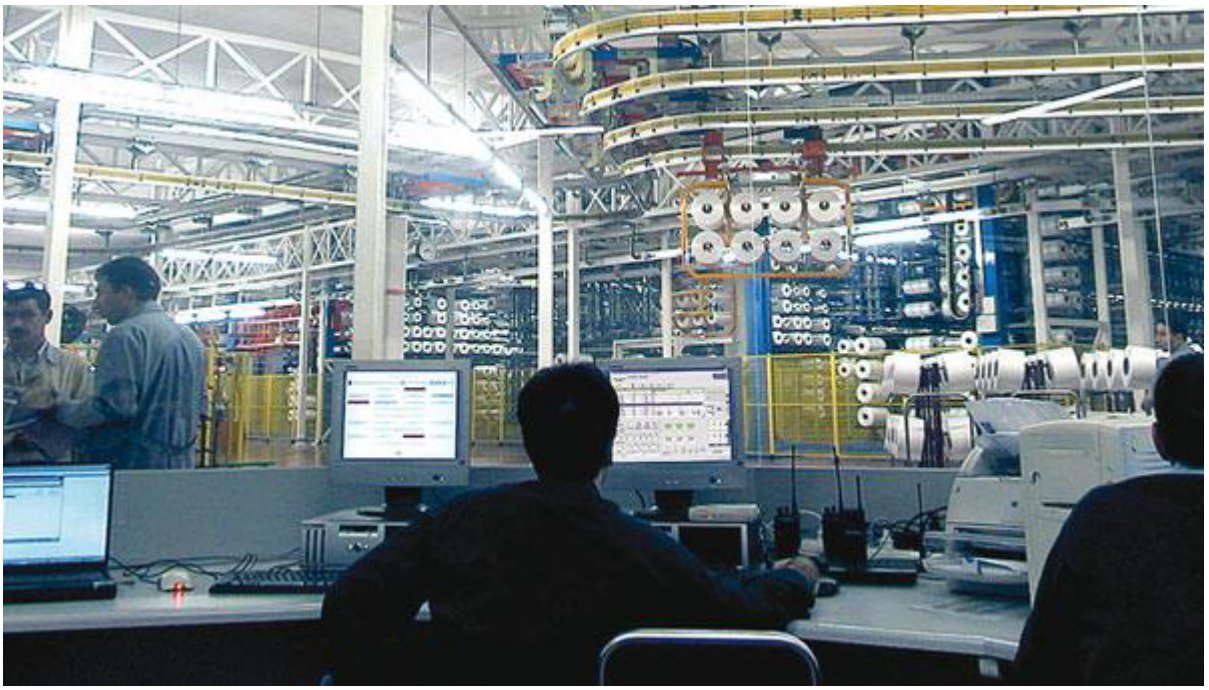
SALMOIRAGHI LOADER loads bobbins from the Doff to the assigned towers.



As per the order by the particular agency, the bobbins are unloaded by the Salmoiraghi Unloader.



As per the company's requirements, Salmoiraghi system is programmed to pack the bobbins in the order of 3*3 or 4*4 manners.



These Packed bobbins are then transported to the Dispatch Department.

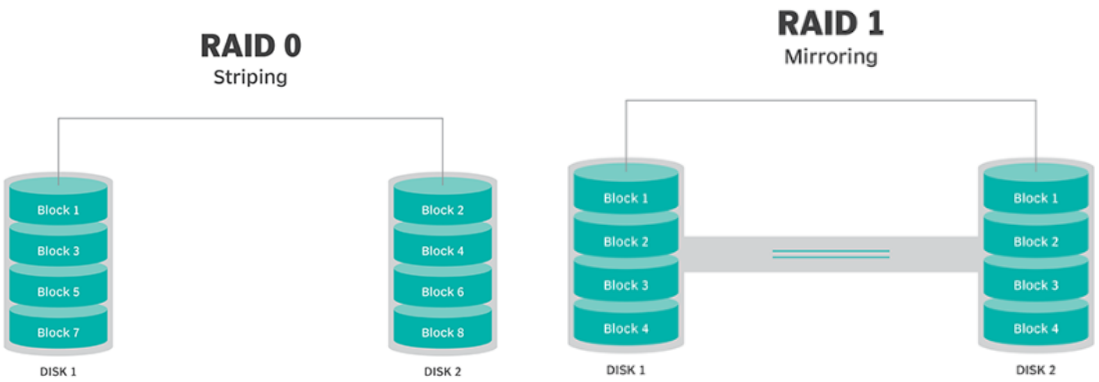
3. RAID Configuration

The RAID – or Redundant Array of Independent Disks – is a type of storage that writes data across multiple drives within the same system. Different configurations are expressed as numbers, such as RAID 0, RAID 1, or RAID 5. Each RAID type gives users different benefits — increased performance, greater fault tolerance, or a combination of both — depending on how it writes and distributes your data.
RAID arrays spread I/O operations across multiple disks in order to read and write data faster, or to mirror data on one drive across other drives, which allows the whole system to continue operating without data loss if one of those drives fails.

Who Needs RAID?

