

##### MEDILIFE WEB APPLICATION WITH RANDOM FOREST ALGORITHM

##### A PROJECT REPORT

###### ***Submitted by***

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***in partial fulfillment for the award of the degree***

***of***

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IN

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##### MAY 2022

**BONAFIDE CERTIFICATE**

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**i**

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**ii**

**ABSTRACT**

This model could be used in hospital applications. Most of the pharmacy’s incapable of maintain all company tablets for one problems. This system coordinates different company tablets and gathers the data from all and performs the activities. The patient could not ready for buying tablets in different pharmacy’s. In this application if one pharmacy doesn’t have an any tablets then the pharmacy will sent a request to another pharmacy and collect the tablet or the pharmacy will sent request to doctor for recommend another tablet. Here the Random Forest model is used for recommend another company tablets for the same problem and dosages.The Random forest classifier creates a set of decision trees from a randomly selected subset of the training set. It is basically a set of decision trees (DT) from a randomly selected subset of the training set and then It collects the votes from different decision trees to decide the final prediction. The ensemble learning methods can be divided into two main groups: bagging and boosting. In bagging, models are fit in parallel where successive trees do not depend on previous trees. Each tree is independently built using bootstrap sample of the dataset. A majority vote determines prediction. In boosting, models are fit sequentially where successive trees assign additional weight to those observations poorly predicted by previous model. A weighted vote specifies prediction. A random forest adds an additional degree of randomness to bagging. Although each tree is constructed using a different bootstrap sample of the dataset, the method by which the classification trees built is improved. A random forest predictor is an ensemble of individual classification tree predictors. For each observation, each individual tree votes for one class and the forest predicts the class that has the plurality of votes. The user has to specify the number of randomly selected variables to be searched through for the best split at each node. Whilst a node is split using the best split among all variables in standard trees, in a random forest the node is split using the best among a subset of predictors randomly chosen at that node. The largest tree possible is grown and is not pruned.

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**CHAPTER 1**

**INTRODUCTION**

* 1. **INTRODUCTION TO PROJECT**

In machine learning, Random forest classifier (RFC) is supervised learning models with associated learning algorithms that analyse data used for classification and regression analysis. RFC are able to deal with datasets. The random forest is an ensemble learning method that grows many classification trees.

The random forest-based method together with several existing approaches are trained and evaluated. Each tree gives a classification. The forest selects the classification that has the most votes.

Dealing with datasets entails strategies such as improving classification algorithms in the training data (data preprocessing) before providing the data as input to the machine learning algorithm. Random forest has been emerged as a quite efficient and robust algorithm that can handle feature selection problem even with the higher number of variables. It is also very much efficient while dealing with Missing data imputation, classification, and regression problems. It can also handle outliers and noisy data very well. In pharmacy, peoples were facing much complexity to buy a medicine.

For solving this problem the proposed technique has built. In this proposed we applied the concept of random forest algorithm on the feature subset selection and classification and regression to perform the comparative study of the random forest algorithm in different perspectives. The experimental results are presented and discussed.

* 1. **PURPOSE OF THE PROJECT**
* Finding the fault with in an efficient time.
* Swift action in reallocation of respective machines.
* Increased productivity.
* Graphical view of monitoring system which is interactive to find malfunction.
* To retain customer.

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**CHAPTER 2**

**LITERATURE SURVEY**

**LITERATURE SURVEY**

**2.1 Title: Vornoi - Based Multi-Robot Autonomous Exploration in unknown Environments via Deep Reinforcement learning**

**Authors: Hu, J.; Niu, H.; Carrasco, J.; Lennox, B.; Arvin, F**

**Year: 2020**

**Description:**

The study of computer algorithms that can improve automatically through experience and by the use of data is called Machine learning (ML). It is seen as a part of artificial intelligence. Machine learning algorithms build a model based on sample data, known as training data, in order to make predictions or decisions without being explicitly programmed to do so. Machine learning algorithms are used in a wide variety of applications, such as in medicine, email filtering, speech recognition, and computer vision, where it is difficult or unfeasible to develop conventional algorithms to perform the needed tasks.

* 1. **Title: Machine Learning for Beginners: An Introduction to Neural Networks**

**Authors: Zhou, Victor Dec**

**Year: 2019**

**Description:**

A subset of machine learning is closely related to computational statistics, which focuses on making predictions using computers; but not all machine learning is statistical learning. The study of mathematical optimization delivers methods, theory and application domains to the field of machine learning. Data mining is a related field of study, focusing on exploratory data analysis through unsupervised learning. Some implementations of machine learning use data and neural networks in a way that mimics the working of a biological brain. In its application across business problems, machine learning is also referred to as predictive analytics.

**2.3 Tite: Extremely randomized trees**

**Author: Geurts P, Ernst D, Wehenkel L**

**Year: 2016**

**Description:**

As part of their construction, random forest predictors naturally lead to a dissimilarity measure among the observations. One can also define a

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random forest dissimilarity measure between unlabeled data: the idea is to construct a random forest predictor that distinguishes the “observed” data

suitably generated synthetic data.

A random forest dissimilarity can be attractive because it handles mixed variable types very well, is invariant to monotonic transformations of the input variables, and is robust to outlying observations.

**2.4 Title: Unsupervised Learning with Random Forest Predictors**

**Authors: Shi, T., Horvath, S**

**Year: 2016**

**Description:**

The random forest dissimilarity easily deals with a large number of semi-continuous variables due to its intrinsic variable selection; for example, the “Addcl 1” random forest dissimilarity weighs the contribution of each variable according to how dependent it is on other variables. The random forest dissimilarity has been used in a variety of applications, e.g. to find clusters of patients based on tissue marker data.

* 1. **Title: A Data Complexity Analysis of Comparative Advantages of Decision Forest Constructors**

**Authors: Ho, Tin Kam**

**Year: 2012**

**Description:**

The training algorithm for random forests applies the general technique of bootstrap aggregating, or bagging, to tree learners. Given a training set X = x1, …, xn with responses Y = y1, …, yn, bagging repeatedly (B times) selects a random sample with replacement of the training set and fits trees to these samples:

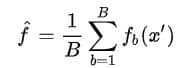
For b = 1, …, B:

Sample, with replacement, n training examples from X, Y; call these Xb, Yb.

Train a classification or regression tree fb on Xb, Yb.

After training, predictions for unseen samples x’ can be made by averaging the predictions from all the individual regression trees on x’:

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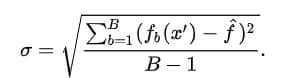
**

This bootstrapping procedure leads to better model performance because it decreases the variance of the model, without increasing the bias.

This means that while the predictions of a single tree are highly sensitive to noise in its training set, the average of many trees is not, as long as the trees

are not correlated. Simply training many trees on a single training set would give strongly correlated trees (or even the same tree many times, if the training algorithm is deterministic); bootstrap sampling is a way of de- correlating the trees by showing them different training sets.

Additionally, an estimate of the uncertainty of the prediction can be made as the standard deviation of the predictions from all the individual regression trees on x’:

**

The number of samples/trees, B, is a free parameter. Typically, a few hundred to several thousand trees are used, depending on the size and nature of the training set. An optimal number of trees B can be found using cross- validation, or by observing the out-of-bag error: the mean prediction error on each training sample xi, using only the trees that did not have xi in their bootstrap sample.[34] The training and test error tend to level off after some number of trees have been fit.

* 1. **Title: Knowledge and Information Systems - Top 10 algorithms in data mining**

**Authors: Wu, Xindong; Kumar, Vipin; Ross Quinlan, J.; Ghosh, Joydeep; Yang, Qiang; Motoda, Hiroshi; McLachlan, Geoffrey J.; Ng, Angus; Liu, Bing; Yu, Philip S.; Zhou,**

**Zhi-Hua**

**Year: 2018**

**Description:**

Decision tree learning or induction of decision trees is one of the predictive modeling approaches used in statistics, data mining and machine learning. It uses a decision tree (as a predictive model) to go from observations about an item (represented in the branches) to conclusions

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about the item’s target value (represented in the leaves). Tree models where

the target variable can take a discrete set of values are called classification trees; in these tree structures, leaves represent class labels and branches represent conjunctions of features that lead to those class labels. Decision trees where the target variable can take continuous values (typically real numbers) are called regression trees. Decision trees are among the most popular machine learning algorithms given their intelligibility and simplicity.

**2.7 Title: Data mining with decision trees: theory and applications**

**Authors: Rokach, Lior; Maimon, O.**

**Year: 2014**

**Description:**

Decision tree learning is a method commonly used in data mining. The goal is to create a model that predicts the value of a target variable based on several input variables.

A decision tree is a simple representation for classifying examples. For this section, assume that all of the input features have finite discrete domains, and there is a single target feature called the “classification”. Each element of the domain of the classification is called a class. A decision tree or a classification tree is a tree in which each internal (non-leaf) node is labeled with an input feature.

* 1. **Title: Decision Trees - Understanding Machine Learning**

**Authors: Shalev-Shwartz, Shai; Ben-David, Shai**

**Year: 2014**

**Description:**

A tree is built by splitting the source set, constituting the root node of the tree, into subsets—which constitute the successor children. The splitting is based on a set of splitting rules based on classification features. This process is repeated on each derived subset in a recursive manner called recursive partitioning. The recursion is completed when the subset at a node has all the same values of the target variable, or when splitting no longer adds value to the predictions. This process of top-down induction of decision trees (TDIDT) is an example of a greedy algorithm, and it is by far the most common strategy for learning decision trees from data.

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* 1. **Title: Guide To Data Cleaning: Definition, Benefits, Components, And How To Clean Your Data**

**Author: Tableau**

**Year: Sep, 2021**

**Description:**

Data preprocessing can refer to manipulation or dropping of data before it is used in order to ensure or enhance performance, and is an important step in the data mining process. The phrase “garbage in, garbageout” is particularly applicable to data mining and machine learning projects. Data-gathering methods are often loosely controlled, resulting in out-of-range values (e.g., Income: −100), impossible data combinations (e.g., Sex: Male, Pregnant: Yes), and missing values, etc.

**2.10 Title: The impact of signal preprocessing on the final interpretation of analytical outcomes – A tutorial**

**Authors: Oliveri, Paolo; Malegori, Cristina; Simonetti, Remo; Casale, Monica**

**Year:** **2019**

**Description:**

Analyzing data that has not been carefully screened for such problems can produce misleading results. Thus, the representation and quality of data is first and foremost before running any analysis. Often, data preprocessing is the most important phase of a machine learning project, especially in computational biology. If there is much irrelevant and redundant information present or noisy and unreliable data, then knowledge discovery during the training phase is more difficult. Data preparation and filtering steps can take considerable amount of processing time.Data preprocessing may affect the way in which outcomes of the final data processing can be interpreted. This aspect should be carefully considered when interpretation of the results is a key point, such in the multivariate processing of chemical data (chemometrics).

* 1. **Title: Ensemble Methods: Foundations and Algorithms**

**Authors: Zhou Zhi-Hua**

**Year: 2012**

**Description:**

In machine learning, boosting is an ensemble meta-algorithm for primarily reducing bias, and also variance in supervised learning, and a

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family of machine learning algorithms that convert weak learners to strong ones. Boosting is based on the question posed by Kearns and Valiant (1988, 1989): “Can a set of weak learners create a single strong learner?” A weak learner is defined to be a classifier that is only slightly correlated with the true classification (it can label examples better than random guessing). In contrast, a strong learner is a classifier that is arbitrarily well-correlated with the true classification.

* 1. **Title: The Strength of Weak Learn ability**

**Authors: Schapire, Robert E**

**Year: 2019**

**Description:**

Robert Schapire’s affirmative answer in a 2019 paper to the question of Kearns and Valiant has had significant ramifications in machine learning and statistics, most notably leading to the development of boosting.

**2.13 Title: A Decision-Theoretic Generalization of On-Line Learning and an Application to Boosting**

**Authors: Yoav Freund and Robert E. Schapire**

**Year: 2006**

**Description:**

When first introduced, the hypothesis boosting problem simply referred to the process of turning a weak learner into a strong learner. “Informally, [the hypothesis boosting] problem asks whether an efficient learning algorithm […] that outputs a hypothesis whose performance is only slightly better than random guessing [i.e. a weak learner] implies the existence of an efficient algorithm that outputs a hypothesis of arbitrary accuracy [i.e. a strong learner].” Algorithms that achieve hypothesis boosting quickly became simply known as “boosting”. Freund and Schapire’s arcing (Adapt[at]ive Resampling and Combining), as a general technique, is more or less synonymous with boosting.

* 1. **Title: Artificial Intelligence: A Modern Approach**

**Authors: Stuart J. Russell, Peter Norvig**

**Year: 2010**

**Description:**

Supervised learning (SL) is the machine learning task of learning a function that maps an input to an output based on example input-output.

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It infers a function from labeled training data consisting of a set of training examples. In supervised learning, each example is a pair consisting of an input object (typically a vector) and a desired output value (also called the supervisory signal).

