**INTRODUCTION**

1. **INTRODUCTION**

# **1. About The Project**

HEAL ON YOU (On Demand Medical Information System that SavesLife) is a healthcare technology and services that will revolutionize the healthcare industry by providing a total solution for acquisition, organization, and management of medical records. It provides everyone involved in the healthcare industry, especially patients, with an efficient, secure, simple and cost-effective tools to facilitate the best use of medical information and to enhance our patient’s medical outcomes - anywhere, anytime.it provide rapid availability of your medical history and alerts, between emergency personnel and you in the event you are unable to communicate. All of your critical emergency information is at the fingertips of the emergency personnel in seconds. It also organizes all of your medical history and non-critical information that you typically provide to your medical facilities at the time of service. It also allows the relatives to get information when the patient has been ad mitted in any of the hospitals during accident.

**SYSTEM ANALYSIS and study**

# **2. SYSTEM ANALYSIS and study**

System Analysis is a detailed study of the various functions performed by the system and the relationships within and outside of the system. In this phase, the problem is identified and alternate system solutions for solving it is recognized. System Analysis not only includes the process of synthesis, which is a process of putting parts together to form a new product. Analysis involves the requirement identification and specification.

During analysis, data are collected on the available files, decision points, and transactions handled by the present system. Data flow diagrams, interviews, on-site observations and questionnaires are examples.

The System Analysis includes two stages: Preliminary Analysis and Detailed Analysis. Preliminary Analysis includes a quick look at what is needed. Detailed Analysis includes an in-depth look at the system and analyzes the costs and benefits. The costs and benefits of each alternative guide the selection of the best system for the job. Cost/Benefit Analysis identifies the costs and benefits of a given system and categorizes them for analysis.

Once analysis is completed, the analyst has a firm understanding of what is to be done. The next step is to decide how the problem might be solved. Thus, in system design, we move from the logical to the physical aspects of the life cycle.

**2.1 EXISTING SYSTEM**

In the current situation medical information is recorded using paper files. The person who is a regular visitor of the particular hospital will have his medical information recorded in the file provided by that particular hospital and which is private property of that hospital. Each hospital will have its own medical file for the regular patients, for others their details are scribbled onto the sheets of paper. Your personal medical file may be as simple as a folder with paper copies of all records you have accumulated from various care providers. Most people probably move many times during your life. This means establishing a relationship with a new doctor, dentist or other health care provider. Over time, it's easy to forget when you were treated, by whom or even for what. Even if you've stayed in one place, it's still likely you've received medical care from various providers over time. There is no one place you can go to get your complete medical history. Each healthcare provider you see keeps his or her own paper files detailing your visits and treatment. Only you are in the position to pull all the records together to compile your complete medical history. If you don't already keep a personal health record, now is the best time to start. Do not rely on your ability to go back in time to collate a complete medical file. The longer you wait, the more difficulty you may have in obtaining old.

**2.2 PROPOSED SYSTEM**

The Biometric MediFile System gathers and stores copies of a member's actual medical records from hospitals, doctor's offices or outpatient facilities. The MediFile service consolidates these records into an easily accessible digital format, available to each member 24 hours a day, 7 days a week from anywhere in the world. This entire process is accomplished in a highly secure environment, allowing members to take control of their personal health and wellbeing. Patient details contain a global identification number and a thumb impression. If a patient admitted in a hospital by seriously injured , using his thumb impression or GIN(Global Identification Number) doctors can find his previous case history like any allergy , heart patient or not , previous surgery details if any etc. So treatment will be easy. The hospital can send sms to patient’s relative if necessary. In case of accidents and emergencies the hospital can inform the patients’ relatives that particular patient has been admitted to that hospital. Any registered patients relative can enter GIN of a patient to check whether he is admitted in any of our hospitals.