You may want to try one or more RAID configurations if you need to:

- Maintain maximum uptime and availability on your system
- Work with large files without slowing down operations
- Have data redundancy to protect important information
- Increase the potential mean time to failure of your system



4.1 Hyper-V

The Hyper-V role in Windows Server lets you create a virtualized computing environment where you can create and manage virtual machines. You can run multiple operating systems on one physical computer and isolate the operating systems from each other. With this technology, you can improve the efficiency of your computing resources and free up your hardware resources.

Install Hyper-V by using Server Manager

1. In Server Manager, on the Manage menu, click Add Roles and Features.
2. On the Before you begin page, verify that your destination server and network environment are prepared for the role and feature you want to install. Click Next.
3. On the Select installation type page, select Role-based or feature-based installation and then click Next.
4. On the Select destination server page, select a server from the server pool and then click Next.
5. On the Select server roles page, select Hyper-V.
6. To add the tools that you use to create and manage virtual machines, click Add Features. On the Features page, click Next.
7. On the Create Virtual Switches page, Virtual Machine Migration page, and Default Stores page, select the appropriate options.
8. On the Confirm installation selections page, select Restart the destination server automatically if required, and then click Install.
9. When installation is finished, verify that Hyper-V installed correctly. Open the All Servers page in Server Manager and select a server on which you installed Hyper-V. Check the Roles and Features tile on the page for the selected server.

3.2 Installation and configuration of VMWare ESXI-7.0.3

VMware ESXi server is a bare metal hypervisor (without running an operating system) that can run Virtual Machines.

Installation

1. Download ESXi server 7.0 from VMware website.
2. Boot the downloaded image file and choose the standard installer.

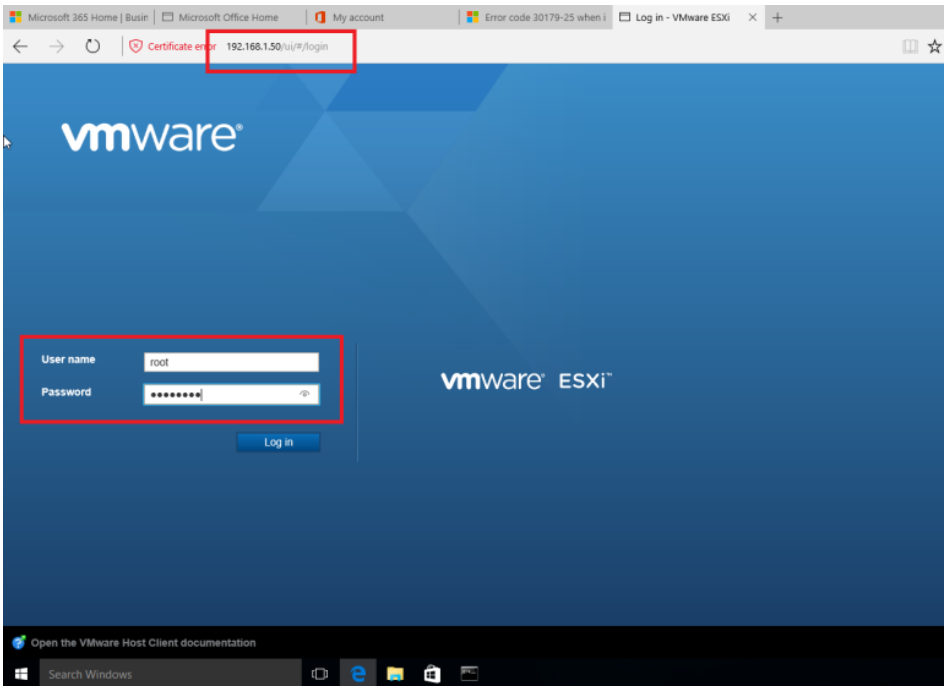
3. Press enter key to continue the ESXi 7.0 installation.Accept the End User License Agreement to continue.Choose the hard disk to install ESXi server 7.0 and press Enter key. You can refresh using the F5 key if the hard disks are not visible.
4. Enter a root password and confirm.Press Enter key to reboot after the installation.

Basic Configuration

1. Press F2 key and enter the previously given root password.
2. Configure the Management Network.
3. Select IPv4 configuration to change the IP address. To change the host name select DNS Configuration.

After the installation and configuration of ESXi server 7.0, you can visit the ESXi login screen using the management IP address and the root password from a remote computer.

Using this interface you can create and maintain virtual machines.



4. SERVER BACKUP

In a computer system we have primary and secondary memory storage. Primary memory storage devices - RAM is a volatile memory which stores disk buffer, active logs, and other related data of a database. It stores all the recent transactions and the results too. When a query is fired, the database first fetches in the primary memory for the data, if it does not exist there, then it moves to the secondary memory to fetch the record. Fetching the record from primary memory is always faster than secondary memory.

What happens if the primary memory crashes?

All the data in the primary memory is lost and we cannot recover the database. In such cases, we can follow any one of the following steps so that data in the primary memory is not lost.