* 1. **Title: Foundations of Machine Learning**

**Authors: MehryarMohri, AfshinRostamizadeh, Ameet Talwalkar**

**Year: 2012**

**Description:**

A supervised learning algorithm analyzes the training data and produces an inferred function, which can be used for mapping new examples. An optimal scenario will allow for the algorithm to correctly determine the class labels for unseen instances. This requires the learning algorithm to generalize from the training data to unseen situations in a “reasonable” way (see inductive bias). This statistical quality of an algorithm Is measured through the so-called generalization error.

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**CHAPTER 3**

**SYSTEM ANALYSIS**

**3.1 PROPOSED SYSTEM**

In the proposed system, we have Hospital System been implemented to maintain the process of time management. In pharmacy’s, once the tablet was exhausted then the patients faced many issues. The proposed application was built to overcome that issue. The proposed technique has two models: Random Forest Classifier (RFC) has implemented to predict accurate data. In RFC each set of training data classified into decision tree. Every decision tree vote to predict an accurate prediction. And the second model is Label Encoder used for preprocessing training data. Before applying RFC input data’s were converted to numbers by using label encoder. In this paper effective method of using RFC classifier for multiple feature classification is proposed. Compared with TAM methods where all needed base classifiers should be trained before the decision combination, the proposed approach is to train all classifiers and each group of decision trees vote for final decision to predict a accurate prediction. Before that the classifiers were preprocessed using label encoders. During the prediction, our proposed approach takes into account base classifier performance on the training data. The experiments proved the efficiency of our proposed approach.

**Advantage of Proposed System:**

* Uses the minimum amount of running time to train the models compared to the other methods.
* The proposed approaches have a superior speed advantage.
* Combine various human expert intelligences
* Centralize the decision making process

Accuracy has improved compared to existing.

**3.2 EXISTING SYSTEM**

In the existing system, Target Analysis Model (TAM) had been used in social media content predicting. In this TAM model aim at increasing the probability of drawing a relevant topic from documents containing the given keywords (seeds) while giving a relatively low probability to the other documents to prevent the over fitting problem. This phenomenon makes it difficult to perform a binary clustering task for targeted topics analysis. The non targeted documents from cluster occupying a larger percentage of the corpus will intrude into the related documents. Once some irrelevant documents are wrongly clustered, words in them may be sampled as the focused terms by the current focused topic models. And the error will propagate to the later calculation and cause the false propagation. Full-analysis models cannot perform well on a focused analysis task—find out all topics related to one particular area in short documents. One

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reason is that the targeted topic is usually sparse in the corpus of short texts. Another one is, during clustering, even minor errors may compound and render the model useless

**3.3 FEASIBILITY STUDY**

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

**Three key considerations involved in the feasibility analysis are,**

* **ECONOMICAL FEASIBILITY**
* **TECHNICAL FEASIBILITY**
* **SOCIAL FEASIBILITY**

**ECONOMICAL FEASIBILITY**

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

### TECHNICAL FEASIBILITY

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

**SOCIAL FEASIBILITY**

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity. The level of acceptance by the users solely depends on the methods that are employed to educate the user about the system and to make him familiar with it. His level of confidence must be raised so that he is also able to make some constructive criticism, which is welcomed, as he is the final user of the system.

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**3.4 HARDWARE REQUIREMENTS**

|  |  |  |  |
| --- | --- | --- | --- |
| Developing Kit | | | |
|  | Processor | RAM | Disk Space |
| Pycharm | Computer with a 2.6GHz processor or higher | 4GB | Minimum 20 GB |
| Anaconda | Computer with a 2.6GHz processor or higher | 4GB | Minimum 20 GB |
| Database | | | |
| MySQL | Intel Pentium processor at 2.6GHz or faster | Minimum 512 MB Physical Memory; 1 GB Recommended | Minimum 20 GB |
| WampServer | Intel Pentium processor at 2.6GHz or faster | Minimum 512 MB Physical Memory; 1 GB Recommended | Minimum 20 GB |

**Table 3.4.1 Hardware requirements**

**3.5 SOFTWARE REQUIREMENTS**

* **Front end :** Core Python, CSS, JS
* **Web application :** Django, Flask
* **Back end :** MySQL

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**CHAPTER 4**

**SYSTEM ANALYSIS**

* 1. **ER DIAGRAM**

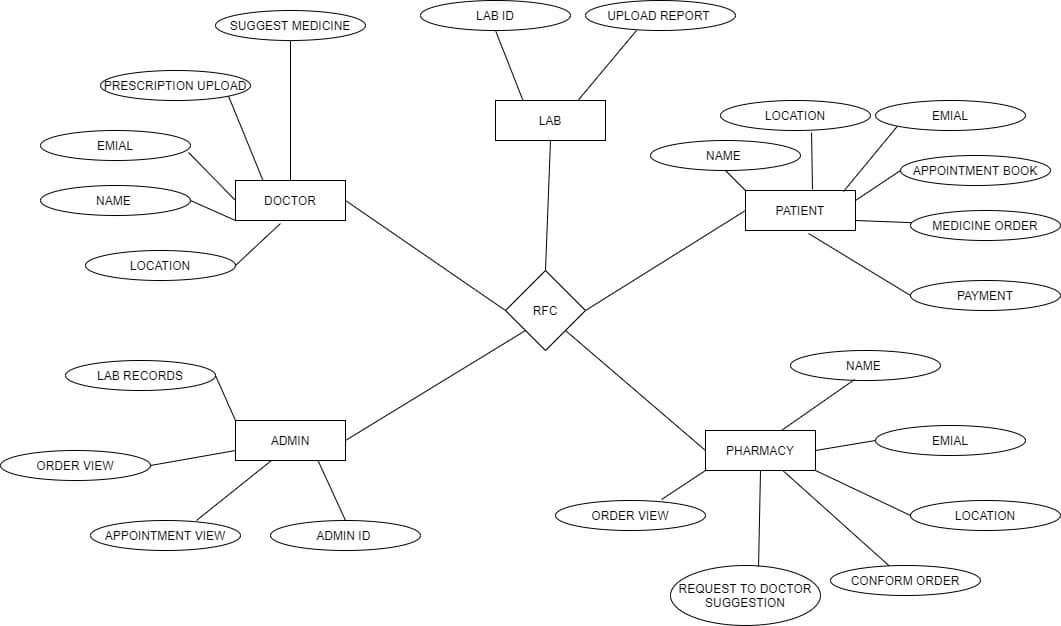
The relation upon the system is structured through a conceptual ER-Diagram, which not only specifics the existing entities, but also the standard relations through which the system exists and the cardinalities that are necessary for the system state to continue.

The Entity Relationship Diagram (ERD) depicts the relationship between the data objects. The ERD is the notation that is used to conduct, the date modeling activity the attributes of each data object noted, is the ERD can be described resign a data object description.

The set of primary components that are identified by the ERD are

* + Data object
  + Relationships
  + Attributes
  + Various types of indicators.

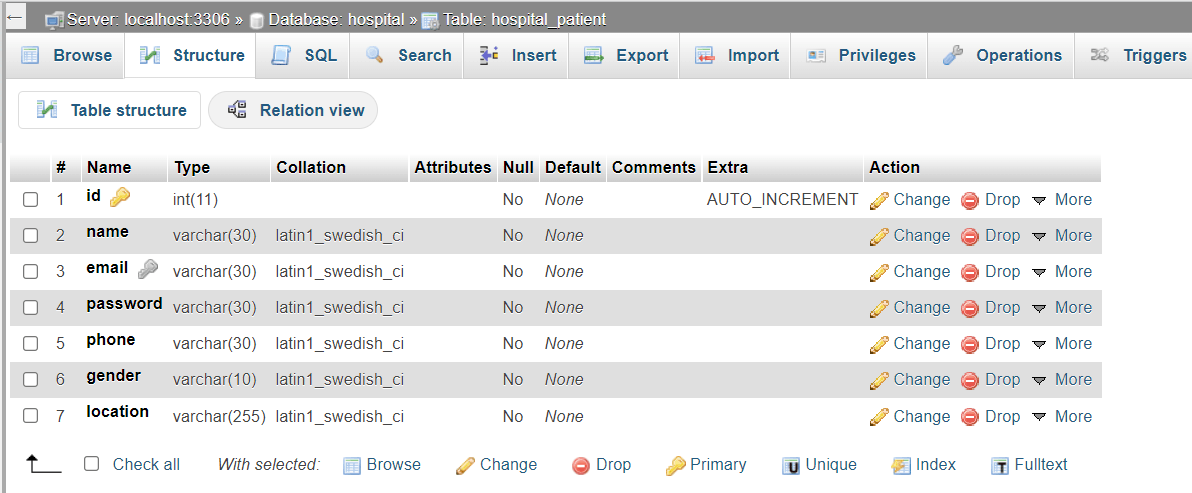
The primary purpose of the ERD is to represent data objects and their relationships.

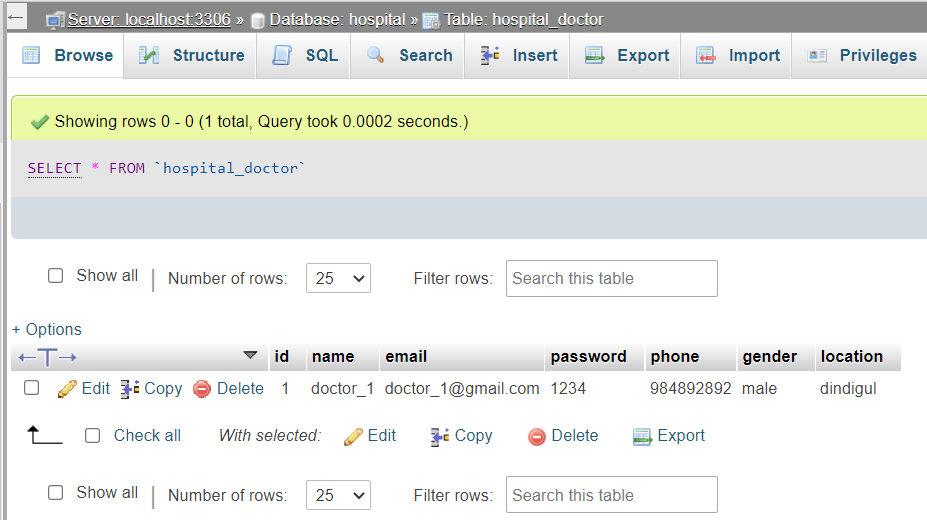


**Fig 4.1.1 ER Diagram**

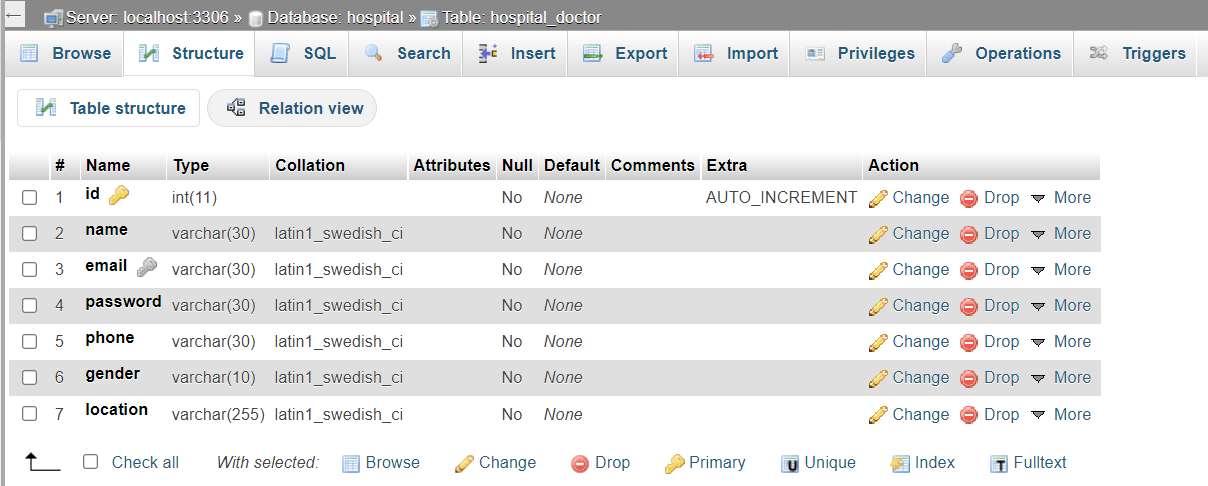
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**4.2 DATABASE**