**Advantages of the Proposed System**

Every year, people die or do not get the best possible treatment in emergency rooms because their important medical information is not readily available to emergency room doctors. Timely access to a patient's actual and relevant medical information can, in many cases, mean the difference between life and death, or faster and better treatment. The following people may benefit from Biometric MediFile System;

* Physicians benefit from this site as this can be a central location to store medical data for patients.
* Makes it easy for referrals to other doctors as all the data is in one location - so no time is wasted to transfer data from one office to another.
* Anyone with chronic medical conditions such as diabetes, heart conditions, neurological disorders, memory impairment or communication difficulty, etc.
* Persons who have complicated medical conditions, multiple allergies or numerous medications too numerous to engrave on the limited space of a medical ID.
* Individuals whose medical information is subject to change from time to time.
* Frequent travellers
* Anyone who might have difficulty explaining their medical condition whenever medical personnel or family members who would normally speak for them, are not present or available.

**3. SYSTEM specification**

#### **3.1. HARDWARE SPECIFICATION**

PROCESSOR : INTEL CORE i3 (7TH GEN)

HARD DISK : 1 TB

CACHE MEMORY : 3 MB CACHE

RAM : 4.00 GB DDR4

MONITOR : 15.6’’ LED

PRINTER : INKJET

#### **3.2 SOFTWARE SPECIFICATION**

FRONT-END : Python Windows Application in .NET

BACK-END : MySQL SERVER

IDE : Visual studio code

OPERATING SYSTEM : WINDOWS 10

**3.2.1FRONT-END PYTHON DJANGO**

**Python**:

Python is an interpreted, object oriented, high level programming language with dynamic semantics. Its high-level built-in data structures, combined with dynamic typing and dynamic binding, make it very attractive for rapid application development as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms and can be freely distributed.

**Django:**

Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of Web development, so you can focus on writing your app without needing to reinvent the wheel. It’s free and open source. Django's primary goal is to ease the creation of complex, database-driven websites. Django emphasizes [reusability](https://en.wikipedia.org/wiki/Reusability) and "pluggability" of components, less code, low coupling, rapid development, and the principle of [don't repeat yourself](https://en.wikipedia.org/wiki/Don%27t_repeat_yourself). Python is used throughout, even for settings files and data models. Django also provides an optional administrative [create, read, update and delete](https://en.wikipedia.org/wiki/Create,_read,_update_and_delete) interface that is generated dynamically through [introspection](https://en.wikipedia.org/wiki/Type_introspection) and configured via admin models.

**PyCharm:**

PyCharm is an integrated development environment (IDE) used in computer programming, specifically for the Python language. It is developed by the Czech company JetBrains. [2] It provides code analysis, a graphical debugger, an integrated unit tester, integration with version control systems (VCSes), and supports web development with Django. PyCharm is cross-platform, with Windows, macOS and Linux versions. The Community Edition is released under the Apache License,[3] and there is also Professional Edition released under a proprietary license - this has extra features.

* Coding assistance and analysis, with code completion, syntax and error highlighting, linter integration, and quick fixes
* Project and code navigation: specialized project views, file structure views and quick jumping between files, classes, methods and usages
* Python refactoring: including rename, extract method, introduce variable, introduce constant, pull up, push down and others
* Support for web frameworks: Django, web2py and Flask
* Integrated Python debugger
* Integrated unit testing, with line-by-line code coverage
* Google App Engine Python development
* Version control integration: unified user interface for Mercurial, Git, Subversion, Perforce and CVS with change lists and merge.

**3.2.2 BACK-END MySQL SERVER**

**MySQL**   is an [open-source](https://en.wikipedia.org/wiki/Open-source) [relational database management system](https://en.wikipedia.org/wiki/Relational_database_management_system) (RDBMS). The MySQL development project has made its [source code](https://en.wikipedia.org/wiki/Source_code) available under the terms of the [GNU General Public License](https://en.wikipedia.org/wiki/GNU_General_Public_License), as well as under a variety of [proprietary](https://en.wikipedia.org/wiki/Proprietary_software) agreements. MySQL is offered under two different editions: the open source MySQL Community Server and the proprietary [Enterprise Server](https://en.wikipedia.org/wiki/MySQL_Enterprise). MySQL Enterprise Server is differentiated by a series of proprietary extensions which install as server plugins, but otherwise shares the version numbering system and is built from the same code base.