• We can create a copy of primary memory in the database with all the logs and buffers, and are copied periodically into the database. So in case of any failure, we will not lose all the data. We can recover the data till the point it is last copied to the database.

• We can have checkpoints created at several places so that data is copied to the database.

Suppose the secondary memory itself crashes. What happens to the data stored in it? All the data is lost and we cannot recover. We have to think of some alternative solution for this because we cannot afford to lose data in a huge database. There are three methods used to back up the data in the secondary memory, so that it can be recovered if there is any failure.

• Remote Backup : Database copy is created and stored in the remote network. This database is periodically updated with the current database so that it will be in sync with data and other details. This remote database can be updated manually called offline backup. It can be backed up online where the data is updated at current and remote databases simultaneously. In this case, as soon as there is a failure of the current database, the system automatically switches to the remote database and starts functioning. The user will not know that there was a failure.

• In the second method, the database is copied to memory devices like magnetic tapes and kept at a secure place. If there is any failure, the data would be copied from these tapes to bring the database up.

4.2 Types of Backup:

1. Full backup

A data backup that contains all the data in a specific database or set of file groups or files, and also enough log to allow for recovering that data.

2. Differential backup

A data backup that is based on the latest full backup of a complete or partial database or a set of data files or filegroups (the differential base) and that contains only the data extents that have changed since the differential base. A differential partial backup records only the data extents that have changed in the filegroups since the previous partial backup, known as the base for the differential.

3. Incremental Backup

An incremental backup is a backup type that only copies data that has been changed or created since the previous backup activity was conducted. An incremental backup approach is used when the amount of data that has to be protected is too voluminous to do a full backup of that data every day. By only backing up changed data, incremental backups save restore time and disk space. Incremental is a common method for cloud backup as it tends to use fewer resources.

4. PROJECT

4.1 Abstract

Hospital Management System is an organized computerized system designed and programmed to deal with day to day operations and management of the hospital activities. The program can look after inpatients, outpatients, records, database treatments, status illness, billings in the pharmacy and labs. It also maintains hospital information such as ward id, doctors in charge and department administering.

4.2 Introduction

The project Hospital Management system includes registration of patients, storing their details into the system, and also computerized billing in the pharmacy, and labs. The software has the facility to give a unique id for every patient and stores the details of every patient and the staff automatically. It includes a search facility to know the current status of each room. Users can search for the availability of a doctor and the details of a patient using the id. The Hospital Management System can be entered using a username and password. It is accessible either by an administrator or receptionist. Only they can add data into the database. The data can be retrieved easily. The interface is very user-friendly. The data is well protected for personal use and makes the data processing very fast.

4.3 Modules

The entire project mainly consists of 2 modules, which are

- Administrator
  - ☐ Manage Doctors, Patients details and departments of hospital
  - ☐ Rooms,Beds status
- Receptionist
  - ☐ Manage inpatients, outpatients
  - ☐ Allocating rooms to inpatients

4.4 Technologies and Tools Used

1.SQL Server Management Studio

SQL Server Management Studio (SSMS) is an integrated environment for managing any SQL infrastructure, from SQL Server to Azure SQL Database.It is a software application developed by Microsoft that is used for configuring, managing, and administering all components within Microsoft SQL Server.

SSMS provides a single comprehensive utility that combines a broad group of graphical tools with many rich script editors to provide access to SQL Server for developers and database administrators of all skill levels.

2.Visual Studio using C#

The Visual Studio IDE is a creative launching pad that you can use to edit, debug, and build code, and then publish an app. Visual Studio includes compilers, code completion tools, graphical designers, and many more features to enhance the software development process.

Web Forms are pages that your users request using their browser. These pages can be written using a combination of HTML, client-script, server controls, and server code. When users request a page, it is compiled and executed on the server by the framework, and then the framework generates the HTML markup that the browser can render. An ASP.NET Web Forms page presents information to the user in any browser or client device.

Using Visual Studio, you can create ASP.NET Web Forms. The Visual Studio Integrated Development Environment (IDE) lets you drag and drop server controls to lay out your Web Forms page. You can then easily set properties, methods, and events for controls on the page or for the page itself. These properties, methods, and events are used to define the web page's behavior, look and feel, and so on. To write server code to handle the logic for the page, you can use a .NET language like Visual Basic or C#.