**Fig 4.2.1 Patient Data structure**

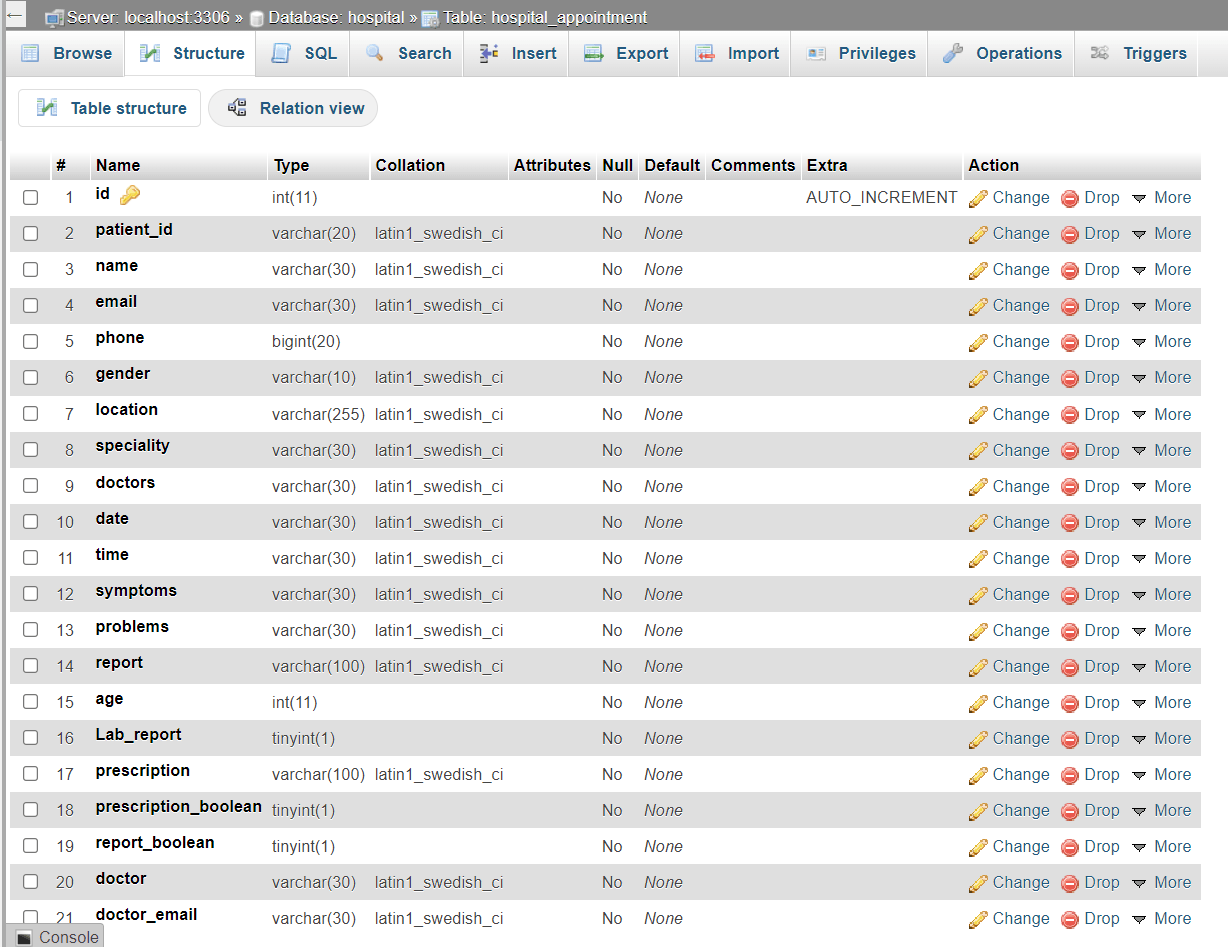


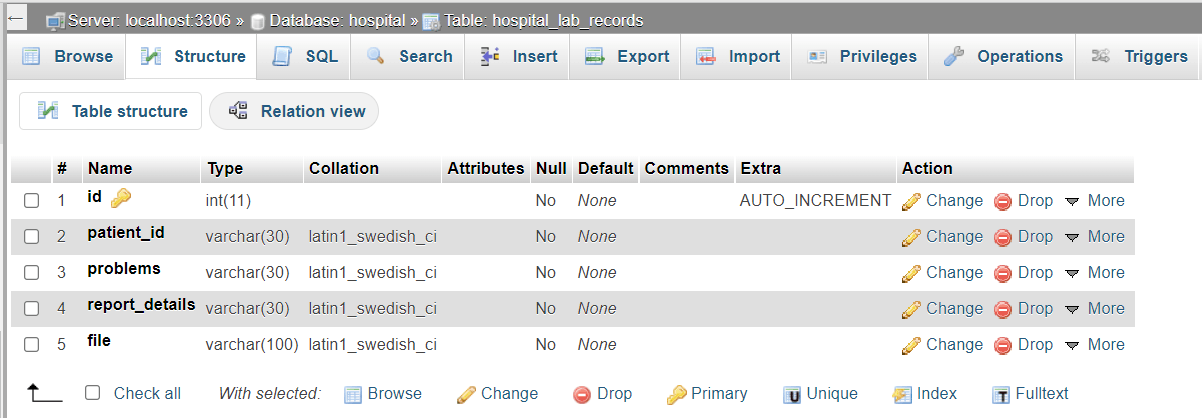
**Fig 4.2.2 Doctor data**



**Fig 4.2.3 Doctor Data structure**

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 **Fig 4.2.4 Hospital Data structure**



**Fig 4.2.5 Lab Data structure**

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**4.3 DATAFLOW DIAGRAM**

In the DFD, there are four symbols

1. A square defines a source (originating) or destination of system data
2. An arrow identifies data flow. It is the pipeline through which the information flows
3. A circle or a bubble represents a process that transforms the incoming data flow into outgoing data flows.
4. An open rectangle is a data store, data at rest or a temporary repository of data

**CONSTRUCTING A DFD:**

Several rules of thumb are used in drawing DFD’S:

1. Process should be named and numbered for an easy reference. Each name should be representative of the process.
2. The direction of flow is from top to bottom and from left to right. Data traditionally flow from source to the destination although they may flow back to the source. One way to indicate this is to draw the long flow line back to a source. An alternative way is to repeat the source symbol as a destination. Since it is used more than once in the DFD it is marked with a short diagonal.
3. When a process is exploded into lower level details, they are numbered.
4. The names of data stores and destinations are written in capital letters. Process and dataflow names have the first letter of each work capitalized

A DFD typically shows the minimum contents of data store. Each data store should contain all the data elements that flow in and out.

Questionnaires should contain all the data elements that flow in and out. Missing interfaces redundancies and like is then accounted for often through interviews.

**SAILENT FEATURES OF DFD’S**

1. The DFD shows the flow of data, not of control loops and decision are controlled considerations do not appear on a DFD.
2. The DFD does not indicate the time factor involved in any process, whether the dataflow take place daily, weekly, monthly or yearly.
3. The sequence of events is not brought out on the DFD.

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**TYPES OF DATA FLOW DIAGRAMS**

1. Current Physical
2. Current Logical
3. New Logical
4. New Physical

**CURRENT PHYSICAL**

In Current Physical DFD process label includes the name of the people or their positions or the names of computer systems that might provide some of the overall system-processing label includes an identification of the technology used to process the data. Similarly, data flows and data stores are often labelled with the names of the actual physical media on which data are stored such as file folders, computer files, business forms or computer tapes.

**CURRENT LOGICAL:**

The physical aspects in the system are removed as much as possible so that the current system is reduced to its essence to the data and the processes that transform them regardless of actual physical form.

**NEW LOGICAL:**

This is exactly like a current logical model if the user were completely happy with the user were completely happy with the functionality of the current system, but had problems with how it was implemented typically through the new logical model will differ from the current logical model while having additional functions, absolute function removal and inefficient flows recognized.

**NEW PHYSICAL:**

The new physical represents only the physical implementation of the new system.

**RULES GOVERNING THE DFD’S**

**PROCESS**

1. No process can have only outputs.
2. No process can have only inputs. If an object has only inputs than it must be a sink.
3. A process has a verb phrase label.

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**DATA STORE**

1. Data cannot move directly from one data store to another data store, a process must move data.
2. Data cannot move directly from an outside source to a data store, a process, which receives, must move data from the source and place the data into the data store
3. A data store has a noun phrase label.

**SOURCE OR SINK**

The origin and /or destination of data

1. Data cannot move direly from a source to sink it must be moved from a process
2. A source and /or sink have a noun phrase land

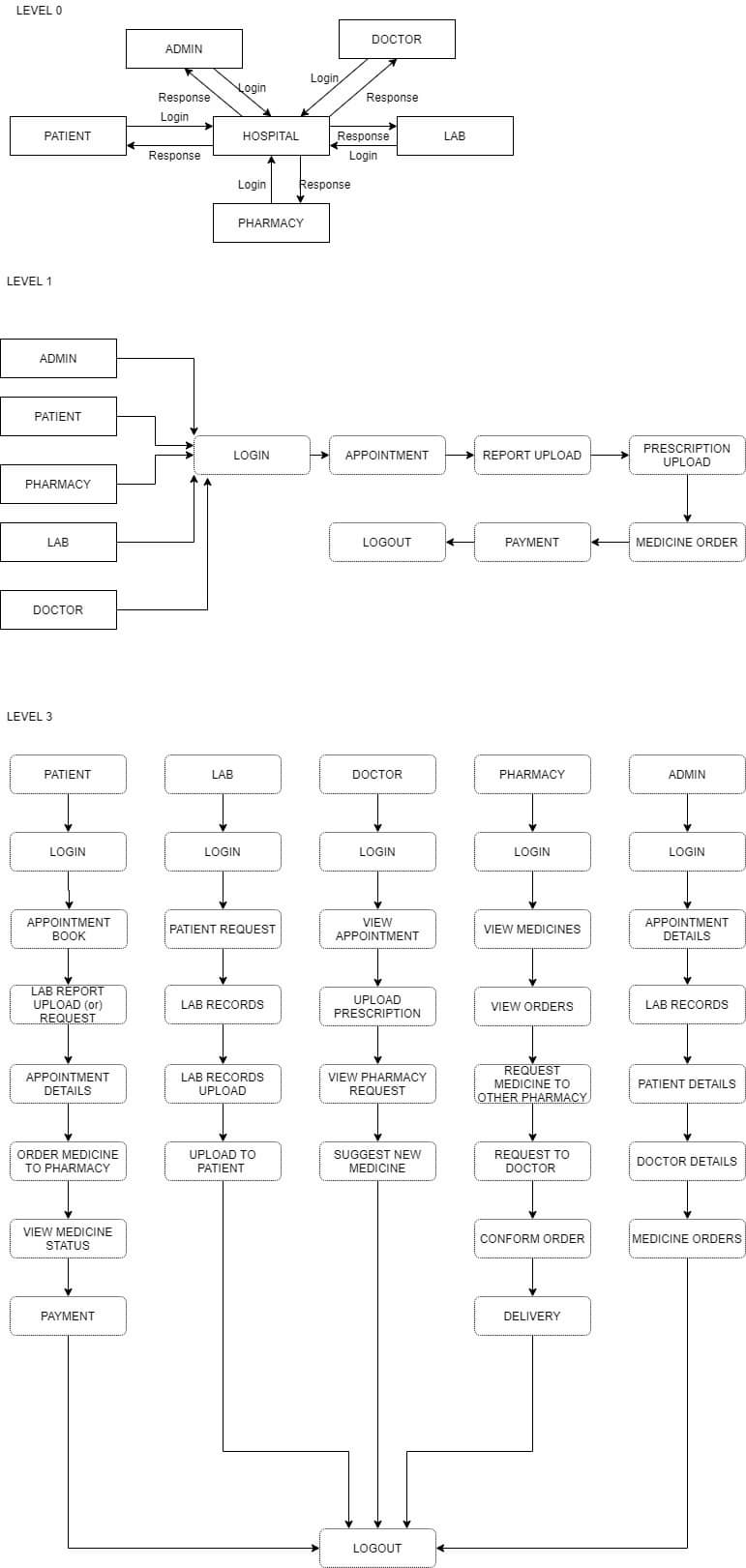
**DATA FLOW**

1. A Data Flow has only one direction of flow between symbols. It may flow in both directions between a process and a data store to show a read before an update. The latter is usually indicated, however by two separate arrows since these happen at different type.
2. A join in DFD means that exactly the same data comes from any of two or more different processes data store or sink to a common location.
3. A data flow cannot go directly back to the same process it leads. There must be at least one other process that handles the data flow produce some other data flow returns the original data in the beginning process.
4. A Data flow to a data store means update (delete or change).
5. A data Flow from a data store means retrieve or use.

A data flow has a noun phrase label more than one data flow noun phrase can appear on a single arrow as long as all of the flows on the same arrow move together as one package.