Major features as available in MySQL 5.6:

* A broad subset of [ANSI SQL 99](https://en.wikipedia.org/wiki/SQL:1999), as well as extensions
* Cross-platform support
* [Stored procedures](https://en.wikipedia.org/wiki/Stored_procedure), using a procedural language that closely adheres to [SQL/PSM](https://en.wikipedia.org/wiki/SQL/PSM)[[76]](https://en.wikipedia.org/wiki/MySQL#cite_note-HarrisonFeuerstein2008-76)
* [Triggers](https://en.wikipedia.org/wiki/Database_trigger)
* [Cursors](https://en.wikipedia.org/wiki/Cursor_(databases))
* Updatable [views](https://en.wikipedia.org/wiki/View_(SQL))

**3.2.3 Operating System**

**WINDOWS 10**

**Windows 10** is a series of [personal computer](https://en.wikipedia.org/wiki/Personal_computer) [operating systems](https://en.wikipedia.org/wiki/Operating_system) produced by [Microsoft](https://en.wikipedia.org/wiki/Microsoft) as part of its [Windows NT](https://en.wikipedia.org/wiki/Windows_NT) family of operating systems. It is the successor to [Windows 8.1](https://en.wikipedia.org/wiki/Windows_8.1), and was [released to manufacturing](https://en.wikipedia.org/wiki/Software_release_cycle#RTM) on July 15, 2015, and broadly released for retail sale on July 29, 2015.[[13]](https://en.wikipedia.org/wiki/Windows_10#cite_note-release-date-13) Windows 10 receives new [builds](https://en.wikipedia.org/wiki/Software_build) on an ongoing basis, which are available at no additional cost to users, in addition to additional test builds of Windows 10 which are available to [Windows Insiders](https://en.wikipedia.org/wiki/Windows_Insider). Devices in enterprise environments can receive these updates at a slower pace, or use long-term support milestones that only receive critical updates, such as security patches, over their ten-year lifespan of extended support.[[14]](https://en.wikipedia.org/wiki/Windows_10#cite_note-zdnet-onebillion-14)[[15]](https://en.wikipedia.org/wiki/Windows_10#cite_note-15)

One of Windows 10's most notable features is support for [universal apps](https://en.wikipedia.org/wiki/Universal_app), an expansion of the [Metro-style apps](https://en.wikipedia.org/wiki/Metro-style_app) first introduced in [Windows 8](https://en.wikipedia.org/wiki/Windows_8). Universal apps can be designed to run across multiple Microsoft product families with nearly identical code‍—‌including [PCs](https://en.wikipedia.org/wiki/Personal_computer), [tablets](https://en.wikipedia.org/wiki/Tablet_computer), [smartphones](https://en.wikipedia.org/wiki/Smartphone), [embedded systems](https://en.wikipedia.org/wiki/Embedded_system), [Xbox One](https://en.wikipedia.org/wiki/Xbox_One), [Surface Hub](https://en.wikipedia.org/wiki/Surface_Hub) and [Mixed Reality](https://en.wikipedia.org/wiki/Windows_Mixed_Reality). The Windows user interface was revised to handle transitions between a mouse-oriented interface and a [touchscreen](https://en.wikipedia.org/wiki/Touchscreen)-optimized interface based on available input devices‍—‌particularly on [2-in-1 PCs](https://en.wikipedia.org/wiki/2-in-1_PC), both interfaces include an updated [Start menu](https://en.wikipedia.org/wiki/Start_menu) which incorporates elements of [Windows 7](https://en.wikipedia.org/wiki/Windows_7)'s traditional Start menu with the tiles of [Windows 8](https://en.wikipedia.org/wiki/Windows_8). Windows 10 also introduced the [Microsoft Edge](https://en.wikipedia.org/wiki/Microsoft_Edge) [web browser](https://en.wikipedia.org/wiki/Web_browser), a [virtual desktop](https://en.wikipedia.org/wiki/Virtual_desktop) system, a window and desktop management feature called [Task View](https://en.wikipedia.org/wiki/Task_View), support for [fingerprint](https://en.wikipedia.org/wiki/Fingerprint_recognition) and [face recognition](https://en.wikipedia.org/wiki/Face_recognition) login, new security features for enterprise environments, and [DirectX 12](https://en.wikipedia.org/wiki/DirectX_12).