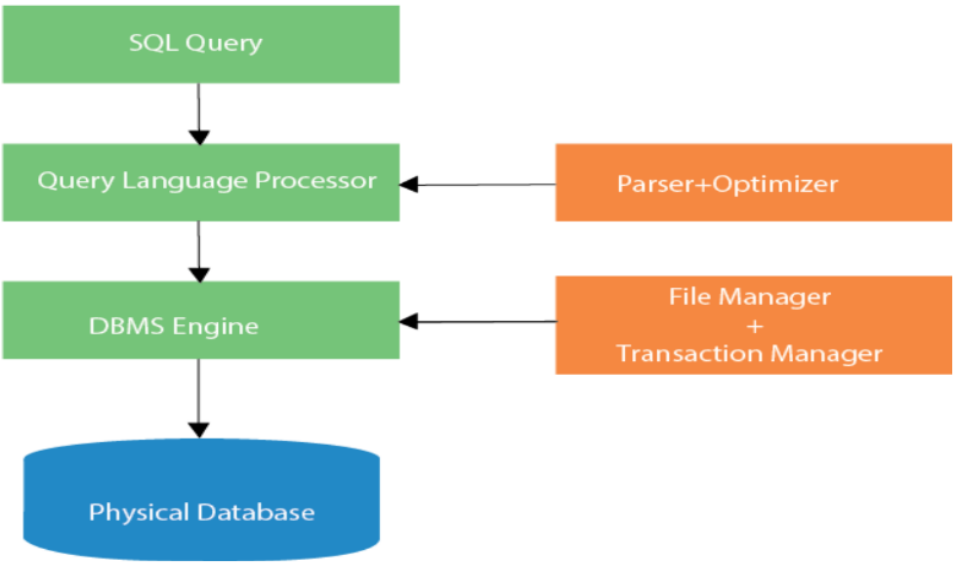
4.3 Database Management System

Database is an organized collection of data. It is the collection of schema, tables, queries, reports, views and other objects. The data are typically organized to model aspects of reality in a way that supports processes requiring information, such as modelling the availability of rooms in hotels in a way that supports finding a hotel with vacancies.

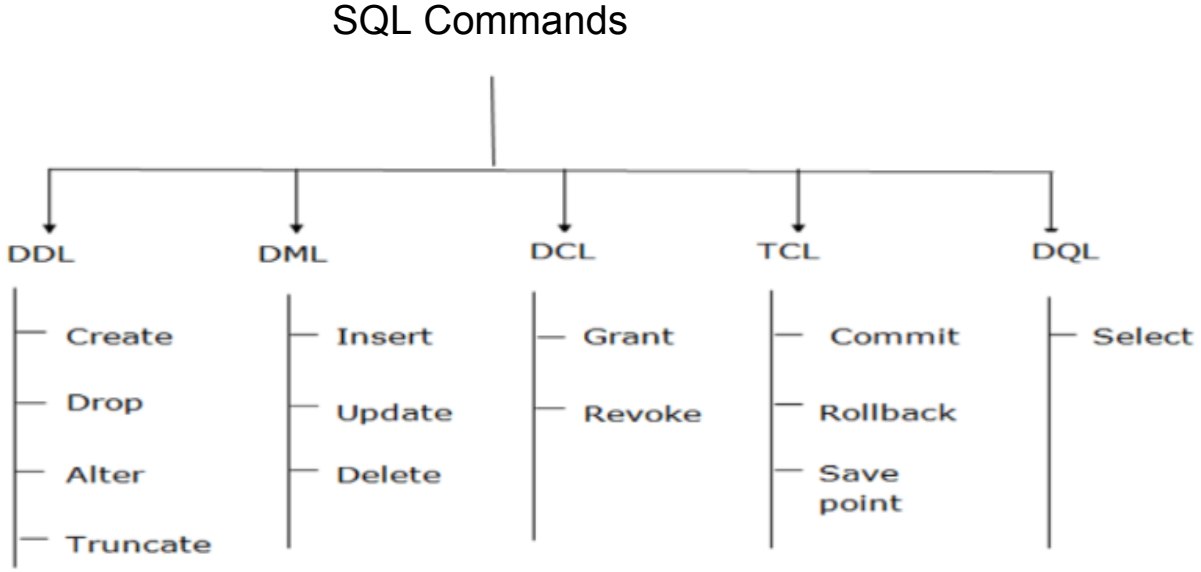
A Database Management System is a computer application that interacts with the user, other applications and the database itself to capture and analyse data. Well known DBMS include MySQL, Microsoft SQL Server, oracle, Sybase, IBM DB2, Postgre SQL and SAP HANA.

SQL (Structured Query Language):

SQL stands for Structured Query Language. It is used for storing and managing data in relational database management systems (RDBMS).It is a standard language for Relational Database Systems.It enables a user to create, read, update and delete relational databases and tables.All the RDBMS like MySQL, Informix, Oracle, MS Access and SQL Server use SQL as their standard database language.



Types of SQL Statements:



Normalization IN DBMS

Normalization is the process of minimizing redundancy from a relation or set of relations. Redundancy in relation may cause insertion, deletion, and update anomalies. So, it helps to minimize the redundancy in relations. Normal forms are used to eliminate or reduce redundancy in database tables.

Types of Normalization:

1) 1NF (First Normal Form)
2) 2NF (Second Normal Form)
3) 3NF (Third Normal Form)
4) BCNF (Boyce-Codd Normal Form)

First Normal Form:

If a relation contains composite or multi-valued attributes, it violates first normal form or a relation is in first normal form if it does not contain any composite or multivalued attribute. A relation is in first normal form if every attribute in that relation is a single valued attribute.

Second Normal Form:

To be in second normal form, a relation must be in first normal form and relation must not contain any partial dependency. A relation is in 2NF if it has No Partial Dependency, i.e., no non-prime attribute (attributes which are not part of any candidate key) is dependent on any proper subset of any candidate key of the table.