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**DATA FLOW DIAGRAMS:**

****

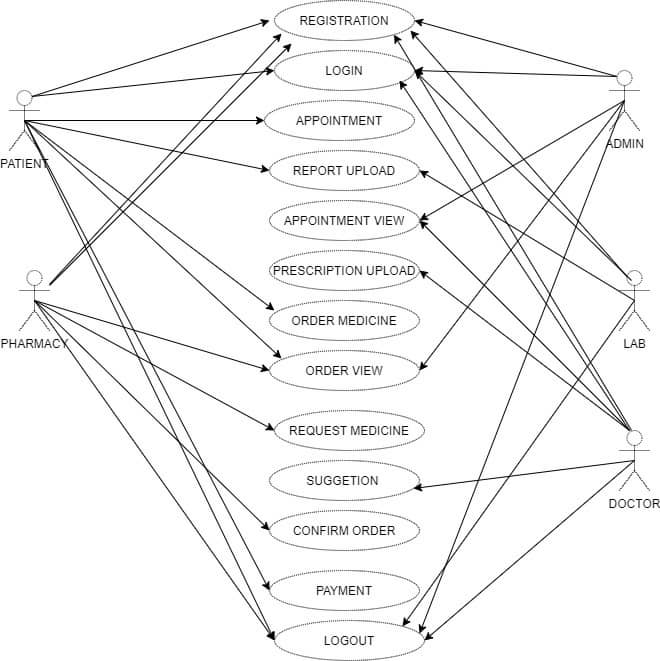
**Fig 4.3.1 DFD Diagram**

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**4.4 UML DIAGRAM**

UML (Unified Modeling Language) is a modeling language utilized by software developers. UML can be used to broaden diagrams and provide customers (programmers) with ready-to-use, expressive modeling examples. some UML gear generate program language code from UML. UML may be used for modeling a gadget impartial of a platform language. UML is a graphical language for visualizing, specifying, building, and documenting records approximately software-intensive systems. UML gives a widespread manner to write down a machine version, overlaying conceptual thoughts. With an knowledge of modeling, the use and alertness of UML could make the software program development manner greater efficient.

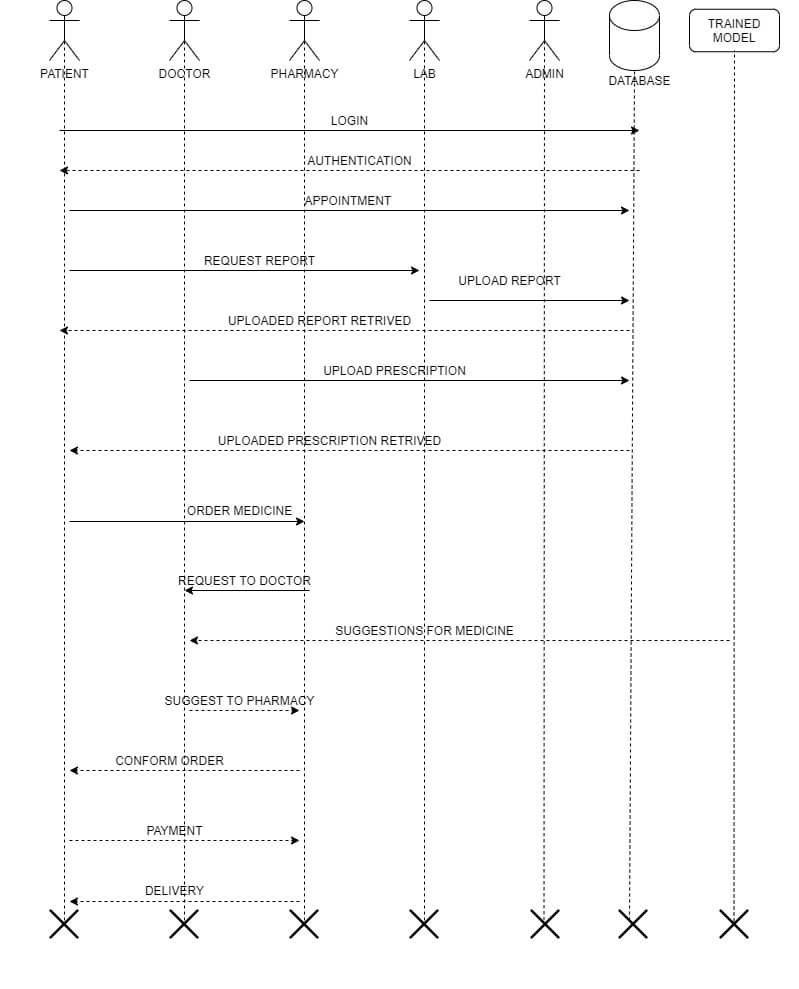
**4.4.1 USE CASE DIAGRAM**

****

**Fig 4.4.1 Usecase Diagram**

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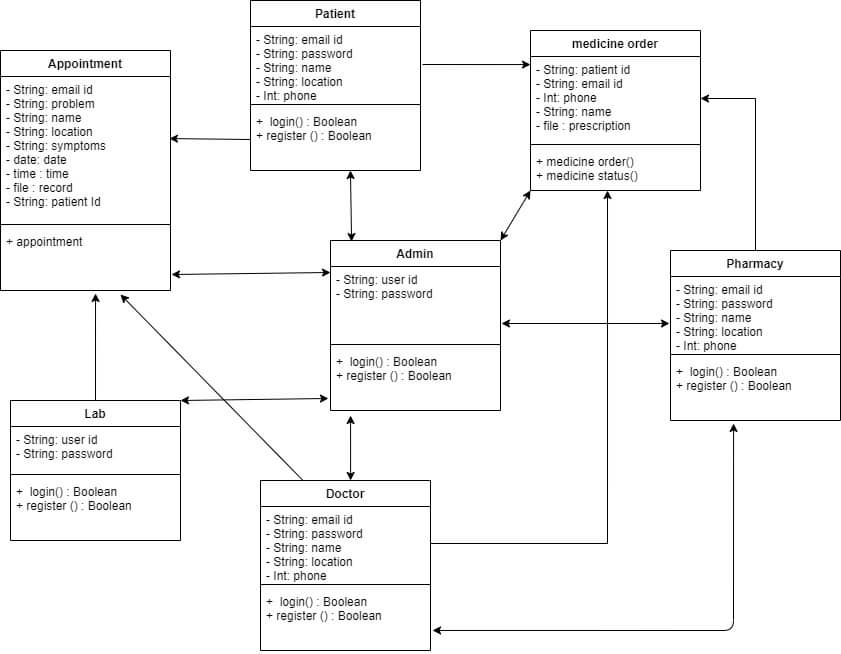
**4.4.2 SEQUENCE DIAGRAM**

****

**Fig 4.4.2 Sequence Diagram**

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**4.4.3 CLASS DIAGRAM**

****

**Fig 4.4.3 Class Diagram**

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**CHAPTER 5**

**SYSTEM ARCHITECTURE**

**5.1 ALGORITHM**

Random Forest is a famous Machine learning algorithm that belongs to the supervised learning method. it is able to be used for both class and Regression issues in ML. It is based on the idea of ensemble studying, that's a procedure of combining a couple of classifiers to solve a complicated trouble and to improve the performance of the version.​

Random Forest works in two-phase first is to create the random forest by combining N decision tree, and second is to make predictions for each tree created in the first phase.​

The Working process can be explained in the below steps and diagram:​

* **Step-1:** First get the tablet name with dosage from the pharmacy.​
* **Step-2:** Build the decision trees associated with the selected Tablet (Subsets).​
* **Step-3:** Choose the number N for decision trees for tablet needed.​
* **Step-4:** Repeat Step 1 & 2.​
* **Step-5:** For new Tablets, find the predictions of each decision tree, and assign the new data points to the category that wins the majority votes.​

**5.2 MODULE DESCRIPTION**

Modules:

**1)** Patient

**2)** Doctor

**3)** Pharmacy

**4)** Lab

* **PATIENT** :

This module provides information about the patients and complete details. If the patient new to the applications means they want to register for this application after they can access this application easily. The patient can register details with proper validation and all the fields will be required for the registration process. The patient can fill the appointment form and upload the test results. If patient didn’t have a test results send request to lab.

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The appointment form was completed. If the doctor can check the form and test result then doctor upload the prescription for patient. Patient downloads prescription and sent a request to pharmacy for buy medicine. Once the payment was completed the patient receives the medicines from pharmacy.

* **DOCTOR** :

This module provides information about the patients and complete details. If the patient new to the applications means they want to register for this application after they can access this application easily. The patient can register details with proper validation and all the fields will be required for the registration process. The patient can fill the appointment form and upload the test results. If patient didn’t have a test results send request to lab. The appointment form was completed. If the doctor can check the form and test result then doctor upload the prescription for patient. Patient downloads prescription and sent a request to pharmacy for buy medicine. Once the payment was completed the patient receives the medicines from pharmacy.

* **Pharmacy:**

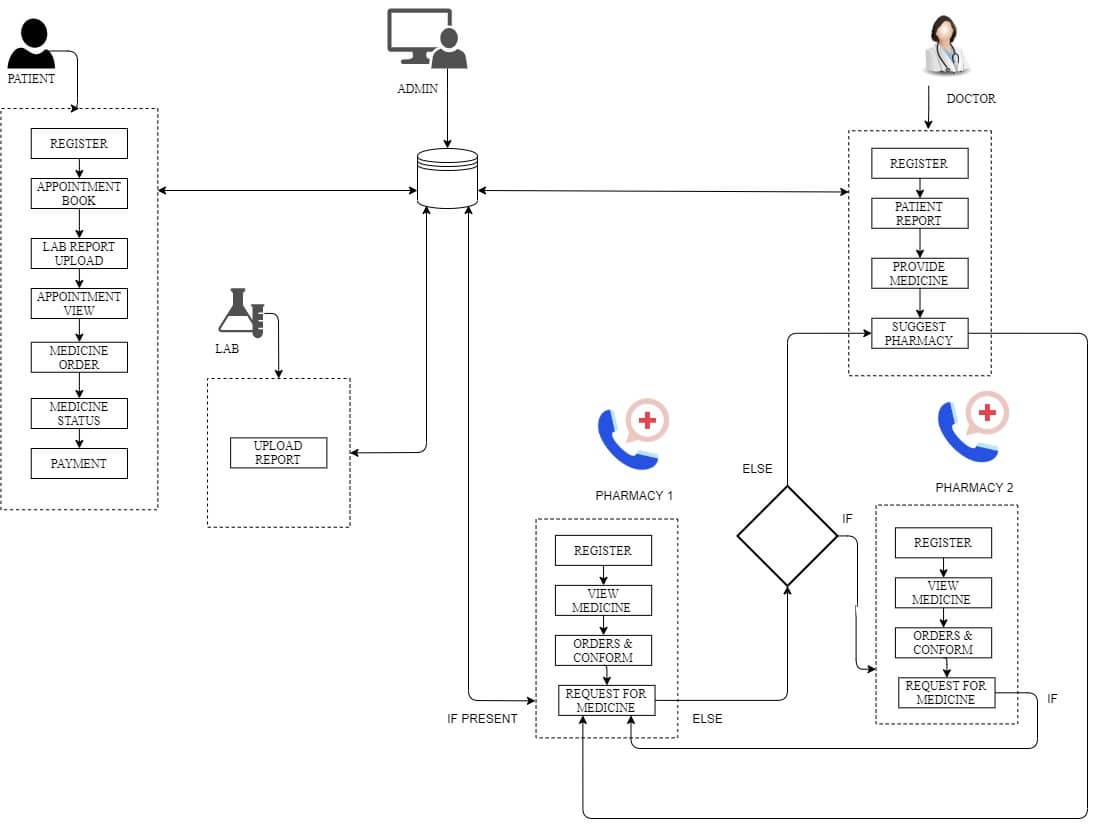
This module provides information about the pharmacy and completes details. If the pharmacy new to the application means they want to register for this application after they can access this application easily. The pharmacy can register the details with proper validation and all the fields will be required for the registration process. The pharmacy can view the medicine request from patient. All medicine presents the pharmacy sent a bill to patient. If medicine not presented pharmacy sent request to other pharmacy to buy the particular medicine then sent a bill to patient. If the medicines has not presented in other pharmacy then the pharmacy sent a request to doctor for changing the medicine. If doctor suggest another medicine then the pharmacy sent a bill to patient. Once the payment was completed the patient receives the medicines from pharmacy.

* **Lab :**

This module provides information about the lab and complete details. If The lab can upload the every patient test report to the application. If patient request for test report then the lab sent the report to patient. The lab can manage the test reports.

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**5.3 ARCHITECTURE DIAGRAM**

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**Fig 5.3.1 Architecture Diagram**

This diagram descript about the functioning of the Medilife Web Application in the hospital sector. If the patient is new to this web application they can easily register themselves in this by giving the necessary details such as Name, E-mail id, and other details and also they can setup the password for the login. The patient login consists of the appointment booking option, then viewing the uploaded prescription, Order medicine, payment services etc. Pharmacy can review the order which was given by the patient and by using Random Forest Algorithm they can search the medicine by requesting medicines in other pharmacy and can get alternate suggestion from the pharmacies. The doctor can suggest the alternate medicine to pharmacies. This diagram finally shows the overall working of the developed application.