Windows 10 received mostly positive reviews upon its original release in July 2015. Critics praised Microsoft's decision to provide a desktop-oriented interface in line with previous versions of Windows, contrasting the tablet-oriented approach of 8, although Windows 10's touch-oriented user interface mode was criticized for containing regressions upon the touch-oriented interface of Windows 8. Critics also praised the improvements to Windows 10's bundled software over Windows 8.1, [Xbox Live](https://en.wikipedia.org/wiki/Xbox_Live) integration, as well as the functionality and capabilities of the [Cortana](https://en.wikipedia.org/wiki/Cortana) personal assistant and the replacement of [Internet Explorer](https://en.wikipedia.org/wiki/Internet_Explorer) with Edge. However, media outlets have been critical of changes to operating system behaviors, including mandatory [update](https://en.wikipedia.org/wiki/Windows_Update) installation, [privacy](https://en.wikipedia.org/wiki/Digital_privacy) concerns over data collection performed by the OS for Microsoft and its partners and the [adware](https://en.wikipedia.org/wiki/Adware)-like tactics used to promote the operating system on its release.[[16]](https://en.wikipedia.org/wiki/Windows_10#cite_note-16)

**SYSTEM DESIGN**

##### **4. SYSTEM DESIGN**

The most creative and challenging phase of the system development process is system design. It is the solution to the creation of the proposed system. It refers to the technical specification that will be applied. It provides the understanding and procedural details necessary for implementing the system recommended in the feasibility study. Detailed design specification describes the features of the system, input output files and data files. The system meets its requirements in terms of presenting proper form of information, providing accurate results, using appropriate method of interaction and providing overall reliability.

Design and specification of the system are in accordance with prescribed rules and practice.

The system design phase includes

* Input Design
* Output Design
* Database Design

**4.1 INPUT DESIGN**

The system design process is not a step-by-step adherence of clear procedures and guidelines. Anyway the design phase focuses on the detailed implementation of the system recommended in the feasibility study. The design phase is a transition from a user oriented document to a document oriented programmers or database personnel. Inaccurate input data is the most common cause of errors in data processing. Errors entered by data entry operations can be controlled by input design. Input design is the process of converting user oriented inputs to computer based format. It includes the determining of record media, the method of input, speed of capture and entry into the system.

**Major Input Screen:**

The following are the major output screens used.

* Login

The input screen is used for logging into the system by providing username and password

* Add Hospitals

The function will help to Add new hospital

* Add urine Details

The patient is responsible for add the urine details into the database

* Add Blood details

The patient is responsible for add the Blood details into the database

* Add xray

The patient is responsible for add the xray details into the database

##### 4.2 OUTPUT DESIGN

Designing the output should proceed in well thought out manner. The term output means any information produced by the information system whether printed or displayed. Output design is a process that involves designing necessary outputs that have to be used by various users according to requirement. The efficient intelligent output design should remove the system relationship with the users and help in decision making. When designing the output, system analyst must accomplish the following:

* Determine the information present.
* Decide whether to print, display the information and select output medium.
* Arrange information in acceptable format.