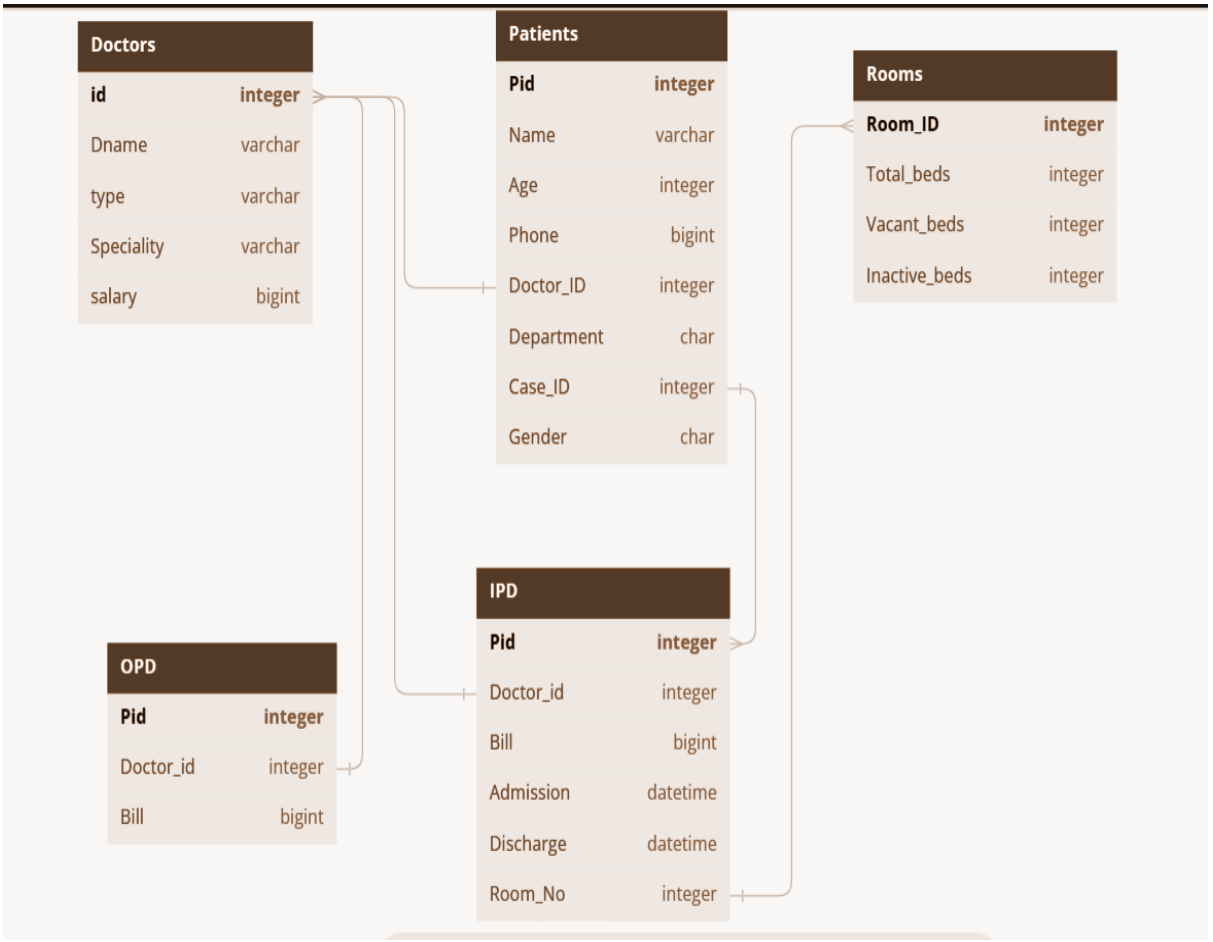
Third Normal Form:

A relation is in third normal form, if there is no transitive dependency for non-prime attributes as well as it is in second normal form. A relation is in 3NF if at least one of the following conditions holds in every non-trivial functional dependency X -> Y 1. X is a Super Key 2. Y is a prime attribute (each element of Y is part of some Candidate key).

Boyce-Codd Normal Form:

A relation R is in BCNF if R is in Third Normal Form and for every FD, LHS is super key. A relation is in BCNF if in every non-trivial functional dependency X –> Y, X is a super key.