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**CHAPTER 6**

**SYSTEM IMPLEMENTATION**

**6.1 SAMPLE CLIENT SIDE CODING**

**Doctor\_page.html:**

<!DOCTYPE html>  
{% load static %}  
<html lang="en">  
  
<meta http-equiv="content-type" content="text/html;charset=utf-8" />  
<head>  
 <meta charset="UTF-8">  
 <meta name="description" content="">  
 <meta http-equiv="X-UA-Compatible" content="IE=edge">  
 <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">  
 <!-- The above 4 meta tags \*must\* come first in the head; any other head content must come \*after\* these tags -->  
  
 <!-- Title -->  
 <title>Medilife - Health &amp; Medical Template | Home</title>  
  
 <!-- Favicon -->  
 <link rel="icon" href="{% static 'img/core-img/favicon.ico' %}">  
  
 <!-- Style CSS -->  
 <link rel="stylesheet" href="{% static 'style.css' %}">  
 <link rel="stylesheet" href="{% static 'table.css' %}">  
  
  
</head>  
  
<body>  
 <!-- Preloader -->  
 <div id="preloader">  
 <div class="medilife-load"></div>  
 </div>  
  
 <!-- \*\*\*\*\* Header Area Start \*\*\*\*\* -->  
 <header class="header-area">  
 <!-- Top Header Area -->  
 <div class="top-header-area">  
 <div class="container h-100">  
 <div class="row h-100">  
 <div class="col-12 h-100">  
 <div class="h-100 d-md-flex justify-content-between align-items-center">  
 <p>Welcome to <span>Medifile</span> </p>  
 <p>Opening Hours : Monday to Saturday - 8am to 10pm Contact : <span>+12-823-611-8721</span></p>  
 </div>  
 </div>  
 </div>  
 </div>

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</div>  
  
 <!-- Main Header Area -->  
 <div class="main-header-area" id="stickyHeader">  
 <div class="container h-100">  
 <div class="row h-100 align-items-center">  
 <div class="col-12 h-100">  
 <div class="main-menu h-100">  
 <nav class="navbar h-100 navbar-expand-lg">  
 <!-- Logo Area -->  
 <a class="navbar-brand" href="/"><img src="{% static 'img/core-img/logo.png'%}" alt="Logo"></a>  
  
 <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#medilifeMenu" aria-controls="medilifeMenu" aria-expanded="false" aria-label="Toggle navigation"><span class="navbar-toggler-icon"></span></button>  
  
 <div class="collapse navbar-collapse" id="medilifeMenu">  
 <!-- Menu Area -->  
 <ul class="navbar-nav ml-auto">  
 <li class="nav-item active">  
 <a class="nav-link" href="/">Home <span class="sr-only">(current)</span></a>  
 </li>  
 <li class="nav-item">  
 <a class="nav-link" href="{% url 'doctor\_page'%}">Appointments</a>  
 </li>  
 <li class="nav-item ">  
 <a class="nav-link" href="{% url 'doctor\_tabreq'%}">Tablet Request</a>  
 </li>  
 <li class="nav-item">  
 <a class="nav-link" href="{% url 'news' %}">News</a>  
 </li>  
  
 </ul>  
 <!-- Appointment Button -->  
 <a href="{% url 'doctor\_logout' %}" class="btn medilife-appoint-btn ml-30">Logout</a>  
 </div>  
 </nav>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </header>  
  
 <!-- \*\*\*\*\* Header Area End \*\*\*\*\* -->  
 {% block content %}

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<div class="limiter" style="background-size:cover;background-image: url({% static 'img/bg-

img/about1.jpg'%}">  
 <div>  
 {% for m in messages %}  
 <p style="font-size:20px;text-transform:uppercase;top:25%;left:45%;position:absolute"><i>{{m}}</i></p><br>  
 {% endfor %}  
 </div>  
 <div class="container-table100">  
 <div class="wrap-table100">  
 <div class="table100">  
 <table>  
 <thead>  
 <tr class="table100-head">  
 <th class="column1">Patient\_Id</th>  
 <th class="column2">Date</th>  
 <th class="column3">Time</th>  
 <th class="column4">Name</th>  
 <th class="column5">Phone</th>  
 <th class="column6">Problems</th>  
 <th class="column7">Lab Report</th>  
 <th class="column8">Prescription</th>  
 <th>status</th>  
 </tr>  
 </thead>  
 <tbody>  
 {% for d in data %}  
 <tr>  
 <td class="column1">{{d.patient\_id}}</td>  
 <td class="column2">{{d.date}}</td>  
 <td class="column3">{{d.time}}</td>  
 <td class="column4">{{d.name}}</td>  
 <td class="column5">{{d.phone}}</td>  
 <td class="column6">{{d.problems}}</td>  
 <td class="column7"><a href="/download/{{d.report}}">download</a></td>  
 <td class="column8"><a onclick="document.getElementById('doctorupload').style.display='block'">click to upload</a></td>  
 {% if d.prescription\_boolean is False %}  
 <td> not completed </td>  
 {% endif %}  
 {% if d.prescription\_boolean is True %}  
 <td>completed </td>  
 {% endif %}  
 </tr>  
 {% endfor %}  
 </tbody>  
 </table>  
 </div>  
 </div>  
 </div>

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</div>  
<center>  
<div class="file anim" id="doctorupload" style="background-image:url({% static 'img/bg-img/breadcumb2.jpg'%});background-size:cover;">  
 <br><br><br><br><br><br><br>  
 <span onclick="document.getElementById('doctorupload').style.display='none'" style="top:25%" class="close" title="close">&times;</span><br>  
 <form method="POST" enctype="multipart/form-data">  
 {% csrf\_token %}  
 <div class="login-form">  
 <h3>upload report file</h3>  
 <input type="text" class="form-login" name="patient\_id" style="width:270px;margin:5px;" placeholder="patient id"><br>  
 <input type="file" name="file" style="width:270px;margin:5px;"><br>  
 <input type="submit" class="btn medilife-btn">  
 </div>  
 </form>  
</div></center>  
 {% endblock %}  
<footer class="footer-area section-padding-100">  
 <!-- Main Footer Area -->  
 <div class="main-footer-area">  
 <div class="container-fluid">  
 <div class="row">  
 <div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="footer-logo">  
 <img src="{% static 'img/core-img/logo.png'%}" alt="">  
 </div>  
 <p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Lorem ipsum dolor sit amet, consectetuer.</p>  
 <div class="footer-social-info">  
 <a href="#"><i class="fa fa-google-plus" aria-hidden="true"></i></a>  
 <a href="#"><i class="fa fa-pinterest" aria-hidden="true"></i></a>  
 <a href="#"><i class="fa fa-facebook" aria-hidden="true"></i></a>  
 <a href="#"><i class="fa fa-twitter" aria-hidden="true"></i></a>  
 </div>  
 </div>  
 </div>  
  
 <div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="widget-title">  
 <h6>Latest News</h6>  
 </div>  
 <div class="widget-blog-post">  
 <!-- Single Blog Post -->  
 <div class="widget-single-blog-post d-flex">  
 <div class="widget-post-thumbnail">  
 <img src="{% static 'img/blog-img/ln1.jpg'%}" alt="">

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</div>  
 <div class="widget-post-content">  
 <a href="#">Better Health Care</a>  
 <p>Jul 8, 2021</p>  
 </div>  
 </div>  
 <!-- Single Blog Post -->  
 <div class="widget-single-blog-post d-flex">  
 <div class="widget-post-thumbnail">  
 <img src="{% static 'img/blog-img/ln2.jpg'%}" alt="">  
 </div>  
 <div class="widget-post-content">  
 <a href="#">A new drug is tested</a>  
 <p>Jul 8, 2021</p>  
 </div>  
 </div>  
 <!-- Single Blog Post -->  
 <div class="widget-single-blog-post d-flex">  
 <div class="widget-post-thumbnail">  
 <img src="{% static 'img/blog-img/ln3.jpg'%}" alt="">  
 </div>  
 <div class="widget-post-content">  
 <a href="#">Health department advice</a>  
 <p>Jul 8, 2021</p>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
  
 <div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="widget-title">  
 <h6>Contact Form</h6>  
 </div>  
 <div class="footer-contact-form">  
 <form method="POST">  
 {% csrf\_token %}  
 <input type="number" name="type" value="2" style="display:none;">  
 <input type="text" class="form-control border-top-0 border-right-0 border-left-0" name="footer-name" id="footer-name" placeholder="Name">  
 <input type="email" class="form-control border-top-0 border-right-0 border-left-0" name="footer-email" id="footer-email" placeholder="Email">  
 <input name="message" class="form-control border-top-0 border-right-0 border-left-0" name="footerMessage" placeholder="Message">  
 <button type="submit" class="btn medilife-btn">Contact Us <span>+</span></button>  
 </form>  
 </div>  
 </div>  
 </div>  
 good  
 28

<div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="widget-title">  
 <h6>News Letter</h6>  
 </div>  
  
 <div class="footer-newsletter-area">  
 <form method="POST">  
 {% csrf\_token %}  
 <input type="number" name="type" value="3" style="display:none;">  
 <input type="email" class="form-control border-0 mb-0" name="newsletterEmail" id="newsletterEmail" placeholder="Your Email Here">  
 <button type="submit">Subscribe</button>  
 </form>  
 <p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Lorem ipsum dolor sit amet, consectetuer.</p>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 <!-- Bottom Footer Area -->  
 <div class="bottom-footer-area">  
 <div class="container-fluid">  
 <div class="row">  
 <div class="col-12">  
 <div class="bottom-footer-content">  
 <!-- Copywrite Text -->  
 <div class="copywrite-text">  
 <p><a target="\_blank" href="https://www.templateshub.net">Templates Hub</a>  
</p> </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </footer>  
 <!-- \*\*\*\*\* Footer Area End \*\*\*\*\* -->  
  
 <!-- jQuery (Necessary for All JavaScript Plugins) -->  
 <script src="{% static 'js/jquery/jquery-2.2.4.min.js' %}"></script>  
 <!-- Popper js -->  
 <script src="{% static 'js/popper.min.js' %}"></script>  
 <!-- Bootstrap js -->  
 <script src="{% static 'js/bootstrap.min.js'%}"></script>  
 <!-- Plugins js -->  
 <script src="{% static 'js/plugins.js'%}"></script>  
 <!-- Active js -->

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<script src="{% static 'js/active.js' %}"></script>  
 <script>function new(){  
 windows.location='/request/{{id}}'  
}  
</script>  
</body>  
</html>

**Patient\_page.html:**

<!DOCTYPE html>  
{% load static %}  
<html lang="en">  
  
<meta http-equiv="content-type" content="text/html;charset=utf-8" />  
<head>  
 <meta charset="UTF-8">  
 <meta name="description" content="">  
 <meta http-equiv="X-UA-Compatible" content="IE=edge">  
 <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">  
 <!-- The above 4 meta tags \*must\* come first in the head; any other head content must come \*after\* these tags -->  
  
 <!-- Title -->  
 <title>Medilife - Health &amp; Medical Template | Home</title>  
  
 <!-- Favicon -->  
 <link rel="icon" href="{% static 'img/core-img/favicon.ico' %}">  
  
 <!-- Style CSS -->  
 <link rel="stylesheet" href="{% static 'style.css' %}">  
 <link rel="stylesheet" href="{% static 'table.css' %}">  
  
 <style>  
 .pharmacy\_form{  
 top:35%;  
 left:35%;  
 padding:20px 25px 20px 25px;  
 position:absolute;  
 }  
 select option{  
 color:black;  
 }  
  
 </style>  
  
</head>  
  
<body>  
 <!-- Preloader -->

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<div id="preloader">  
 <div class="medilife-load"></div>  
 </div>  
  
 <!-- \*\*\*\*\* Header Area Start \*\*\*\*\* -->  
 <header class="header-area">  
 <!-- Top Header Area -->  
 <div class="top-header-area">  
 <div class="container h-100">  
 <div class="row h-100">  
 <div class="col-12 h-100">  
 <div class="h-100 d-md-flex justify-content-between align-items-center">  
 <p>Welcome to <span>Medifile</span> </p>  
 <p>Opening Hours : Monday to Saturday - 8am to 10pm Contact : <span>+12-823-611-8721</span></p>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
  
 <!-- Main Header Area -->  
 <div class="main-header-area" id="stickyHeader">  
 <div class="container h-100">  
 <div class="row h-100 align-items-center">  
 <div class="col-12 h-100">  
 <div class="main-menu h-100">  
 <nav class="navbar h-100 navbar-expand-lg">  
 <!-- Logo Area -->  
 <a class="navbar-brand" href="/"><img src="{% static 'img/core-img/logo.png'%}" alt="Logo"></a>  
  
 <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#medilifeMenu" aria-controls="medilifeMenu" aria-expanded="false" aria-label="Toggle navigation"><span class="navbar-toggler-icon"></span></button>  
  
 <div class="collapse navbar-collapse" id="medilifeMenu">  
 <!-- Menu Area -->  
 <ul class="navbar-nav ml-auto">  
 <li class="nav-item active">  
 <a class="nav-link" href="/">Home <span class="sr-only">(current)</span></a>  
 </li>  
 <li class="nav-item">  
 <a class="nav-link" href="{% url 'appointment\_book'%}">Appointment Booking</a>  
 </li>  
 <li class="nav-item ">  
 <a class="nav-link" href="{% url 'appointment'%}">Appointment details</a>  
 </li>  
 good  
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<li class="nav-item">  
 <a class="nav-link" href="{% url 'pharmacy\_book' %}">Pharmacy</a>  
 </li>  
 <li class="nav-item">  
 <a class="nav-link" href="{% url 'patient\_pharmacy' %}">Pharmacy billing</a>  
 </li>  
 <li class="nav-item">  
 <a class="nav-link" href="{% url 'news' %}">News</a>  
 </li>  
  