**Major Output Screen:**

The following are the major output screens used.

* view urine details

Admin, patient can view the urine details

* view blood details

Admin, patient can view the blood details

* view x-ray details

Admin, patient can view the x-ray details

* view patient details

admin and doctor can view the patient details

* view health tips

admin and patient can view the Health tips

**4.3 Database Design**

In designing a database application you must set up not only the program‘s routines for maximum performance, but you must pay attention also to the physical layout of the data storage. A good database design does the following:

1. Provides minimum search times when locating specific records

2. Stores the data in the most efficient manner possible to keep the database from growing too large.

3. Makes data updates as easy as possible.

4. It is flexible enough to allow inclusion of new functions required of the program.

**Normalization**

It is a process of converting a relation to a standard form. The process is used to handle the problems that can arise due to data redundancy i.e. repetition of data in the database, maintain data integrity as well as handling problems that can arise due to insertion, updating, deletion anomalies.

Insertion anomaly: Inability to add data to the database due to absence of other data. Deletion anomaly: Unintended loss of data due to deletion of other data. Update anomaly: Data inconsistency resulting from data redundancy and partial update.

Decomposing is the process of splitting relations into multiple relations to eliminate anomalies and maintain anomalies and maintain data integrity. To do this we use normal forms or rules for structuring relation. Normal Forms are the rules for structuring relations that eliminate anomalies.

**First Normal Form:**

A relation is said to be in first normal form if the values in the relation are atomic for every attribute in the relation. By this we mean simply that no attribute value can be a set of values or, as it is sometimes expressed, a repeating group.

**Second Normal Form:**

A relation is said to be in second Normal form is it is in first normal form and it should satisfy any one of the following rules.

1) Primary key is a not a composite primary key

2) No non key attributes are present.

3) Every non key attribute is fully functionally dependent on full set of primary key.

**Third Normal Form:**

A relation is said to be in third normal form if their exits no transitive dependencies.

**Transitive Dependency:**

sIf two non-key attributes depend on each other as well as on the primary key then they are said to be transitively dependent.

The above normalization principles were applied to decompose the data in multiple tables thereby making the data to be maintained in a consistent state.

The database is implemented using a DBMS package. Each particular DBMS has unique characteristics and general technique for database design. The application stores the information relevant for processing to SQL database. This SQL database contains tables where each table corresponding to one particular type of information. Each piece of information in a table is called a field or column. A table also contains records, which is a set of field. These are primary key fields that are uniquely identifying a record in a table. There are also fields that contain primary key from another table called foreign key.

**Candidate Key:**

In the relational model, a candidate key of a relation variable is a set of attributes of that relation variable such that At all times it holds in the relation assigned to that variable that there are no two distinct tuples with the same values for these attributes and There is not a proper subset of this set of attributes for which (1) holds.

**Primary key:**

In relational database design, a unique key or primary key is a candidate key to uniquely identify each row in a table. A unique key or primary key comprises a single column or set of columns. No two distinct rows in a table can have the same value in those columns. Depending on its design, a table may have arbitrarily many unique keys but at most one primary key. A unique key must uniquely identify all possible rows that exist in a table and not only the currently existing rows. Examples are social security numbers.

**Foreign key:**

In the context of relational databases, a foreign key is a referential constraint between two tables. The foreign key identifies a column or a set of columns in another table. The columns in the referencing table must be the primary key or other candidate key in the referenced table. The values in one row of the referencingcolumns must occur in a single row in

the referenced table. Thus a row in the referencing table cannot contain values that don‘t exist in the referenced table.

**DATA FLOW DIAGRAM**

**4.3.1 DATA FLOW DIAGRAM**

A data flow diagram is the best and easiest tool to represent the flow of the data in the project. It is otherwise known as bubble chart. It has the purpose of clarifying system requirements and identifying major transformations that will become programs in the system design. It is the major starting point in the design phase that functionally decomposes the requirements specifications down to the lowest level of detail. A DFD consists of a series of bubbles joined by lines. The bubble represents data flow in the system. In the normal convention a DFD has four major symbols.