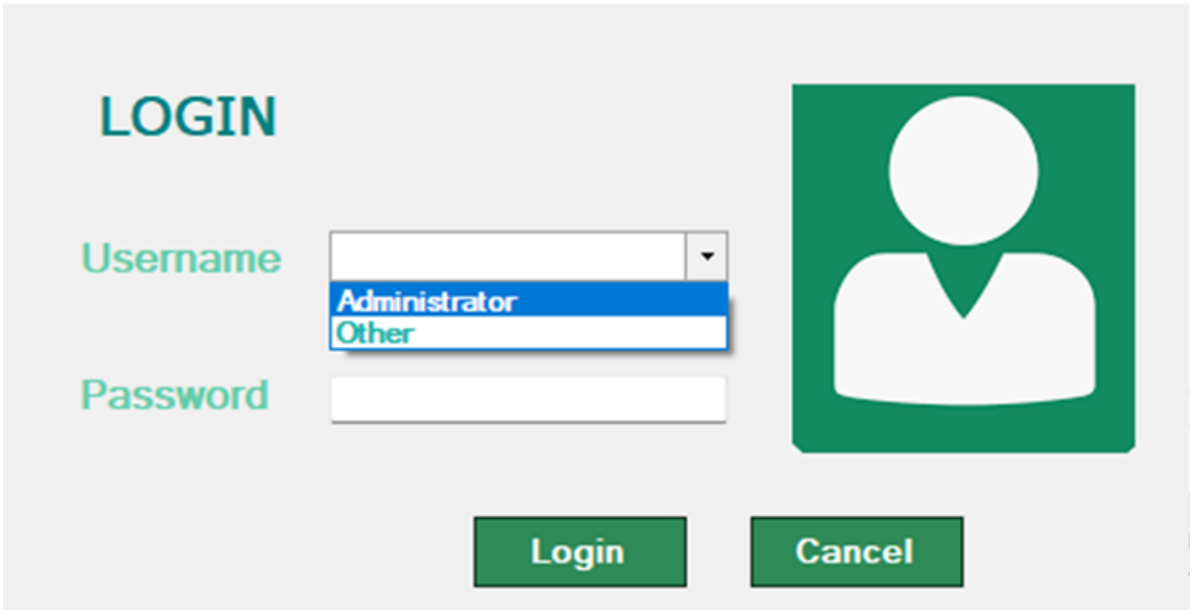
Database Schema :