 </ul>  
 <!-- Appointment Button -->  
 <a href="{% url 'patient\_logout' %}" class="btn medilife-appoint-btn ml-30"> Logout</a>  
 </div>  
 </nav>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </header>  
  
 <!-- \*\*\*\*\* Header Area End \*\*\*\*\* -->  
 {% block content %}  
  
 <div class="breadcumb-area bg-img gradient-background-overlay " style="background-image: url({% static 'img/bg-img/breadcumb2.jpg'%});height:700px;">  
 <div>  
 {% for m in messages %}  
 <p style="font-size:20px;text-transform:uppercase;top:25%;left:45%;position:absolute"><i>{{m}}</i></p><br><br><br>  
 {% endfor %}  
 </div>  
 <br><br><br><br>  
 <div class="medilife-book-an-appoinment-area">  
 <div class="container">  
 <div class="row">  
 <div class="col-12">  
 <div class="appointment-form-content">  
 <br><center><h2 style="text-transform:uppercase;color:white"><i>Appointment conform</i></h2></center>  
 <div class="row no-gutters align-items-center">  
 <div class="col-12 col-lg-9">  
 <div class="medilife-appointment-form">  
 <form method="POST" enctype="multipart/form-data">  
 {% csrf\_token %}  
 <input type="number" name="type" value="1" style="display:none">  
 <div class="row align-items-end">

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<div class="col-12 col-md-4">  
 <div class="form-group">  
 <input type="text" autocomplete="off" name="location" class="form-login" style="margin:5px" placeholder="location">  
 </div>  
 </div>  
 <div class="col-12 col-md-4">  
 <div class="form-group">  
 <input type="text" autocomplete="off" name="gender" class="form-login" style="margin:5px" placeholder="gender">  
 </div>  
 </div>  
 <div class="col-12 col-md-2">  
 <div class="form-group">  
 <input type="number" autocomplete="off" name="age" class="form-login" style="margin:5px" placeholder="Patient age"><br>  
 </div>  
 </div>  
 <div class="col-12 col-md-3">  
 <div class="form-group-select">  
 <select name="symptoms">  
 <option selected disabled>problems</option>  
 <option value="pain">leg pain</option>  
 <option value="pain">headache</option>  
 <option value="pain">chest pain</option>  
 <option value="fever">fever</option>  
 <option value="cold">cold</option>  
 <option value="diabetes">diabetes</option>  
 </select>  
 </div>  
 </div>  
 <div class="col-12 col-md-3">  
 <div class="form-group">  
 </div>  
 </div>  
 <div class="col-12 col-md-3">  
 <div class="form-group">  
 <p style="color:white;">you have report <br><input type="radio" value="yes" name="yes" onclick="document.getElementById('file').style.display='block',document.getElementById('file1').style.display='none'" placeholder="yes">yes  
 <br><input type="radio" autocomplete="off" onclick="document.getElementById('file1').style.display='block',document.getElementById('file').style.display='none'" name="yes" value="no" placeholder="no">no</p>  
 <br>  
 <div id="file" class="fileone" style="display:None">  
 <p style="color:white;"><i>Add report file</i></p>  
 <input type="file" style="margin:5px;color:white" name="file"><br>  
 </div>

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<div id="file1" style="display:None">  
 <p>After submition of appointment then go to appointment page send request to lab for lab report.</p>  
 </div> </div>  
 </div><br>  
 <div class="col-12 col-md-4">  
 <div class="form-group">  
  
 </div>  
 </div><br>  
 <div class="col-12 col-md-4 ">  
 <div class="form-group">  
 <input type="submit" class="btn medilife-btn">  
 </div>  
 </div>  
 </div>  
 </form>  
 </div>  
 </div>  
 <div class="col-12 col-lg-3">  
 <div class="medilife-contact-info">  
 <!-- Single Contact Info -->  
 <div class="single-contact-info mb-30">  
 <img src="{%static 'img/icons/alarm-clock.png' %}" alt="">  
 <p>Mon - Sat 08:00 - 21:00 <br>Sunday CLOSED</p>  
 </div>  
 <!-- Single Contact Info -->  
 <div class="single-contact-info mb-30">  
 <img src="{%static 'img/icons/envelope.png' %}" alt="">  
 <p>0080 673 729 766 <br>contact@business.com</p>  
 </div>  
 <!-- Single Contact Info -->  
 <div class="single-contact-info">  
 <img src="{%static 'img/icons/map-pin.png'%}" alt="">  
 <p>Lamas Str, no 14-18 <br>41770 Miami</p>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
  
 {% endblock %}  
<footer class="footer-area section-padding-100">  
 <!-- Main Footer Area -->  
 <div class="main-footer-area">  
 <div class="container-fluid">

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<div class="row">  
 <div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="footer-logo">  
 <img src="{% static 'img/core-img/logo.png'%}" alt="">  
 </div>  
 <p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Lorem ipsum dolor sit amet, consectetuer.</p>  
 <div class="footer-social-info">  
 <a href="#"><i class="fa fa-google-plus" aria-hidden="true"></i></a>  
 <a href="#"><i class="fa fa-pinterest" aria-hidden="true"></i></a>  
 <a href="#"><i class="fa fa-facebook" aria-hidden="true"></i></a>  
 <a href="#"><i class="fa fa-twitter" aria-hidden="true"></i></a>  
 </div>  
 </div>  
 </div>  
  
 <div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="widget-title">  
 <h6>Latest News</h6>  
 </div>  
 <div class="widget-blog-post">  
 <!-- Single Blog Post -->  
 <div class="widget-single-blog-post d-flex">  
 <div class="widget-post-thumbnail">  
 <img src="{% static 'img/blog-img/ln1.jpg'%}" alt="">  
 </div>  
 <div class="widget-post-content">  
 <a href="#">Better Health Care</a>  
 <p>Jul 8, 2021</p>  
 </div>  
 </div>  
 <!-- Single Blog Post -->  
 <div class="widget-single-blog-post d-flex">  
 <div class="widget-post-thumbnail">  
 <img src="{% static 'img/blog-img/ln2.jpg'%}" alt="">  
 </div>  
 <div class="widget-post-content">  
 <a href="#">A new drug is tested</a>  
 <p>Jul 8, 2021</p>  
 </div>  
 </div>  
 <!-- Single Blog Post -->  
 <div class="widget-single-blog-post d-flex">  
 <div class="widget-post-thumbnail">  
 <img src="{% static 'img/blog-img/ln3.jpg'%}" alt="">  
 </div>  
 <div class="widget-post-content">  
 <a href="#">Health department advice</a>

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<p>Jul 8, 2021</p>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
  
 <div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="widget-title">  
 <h6>Contact Form</h6>  
 </div>  
 <div class="footer-contact-form">  
 <form method="POST">  
 {% csrf\_token %}  
 <input type="number" name="type" value="2" style="display:none;">  
 <input type="text" class="form-control border-top-0 border-right-0 border-left-0" name="footer-name" id="footer-name" placeholder="Name">  
 <input type="email" class="form-control border-top-0 border-right-0 border-left-0" name="footer-email" id="footer-email" placeholder="Email">  
 <input name="message" class="form-control border-top-0 border-right-0 border-left-0" name="footerMessage" placeholder="Message">  
 <button type="submit" class="btn medilife-btn">Contact Us <span>+</span></button>  
 </form>  
 </div>  
 </div>  
 </div>  
  
 <div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="widget-title">  
 <h6>News Letter</h6>  
 </div>  
  
 <div class="footer-newsletter-area">  
 <form method="POST">  
 {% csrf\_token %}  
 <input type="number" name="type" value="3" style="display:none;">  
 <input type="email" class="form-control border-0 mb-0" name="newsletterEmail" id="newsletterEmail" placeholder="Your Email Here">  
 <button type="submit">Subscribe</button>  
 </form>  
 <p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Lorem ipsum dolor sit amet, consectetuer.</p>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>

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</div>  
 <!-- Bottom Footer Area -->  
 <div class="bottom-footer-area">  
 <div class="container-fluid">  
 <div class="row">  
 <div class="col-12">  
 <div class="bottom-footer-content">  
 <!-- Copywrite Text -->  
 <div class="copywrite-text">  
 <p><a target="\_blank" href="https://www.templateshub.net">Templates Hub</a>  
</p> </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </footer>  
 <!-- \*\*\*\*\* Footer Area End \*\*\*\*\* -->  
  
 <!-- jQuery (Necessary for All JavaScript Plugins) -->  
 <script src="{% static 'js/jquery/jquery-2.2.4.min.js' %}"></script>  
 <!-- Popper js -->  
 <script src="{% static 'js/popper.min.js' %}"></script>  
 <!-- Bootstrap js -->  
 <script src="{% static 'js/bootstrap.min.js'%}"></script>  
 <!-- Plugins js -->  
 <script src="{% static 'js/plugins.js'%}"></script>  
 <!-- Active js -->  
 <script src="{% static 'js/active.js' %}"></script>  
  
</body>  
</html>

**Pharmacy\_page.html:**

<!DOCTYPE html>  
{% load static %}  
<html lang="en">  
  
<meta http-equiv="content-type" content="text/html;charset=utf-8" />  
<head>  
 <meta charset="UTF-8">  
 <meta name="description" content="">  
 <meta http-equiv="X-UA-Compatible" content="IE=edge">  
 <meta name="viewport" content="width=device-width, initial-scale=1, shrink-to-fit=no">  
 <!-- The above 4 meta tags \*must\* come first in the head; any other head content must come \*after\* these tags -->  
  
 <!-- Title -->  
 <title>Medilife - Health &amp; Medical Template | Home</title>  
  
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<!-- Favicon -->  
 <link rel="icon" href="{% static 'img/core-img/favicon.ico' %}">  
  
 <!-- Style CSS -->  
 <link rel="stylesheet" href="{% static 'style.css' %}">  
 <link rel="stylesheet" href="{% static 'table.css' %}">  
  
</head>  
  
<body>  
 <!-- Preloader -->  
 <div id="preloader">  
 <div class="medilife-load"></div>  
 </div>  
  
 <!-- \*\*\*\*\* Header Area Start \*\*\*\*\* -->  
 <header class="header-area">  
 <!-- Top Header Area -->  
 <div class="top-header-area">  
 <div class="container h-100">  
 <div class="row h-100">  
 <div class="col-12 h-100">  
 <div class="h-100 d-md-flex justify-content-between align-items-center">  
 <p>Welcome to <span>Medifile</span> template</p>  
 <p>Opening Hours : Monday to Saturday - 8am to 10pm Contact : <span>+12-823-611-8721</span></p>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
  
 <!-- Main Header Area -->  
 <div class="main-header-area" id="stickyHeader">  
 <div class="container h-100">  
 <div class="row h-100 align-items-center">  
 <div class="col-12 h-100">  
 <div class="main-menu h-100">  
 <nav class="navbar h-100 navbar-expand-lg">  
 <!-- Logo Area -->  
 <a class="navbar-brand" href="index-2.html"><img src="{% static 'img/core-img/logo.png'%}" alt="Logo"></a>  
  
 <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#medilifeMenu" aria-controls="medilifeMenu" aria-expanded="false" aria-label="Toggle navigation"><span class="navbar-toggler-icon"></span></button>  
  
 <div class="collapse navbar-collapse" id="medilifeMenu">  
 <!-- Menu Area -->  
 <ul class="navbar-nav ml-auto">  
 <li class="nav-item active">

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<a class="nav-link" href="/">Home <span class="sr-only">(current)</span></a>  
 </li>  
 <li class="nav-item">  
 <a class="nav-link" href="{% url 'pharmacy\_page' name %}">Pharmacy</a>  
 </li>  
 <li class="nav-item ">  
 <a class="nav-link" href="{% url 'pharmacy\_orders' name %}">Orders pending </a>  
 </li>  
 <li class="nav-item">  
 <a class="nav-link" href="{% url 'pharmacy\_req' name %}">tablet requests</a>  
 </li>  
  
 <li class="nav-item">  
 <a class="nav-link" href="{% url 'services' %}">Services</a>  
 </li>  
 <li class="nav-item">  
 <a class="nav-link" href="{% url 'news' %}">News</a>  
 </li>  
 <li class="nav-item">  
 <a class="nav-link" href="{% url 'contact' %}">Contact</a>  
 </li>  
 </ul>  
 <!-- Appointment Button -->  
 <a href="{% url 'pharmacy\_logout' %}" class="btn medilife-appoint-btn ml-30">Logout</a>  
 </div>  
 </nav>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </header>  
 <!-- \*\*\*\*\* Header Area End \*\*\*\*\* -->  
 {% block content %}  
 <br><br><br><br><br><br>  
 <div class="limiter" style="background-size:cover;background-image: url({% static 'img/bg-img/about1.jpg'%}">  
 <div>  
 {% for m in messages %}  
  