1. A Square defines source or destination of data.

2. An Arrow shows data flow.

3. A Circlerepresents a process that transforms incoming data into outgoing data flows

4. An Open rectangle shows a data store

**Level-0 Context Diagram**

**ADMIN/USER**

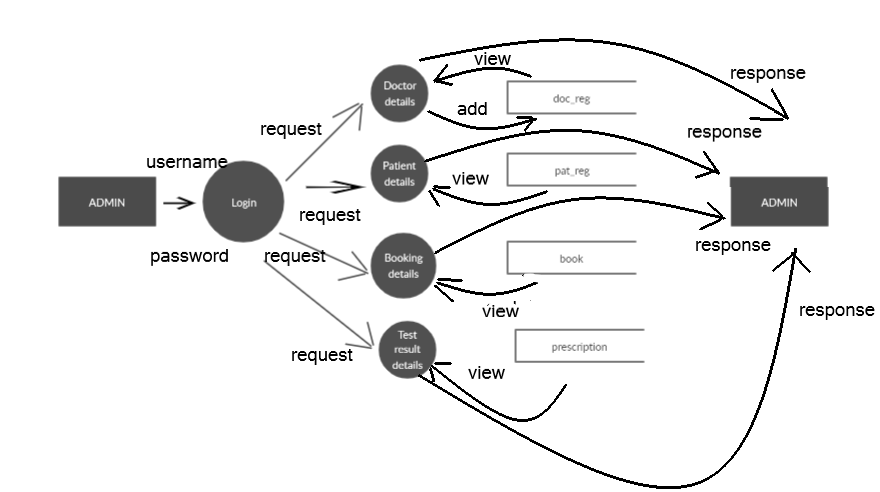
**HEAL ON YOU**

**ADMIN/USER**

**REQUEST**

**RESPONS**E

**ADMIN PROCESS**

****

**DOCTOR**

DOCTOR

Login

Register

Patient Details

Booking Details

Test Details

Prescription

Details

Doctor Details

doc\_reg

prescription\_table

prescription\_ table

booking

pat\_reg

DOCTOR

doc\_reg

username

password

login

new user

request

request

request

request

request

reponse

response

response

response

view

view

view

view

**PATIENT**

PATIENT

login

Register

Booking service details

test result details

send feedback

biling details

booking

pat\_reg

billing

feedback

prescription\_table

PATIENT

login

request

request

request

request

response

response

view

response

booking

cancel

send

bill details

response

username

password

new user

**MODULE DESCRIPTION**

In this project there will be some kind of users, such as:

* Admin
* Doctor
* Patient

**Admin:**

Admin can login to his/her work area with his username and password. He can control whole over the system

Administrator can do several activities. Such as:

* + View doctors
  + Add doctors
  + View patient
  + Add test result
  + View booking
  + Add doctor time
  + Edit details

* **Doctor:**

Doctor can do several activities. Such as

* Add Doctor
* view doctor
* view patient
* view booking
* view test details
* Add prescription

**Patient:**

After all the facilities of a hospital are added and all the registration procedures are finished we will deal with this module. In this module the patients who are registered can book doctors on the days of their availability. The patients can also cancel the booking within a specified amount of time. On booking the patient will get a token number and time at which he/she can visit the doctor. On visiting, the doctor can view the patient history using patient’s ID. Doctor prescribes the medicines and tests that are to be done for the patient; these details will be available to the pharmacist and lab technician on entering the patient id the results of the test are also updated into the patient record. After all these procedures the patient record will be updated.

patient can do several activities. Such as:

* + Register and login
  + Edit profile
  + Book services
  + View test result Cancel booking
  + send feedback and billing