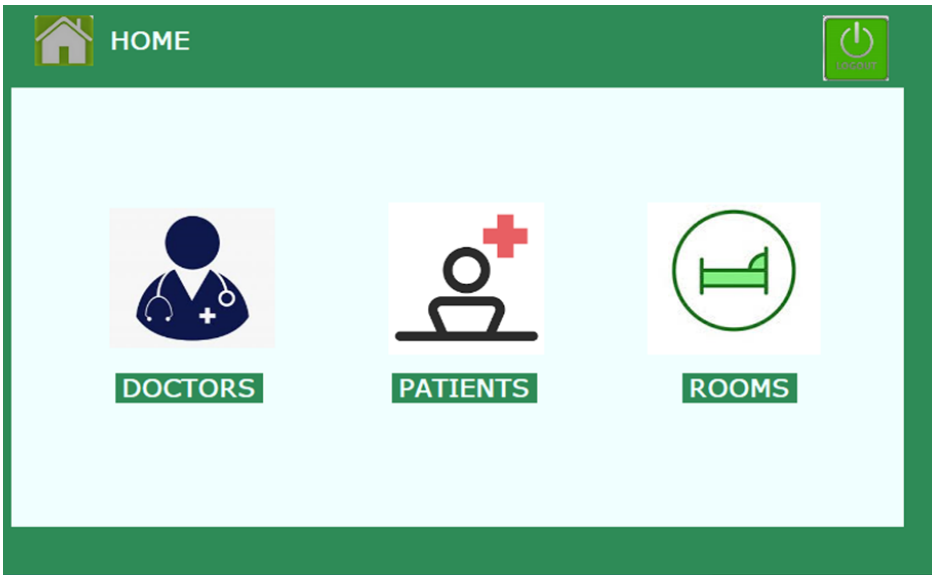
PROJECT

Loading Page

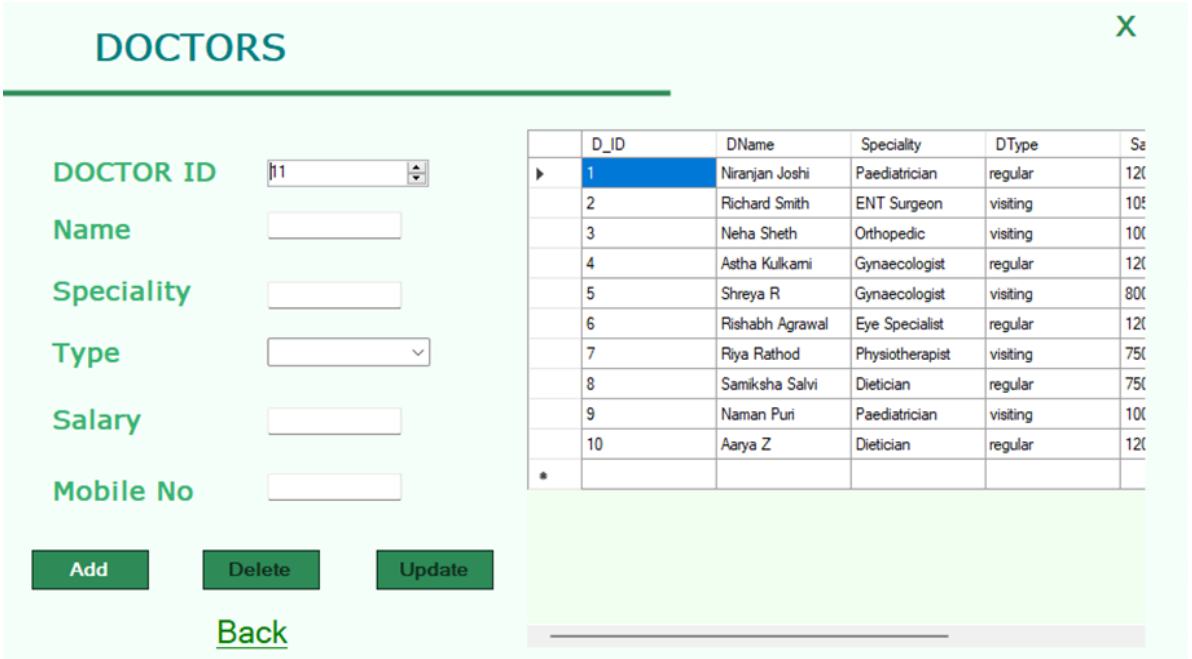
Login Form



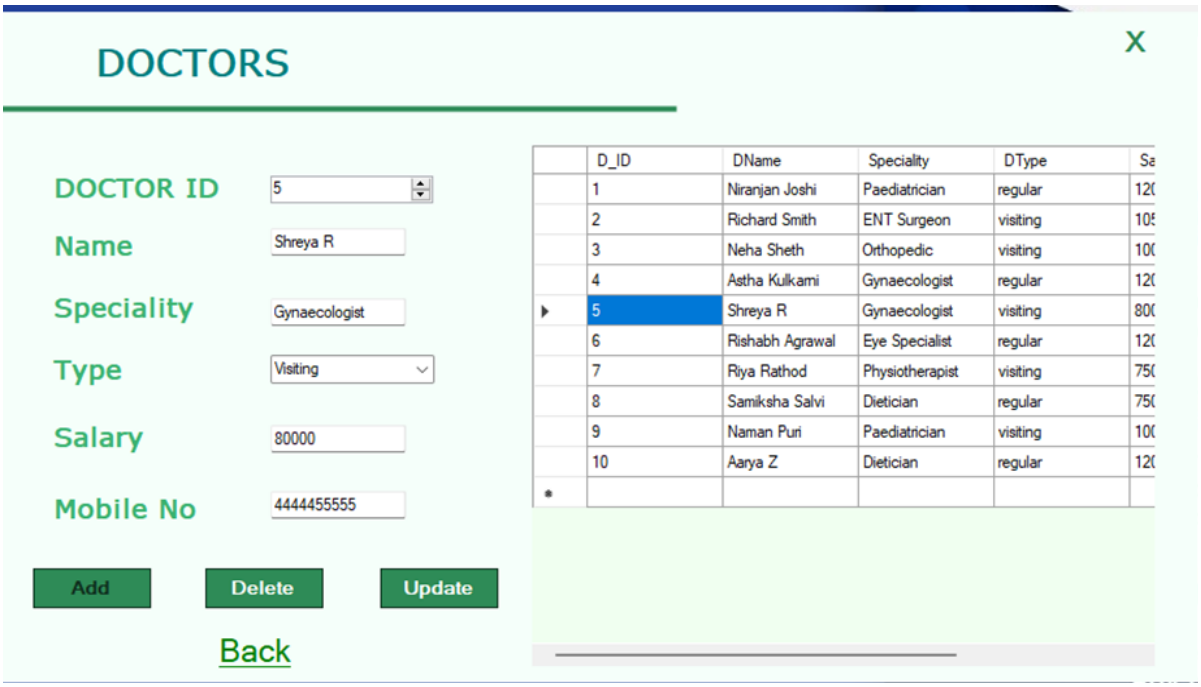
Administrator’s Home Page



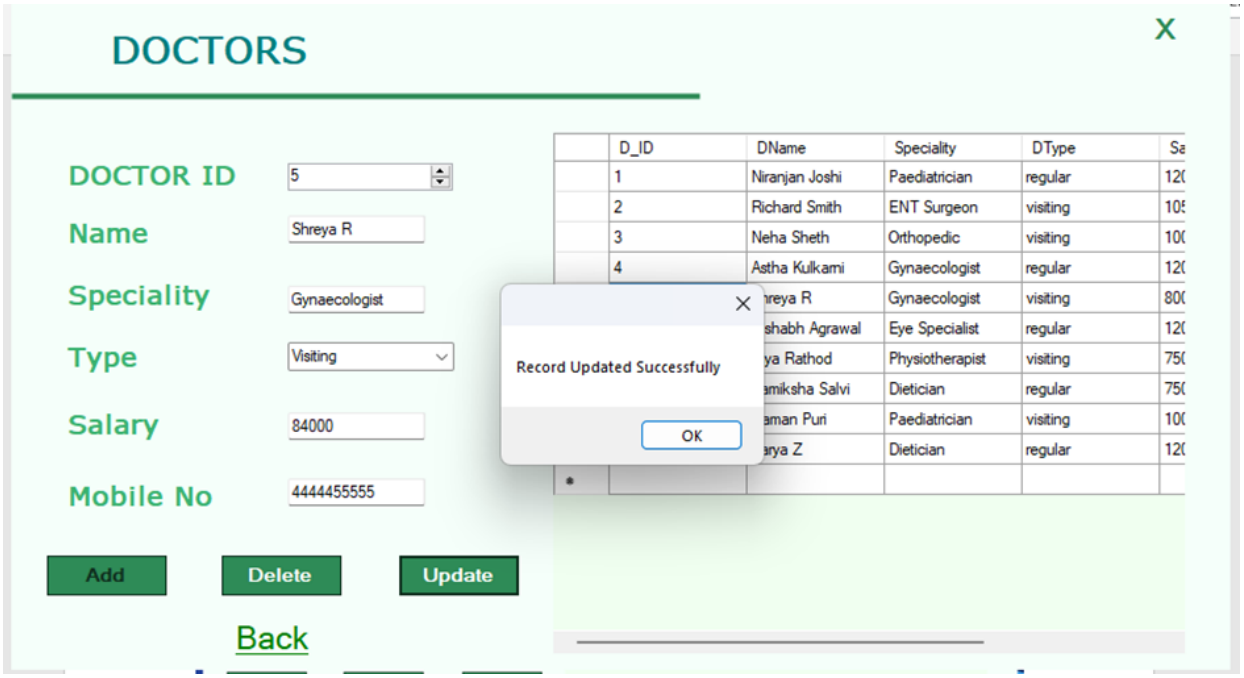
New registration in Doctors form



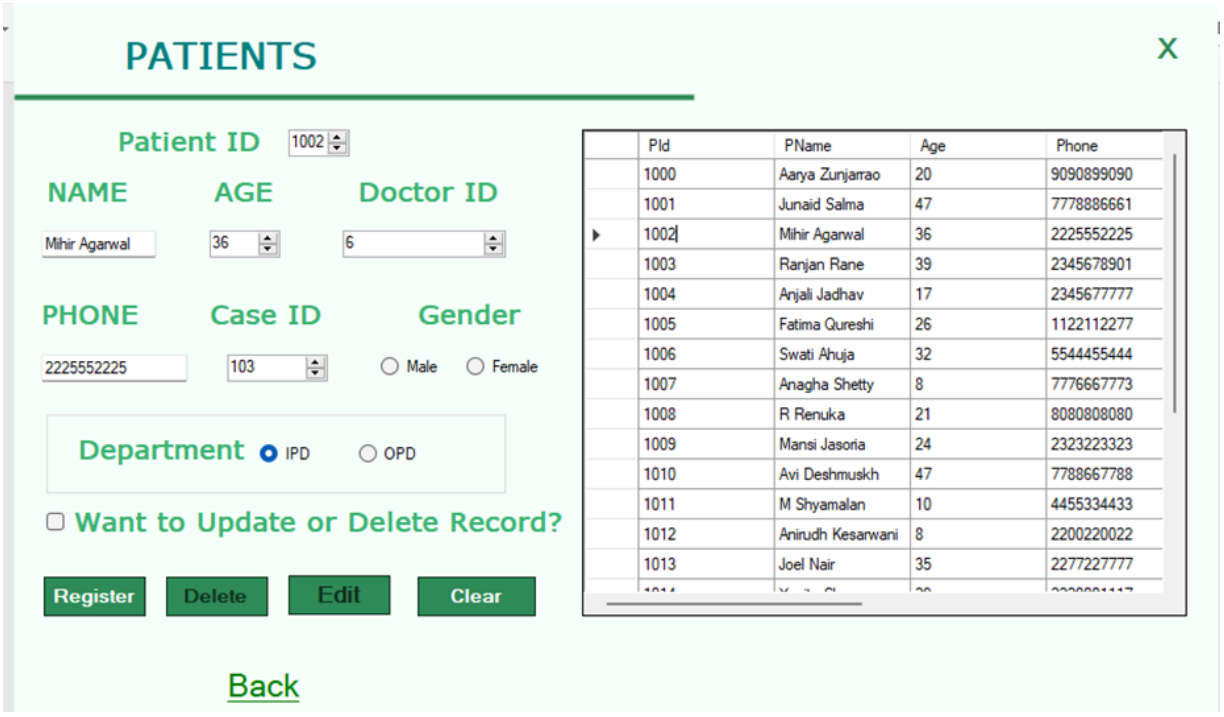
Add Disabled for existing doctor ID



Updation in the database table



Patients table



PId	PName	Age	Phone
1000	Aarya Zunjarrao	20	9090899090
1001	Junaid Salma	47	7778886661
1002	Mihir Agarwal	36	2225552225
1003	Ranjan Rane	39	2345678901
1004	Anjali Jadhav	17	2345677777
1005	Fatima Qureshi	26	1122112277
1006	Swati Ahuja	32	5544455444
1007	Anagha Shetty	8	7776667773
1008	R Renuka	21	8080808080
1009	Mansi Jasoria	24	2323223323
1010	Avi Deshmuskh	47	7788667788
1011	M Shyamalan	10	4455334433
1012	Anirudh Kesarwani	8	2200220022
1013	Joel Nair	35	2277227777