 <p style="font-size:20px;text-transform:uppercase;top:25%;left:45%;position:absolute"><i>{{m}}</i></p><br>  
 {% endfor %}  
 </div>  
 <div class="container-table100">  
 <div class="wrap-table100">

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<div class="table100">

<table>  
 <thead>  
 <tr class="table100-head">  
 <th class="column1">tablet</th>  
 <th class="column2">Tablet name</th>  
 <th class="column3">Dosages</th>  
 <th class="column4">Problems</th>  
 <th class="column5">Stock</th>  
 <th class="column6">Price</th>  
  
 </tr>  
 </thead>  
 <tbody>  
 {% for d in data %}  
 <tr>  
 <td class="column1"><img src="{{d.image.url}}" width="150px" height="15 0px" alt="{{d.image}}"></td>  
 <td class="column2">{{d.name}}</td>  
 <td class="column3">{{d.dosages}}</td>  
 <td class="column5">{{d.problems}}</td>  
 <td class="column6">{{d.price}}</td>  
 <td class="column6">{{d.stock}}</td>  
 </tr>  
 {% endfor %}  
 </tbody>  
 </table>  
 </div>  
 </div>  
 </div>  
 </div>  
  
  
 <!-- \*\*\*\*\* About Us Area Start \*\*\*\*\* -->  
 <section class="medica-about-us-area section-padding-100-20">  
 <div class="container">  
 <div class="row">  
 <div class="col-12 col-lg-4">  
 <div class="medica-about-content">  
 <h2>We always put our pacients first</h2>  
 <p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Lorem ipsum dolor sit amet, consectetuer adipiscing eli.</p>  
 <a href="#" class="btn medilife-btn mt-50">View the services <span>+</span></a>  
 </div>  
 </div>  
 <div class="col-12 col-lg-8">  
 <div class="row">  
 <!-- Single Service Area -->

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<div class="col-12 col-sm-6">  
 <div class="single-service-area d-flex">  
 <div class="service-icon">  
 <i class="icon-doctor"></i>  
 </div>  
 <div class="service-content">  
 <h5>The Best Doctors</h5>  
 <p>Lorem ipsum dolor sit amet, consecte tuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut.</p>  
 </div>  
 </div>  
 </div>  
 <!-- Single Service Area -->  
 <div class="col-12 col-sm-6">  
 <div class="single-service-area d-flex">  
 <div class="service-icon">  
 <i class="icon-blood-donation-1"></i>  
 </div>  
 <div class="service-content">  
 <h5>Baby Nursery</h5>  
 <p>Dolor sit amet, consecte tuer elit, sed diam nonummy nibh euismod tincidunt ut ldolore magna.</p>  
 </div>  
 </div>  
 </div>  
 <!-- Single Service Area -->  
 <div class="col-12 col-sm-6">  
 <div class="single-service-area d-flex">  
 <div class="service-icon">  
 <i class="icon-flask-2"></i>  
 </div>  
 <div class="service-content">  
 <h5>Laboratory</h5>  
 <p>Lorem ipsum dolor sit amet, consecte tuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut.</p>  
 </div>  
 </div>  
 </div>  
 <!-- Single Service Area -->  
 <div class="col-12 col-sm-6">  
 <div class="single-service-area d-flex">  
 <div class="service-icon">  
 <i class="icon-emergency-call-1"></i>  
 </div>  
 <div class="service-content">  
 <h5>Emergency Room</h5>  
 <p>Dolor sit amet, consecte tuer elit, sed diam nonummy nibh euismod tincidunt ut ldolore magna.</p>  
 </div>  
 </div>  
 </div>

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</div>  
 </div>  
 </div>  
 </div>  
 </section>  
 <!-- \*\*\*\*\* About Us Area End \*\*\*\*\* -->  
  
 <!-- \*\*\*\*\* Cool Facts Area Start \*\*\*\*\* -->  
 <section class="medilife-cool-facts-area section-padding-100-0">  
 <div class="container">  
 <div class="row">  
 <!-- Single Cool Fact-->  
 <div class="col-12 col-sm-6 col-lg-3">  
 <div class="single-cool-fact-area text-center mb-100">  
 <i class="icon-blood-transfusion-2"></i>  
 <h2><span class="counter">5632</span></h2>  
 <h6>Blood donations</h6>  
 <p>Dolor sit amet, consecte tuer adipiscing elit, sed diam nonummy nibh euismod tincidunt.</p>  
 </div>  
 </div>  
 <!-- Single Cool Fact-->  
 <div class="col-12 col-sm-6 col-lg-3">  
 <div class="single-cool-fact-area text-center mb-100">  
 <i class="icon-atoms"></i>  
 <h2><span class="counter">23</span>k</h2>  
 <h6>Pacients</h6>  
 <p>Dolor sit amet, consecte tuer adipiscing elit, sed diam nonummy nibh euismod tincidunt.</p>  
 </div>  
 </div>  
 <!-- Single Cool Fact-->  
 <div class="col-12 col-sm-6 col-lg-3">  
 <div class="single-cool-fact-area text-center mb-100">  
 <i class="icon-microscope"></i>  
 <h2><span class="counter">25</span></h2>  
 <h6>Specialities</h6>  
 <p>Dolor sit amet, consecte tuer adipiscing elit, sed diam nonummy nibh euismod tincidunt.</p>  
 </div>  
 </div>  
 <!-- Single Cool Fact-->  
 <div class="col-12 col-sm-6 col-lg-3">  
 <div class="single-cool-fact-area text-center mb-100">  
 <i class="icon-doctor-1"></i>  
 <h2><span class="counter">723</span></h2>  
 <h6>Doctors</h6>  
 <p>Dolor sit amet, consecte tuer adipiscing elit, sed diam nonummy nibh euismod tincidunt.</p>  
 </div>  
 </div>

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</div>  
 </div>  
 </section>  
 <!-- \*\*\*\*\* Cool Facts Area End \*\*\*\*\* -->  
  
 <!-- \*\*\*\*\* Gallery Area Start \*\*\*\*\* -->  
 <div class="medilife-gallery-area owl-carousel">  
 <!-- Single Gallery Item -->  
 <div class="single-gallery-item">  
 <img src="{%static 'img/bg-img/g1.jpg'%}" alt="">  
 <div class="view-more-btn">  
 <a href="{%static 'img/bg-img/g1.jpg'%}" class="btn gallery-img">See More +</a>  
 </div>  
 </div>  
 <!-- Single Gallery Item -->  
 <div class="single-gallery-item">  
 <img src="{%static 'img/bg-img/g2.jpg'%}" alt="">  
 <div class="view-more-btn">  
 <a href="{%static 'img/bg-img/g2.jpg'%}" class="btn gallery-img">See More +</a>  
 </div>  
 </div>  
 <!-- Single Gallery Item -->  
 <div class="single-gallery-item">  
 <img src="{%static 'img/bg-img/g3.jpg'%}" alt="">  
 <div class="view-more-btn">  
 <a href="{%static 'img/bg-img/g3.jpg'%}" class="btn gallery-img">See More +</a>  
 </div>  
 </div>  
  
 <!-- Single Gallery Item -->  
 <div class="single-gallery-item">  
 <img src="{%static 'img/bg-img/g4.jpg'%}" alt="">  
 <div class="view-more-btn">  
 <a href="{%static 'img/bg-img/g4.jpg'%}" class="btn gallery-img">See More +</a>  
 </div>  
 </div>  
 </div>  
 <!-- \*\*\*\*\* Gallery Area End \*\*\*\*\* -->  
  
 <!-- \*\*\*\*\* Features Area Start \*\*\*\*\* -->  
 <div class="medilife-features-area section-padding-100">  
 <div class="container">  
 <div class="row align-items-center">  
 <div class="col-12 col-lg-6">  
 <div class="features-content">  
 <h2>A new way to treat pacients in a revolutionary facility</h2>  
 <p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Lorem ipsum dolor sit amet, consectetuer adipiscing eli.Lorem ipsum dolor sit amet, consec tetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Lorem ipsum dolor sit amet, consectetuer.</p>

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<a href="#" class="btn medilife-btn mt-50">View the services <span>+</span></a>  
 </div>  
 </div>  
 <div class="col-12 col-lg-6">  
 <div class="features-thumbnail">  
 <img src="{%static 'img/bg-img/medical1.png'%}" alt="">  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 <!-- \*\*\*\*\* Features Area End \*\*\*\*\* -->  
  
 <!-- \*\*\*\*\* Blog Area Start \*\*\*\*\* -->  
 <div class="medilife-blog-area section-padding-100-0">  
 <div class="container">  
 <div class="row">  
 <!-- Single Blog Area -->  
 <div class="col-12 col-md-6 col-lg-4">  
 <div class="single-blog-area mb-100">  
 <!-- Post Thumbnail -->  
 <div class="blog-post-thumbnail">  
 <img src="{%static 'img/blog-img/1.jpg'%}" alt="">  
 <!-- Post Date -->  
 <div class="post-date">  
 <a href="#">July 8, 2021</a>  
 </div>  
 </div>  
 <!-- Post Content -->  
 <div class="post-content">  
 <div class="post-author">  
 <a href="#"><img src="{%static 'img/blog-img/p1.jpg'%}" alt=""></a>  
 </div>  
 <a href="#" class="headline">New drog release soon</a>  
 <p>Dolor sit amet, consecte tuer adipiscing elit, sed diam nonummy nibh euismod tincidunt.</p>  
 <a href="#" class="comments">3 Comments</a>  
 </div>  
 </div>  
 </div>  
 <!-- Single Blog Area -->  
 <div class="col-12 col-md-6 col-lg-4">  
 <div class="single-blog-area mb-100">  
 <!-- Post Thumbnail -->  
 <div class="blog-post-thumbnail">  
 <img src="{%static 'img/blog-img/2.jpg'%}" alt="">  
 <!-- Post Date -->  
 <div class="post-date">  
 <a href="#">July 8, 2021</a>  
 </div>  
 </div>

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<!-- Post Content -->  
 <div class="post-content">  
 <div class="post-author">  
 <a href="#"><img src="{%static 'img/blog-img/p2.jpg'%}" alt=""></a>  
 </div>  
 <a href="#" class="headline">Free dental care</a>  
 <p>Dolor sit amet, consecte tuer adipiscing elit, sed diam nonummy nibh euismod tincidunt.</p>  
 <a href="#" class="comments">3 Comments</a>  
 </div>  
 </div>  
 </div>  
 <!-- Single Blog Area -->  
 <div class="col-12 col-md-6 col-lg-4">  
 <div class="single-blog-area mb-100">  
 <!-- Post Thumbnail -->  
 <div class="blog-post-thumbnail">  
 <img src="{%static 'img/blog-img/3.jpg'%}" alt="">  
 <!-- Post Date -->  
 <div class="post-date">  
 <a href="#">July 8, 2021</a>  
 </div>  
 </div>  
 <!-- Post Content -->  
 <div class="post-content">  
 <div class="post-author">  
 <a href="#"><img src="{%static 'img/blog-img/p3.jpg'%}" alt=""></a>  
 </div>  
 <a href="#" class="headline">Good news for the pacients</a>  
 <p>Dolor sit amet, consecte tuer adipiscing elit, sed diam nonummy nibh euismod tincidunt.</p>  
 <a href="#" class="comments">3 Comments</a>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 <!-- \*\*\*\*\* Blog Area End \*\*\*\*\* -->  
  
 <!-- \*\*\*\*\* Emergency Area Start \*\*\*\*\* -->  
 <div class="medilife-emergency-area section-padding-100-50">  
 <div class="container">  
 <div class="row">  
 <div class="col-12 col-lg-6">  
 <div class="emergency-content">  
 <i class="icon-smartphone"></i>  
 <h2>For Emergency calls</h2>  
 <h3>+12-823-611-8721</h3>  
 </div>  
 </div>

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<div class="col-12 col-lg-6">  
 <div class="row">  
 <!-- Single Emergency Helpline -->  
 <div class="col-12 col-sm-6">  
 <div class="single-emergency-helpline mb-50">  
 <h5>London</h5>  
 <p>0080 673 729 766 <br> contact@business.com <br> Lamas Str, no 14-18 <br> 41770 Miami</p>  
 </div>  
 </div>  
 <!-- Single Emergency Helpline -->  
 <div class="col-12 col-sm-6">  
 <div class="single-emergency-helpline mb-50">  
 <h5>New Castle</h5>  
 <p>0080 673 729 766 <br> contact@business.com <br> Lamas Str, no 14-18 <br> 41770 Miami</p>  
 </div>  
 </div>  
 <!-- Single Emergency Helpline -->  
 <div class="col-12 col-sm-6">  
 <div class="single-emergency-helpline mb-50">  
 <h5>Manchester</h5>  
 <p>0080 673 729 766 <br> contact@business.com <br> Lamas Str, no 14-18 <br> 41770 Miami</p>  
 </div>  
 </div>  
 <!-- Single Emergency Helpline -->  
 <div class="col-12 col-sm-6">  
 <div class="single-emergency-helpline mb-50">  
 <h5>Bristol</h5>  
 <p>0080 673 729 766 <br> contact@business.com <br> Lamas Str, no 14-18 <br> 41770 Miami</p>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 <!-- \*\*\*\*\* Emergency Area End \*\*\*\*\* -->  
{% endblock %}  
 <!-- \*\*\*\*\* Footer Area Start \*\*\*\*\* -->  
 <footer class="footer-area section-padding-100">  
 <!-- Main Footer Area -->  
 <div class="main-footer-area">  
 <div class="container-fluid">  
 <div class="row">  
  
 <div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="footer-logo">

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<img src="{% static 'img/core-img/logo.png'%}" alt="">  
 </div>  
 <p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Lorem ipsum dolor sit amet, consectetuer.</p>  
 <div class="footer-social-info">  
 <a href="#"><i class="fa fa-google-plus" aria-hidden="true"></i></a>  
 <a href="#"><i class="fa fa-pinterest" aria-hidden="true"></i></a>  
 <a href="#"><i class="fa fa-facebook" aria-hidden="true"></i></a>  
 <a href="#"><i class="fa fa-twitter" aria-hidden="true"></i></a>  
 </div>  
 </div>  
 </div>  
  
 <div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="widget-title">  
 <h6>Latest News</h6>  
 </div>  
 <div class="widget-blog-post">  
 <!-- Single Blog Post -->  
 <div class="widget-single-blog-post d-flex">  
 <div class="widget-post-thumbnail">  
 <img src="{% static 'img/blog-img/ln1.jpg'%}" alt="">  
 </div>  
 <div class="widget-post-content">  
 <a href="#">Better Health Care</a>  
 <p>Jul 8, 2021</p>  
 </div>  
 </div>  
 <!-- Single Blog Post -->  
 <div class="widget-single-blog-post d-flex">  
 <div class="widget-post-thumbnail">  
 <img src="{% static 'img/blog-img/ln2.jpg'%}" alt="">  
 </div>  
 <div class="widget-post-content">  
 <a href="#">A new drug is tested</a>  
 <p>Jul 8, 2021</p>  
 </div>  
 </div>  
 <!-- Single Blog Post -->  
 <div class="widget-single-blog-post d-flex">  
 <div class="widget-post-thumbnail">  
 <img src="{% static 'img/blog-img/ln3.jpg'%}" alt="">  
 </div>  
 <div class="widget-post-content">  
 <a href="#">Health department advice</a>  
 <p>Jul 8, 2021</p>  
 </div>  
 </div>

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</div>  
 </div>  
 </div>  
  
 <div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="widget-title">  
 <h6>Contact Form</h6>  
 </div>  
 <div class="footer-contact-form">  
 <form method="POST">  
 {% csrf\_token %}  
 <input type="number" name="type" value="2" style="display:none;">  
 <input type="text" class="form-control border-top-0 border-right-0 border-left-0" name="footer-name" id="footer-name" placeholder="Name">  
 <input type="email" class="form-control border-top-0 border-right-0 border-left-0" name="footer-email" id="footer-email" placeholder="Email">  
 <input name="message" class="form-control border-top-0 border-right-0 border-left-0" name="footerMessage" placeholder="Message">  
 <button type="submit" class="btn medilife-btn">Contact Us <span>+</span></button>  
 </form>  
 </div>  
 </div>  
 </div>  
  
 <div class="col-12 col-sm-6 col-xl-3">  
 <div class="footer-widget-area">  
 <div class="widget-title">  
 <h6>News Letter</h6>  
 </div>  
  
 <div class="footer-newsletter-area">  
 <form method="POST">  
 {% csrf\_token %}  
 <input type="number" name="type" value="3" style="display:none;">  
 <input type="email" class="form-control border-0 mb-0" name="newsletterEmail" id="newsletterEmail" placeholder="Your Email Here">  
 <button type="submit">Subscribe</button>  
 </form>  
 <p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Lorem ipsum dolor sit amet, consectetuer.</p>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 <!-- Bottom Footer Area -->  
 <div class="bottom-footer-area">

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<div class="container-fluid">  
 <div class="row">  
 <div class="col-12">  
 <div class="bottom-footer-content">  
 <!-- Copywrite Text -->  
 <div class="copywrite-text">  
 <p><a target="\_blank" href="https://www.templateshub.net">Templates Hub</a>  
</p> </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </div>  
 </footer>  
 <!-- \*\*\*\*\* Footer Area End \*\*\*\*\* -->  
  
 <!-- jQuery (Necessary for All JavaScript Plugins) -->  
 <script src="{% static 'js/jquery/jquery-2.2.4.min.js' %}"></script>  
 <!-- Popper js -->  
 <script src="{% static 'js/popper.min.js' %}"></script>  
 <!-- Bootstrap js -->  
 <script src="{% static 'js/bootstrap.min.js'%}"></script>  
 <!-- Plugins js -->  
 <script src="{% static 'js/plugins.js'%}"></script>  
 <!-- Active js -->  
 <script src="{% static 'js/active.js' %}"></script>  
  
</body>  
</html>

**6.2 SAMPLE SERVER SIDE CODING**

**RandomForestClassifier\_.py:**

import random  
from sklearn.preprocessing import LabelEncoder  
from sklearn.ensemble import RandomForestClassifier as Model  
import pandas as pd  
  
  
def algorithm(TrainCsv, Data):  
 dataset = pd.read\_csv(TrainCsv)  
  
 a = []  
 yt = []  
 filename = f"{settings.MEDIA\_ROOT}/dataset.csv"  
 dataset = pd.read\_csv(filename)  
 prob = {'pain': 1, 'fever': 2, 'cold': 3, 'diabetes': 4, 'headache': 5}  
 seve = {'low': 1, 'high': 3, 'medium': 2}

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xt = [[dosage, prob[problem], seve[severity]]]  
 for i in range(1, 10):  
 x = dataset.iloc[:, 2:]  
 y = dataset.iloc[:, 1:2]  
 labelencoder = LabelEncoder()  
 ytrain = labelencoder.fit\_transform(y)  
 std = StandardScaler()  
 xtrain = std.fit\_transform(x)  
  
 classifier = RandomForestClassifier()  
 classifier.fit(x, ytrain)  
  
 ypred = classifier.predict(xt)  
 ypredicted = labelencoder.inverse\_transform(ypred)  
 print(ypredicted)  
 a.append(ypredicted)  
  
 for i in a:  
 if i not in yt:  
 yt.append(i[0])  
  
 return yt  
 data\_x = dataset.iloc[:, :-1]  
 data\_y = dataset.iloc[:, -1]  
 rendom\_number = random.randrange(0, len(dataset))  
 random\_data = dataset.iloc[rendom\_number, :-1]  
 sample\_x = list(data\_x.iloc[0])  
 sample\_y = data\_y.iloc[0]  
  
 string\_columns = []  
 for i in sample\_x:  
 if type(i) == str:  
 string\_columns.append(sample\_x.index(i))  
 yLabel = False  
 if type(sample\_y) == str:  
 yLabelencoder = LabelEncoder()  
 yLabel = True  
 data\_y = yLabelencoder.fit\_transform(data\_y)  
  
 LabelEncoders = []  
  
 for i in string\_columns:  
 newLabelEncoder = LabelEncoder()  
 data\_x.iloc[:, i] = newLabelEncoder.fit\_transform(data\_x.iloc[:, i])  
 LabelEncoders.append(newLabelEncoder)  
 model = Model()  
 model.fit(data\_x, data\_y)  
 l = 0  
 # a = LabelEncoders[0]  
 new\_data = Data  
 for i in string\_columns:

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z = LabelEncoders[l]  
 new\_data.iloc[:, i] = newLabelEncoder.fit\_transform(new\_data.iloc[:, i])  
 l += 1  
  
 predicted = model.predict(new\_data)  
 if yLabel is True:  
 predicted = yLabelencoder.inverse\_transform(predicted)  
 new\_data['output'] = predicted  
 return new\_data

**Models\_.py:**

from django.db import models  
from django.core.validators import RegexValidator  
  
SEX\_OPTIONS = (  
 ('SEX\_FEMALE', 'Female'),  
 ('SEX\_MALE', 'Male'),  
 ('SEX\_UNSURE', 'Unsure')  
)  
  
  
# Create your models here.  
class Contact(models.Model):  
 name = models.CharField(max\_length=30)  
 email = models.CharField(max\_length=45)  
 message = models.CharField(max\_length=250)  
  
  
class Subscribe(models.Model):  
 email = models.CharField(max\_length=45)  
  
  
class Doctor(models.Model):  
 name = models.CharField(max\_length=30)  
 email = models.EmailField(max\_length=30, unique=True, validators=[  
 RegexValidator(r'\b[A-Za-z0-9.\_%+-]+@[A-Za-z0-9.-]+\.[A-Z|a-z]{2,}\b',  
 message='Enter a valid email')])  
 password = models.CharField(max\_length=30, validators=[  
 RegexValidator(r'[A-Za-z0-9@#$%^&+=]{8,}',  
 message='password must be Alphanumeric(Ex:-Aasd@12s)')])  
 phone = models.CharField(max\_length=30, validators=[  
 RegexValidator(r'[6789][0-9]{9,}',  
 message='Enter a valid phone number')])  
 gender = models.CharField(max\_length=10)  
 location = models.CharField(max\_length=255)  
  
  
class Admin(models.Model):  
 name = models.CharField(max\_length=30)

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email = models.EmailField(max\_length=30, unique=True)  
 password = models.CharField(max\_length=30)  
 phone = models.BigIntegerField()  
 gender = models.CharField(max\_length=10)  
 location = models.CharField(max\_length=255)  
  
  
class Patient(models.Model):  
 name = models.CharField(max\_length=30)  
 email = models.EmailField(max\_length=30, unique=True, validators=[  
 RegexValidator(r'\b[A-Za-z0-9.\_%+-]+@[A-Za-z0-9.-]+\.[A-Z|a-z]{2,}\b',  
 message='Enter a valid email')])  
 password = models.CharField(max\_length=30, validators=[  
 RegexValidator(r'[A-Za-z0-9@#$%^&+=]{8,}',  
 message='password must be Alphanumeric(Ex:-Aasd@12s)')])  
 phone = models.CharField(max\_length=30, validators=[  
 RegexValidator(r'[6789][0-9]{9,}',  
 message='Enter a valid phone number')])  
 gender = models.CharField(max\_length=10)  
 location = models.CharField(max\_length=255)  
  
  
class Pharmacy(models.Model):  
 pharmacy = models.CharField(max\_length=30)  
 email = models.EmailField(max\_length=30, unique=True)  
 password = models.CharField(max\_length=30)  
 phone = models.BigIntegerField()  
  
  
class Appointment(models.Model):  
 patient\_id = models.CharField(max\_length=20, default=None)  
 name = models.CharField(max\_length=30)  
 email = models.EmailField(max\_length=30)  
 phone = models.BigIntegerField()  
 gender = models.CharField(max\_length=10)  
 location = models.CharField(max\_length=255)  
 speciality = models.CharField(max\_length=30)  
 doctors = models.CharField(max\_length=30)  
 date = models.CharField(max\_length=30)  
 time = models.CharField(max\_length=30)  
 symptoms = models.CharField(max\_length=30)  
 problems = models.CharField(max\_length=30)  
 report\_boolean = models.BooleanField(default=False)  
 report = models.FileField(upload\_to='media/', default=None)  
 prescription\_boolean = models.BooleanField(default=False)  
 prescription = models.FileField(upload\_to='media/', default=None)  
 age = models.IntegerField()  
 Lab\_report = models.BooleanField(default=False)  
 doctor = models.CharField(max\_length=30, default="")  
 doctor\_email = models.CharField(max\_length=30, default="")

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class Meta:  
 unique\_together = ('date', 'time', 'doctors')  
  
  
class Lab(models.Model):  
 pharmacy = models.CharField(max\_length=30)  
 name = models.CharField(max\_length=30)  
 email = models.EmailField(max\_length=30, unique=True)  
 password = models.CharField(max\_length=30)  
 phone = models.BigIntegerField()  
 gender = models.CharField(max\_length=10)  
 location = models.CharField(max\_length=255)  
  
  
class Pharmacyord(models.Model):  
 pharmacy\_name = models.CharField(max\_length=30)  
 patient\_id = models.CharField(max\_length=30)  
 file = models.FileField(upload\_to='media/')  
 patient\_name = models.CharField(max\_length=30)  
 patient\_email = models.CharField(max\_length=30)  
 patient\_phone = models.CharField(max\_length=30)  
 doctor = models.CharField(max\_length=30)  
 doctor\_email = models.CharField(max\_length=30)  
 delivery = models.BooleanField(default=False)  
 order\_status = models.BooleanField(default=False)  
 amount = models.IntegerField(default=0)  
 payment = models.CharField(default="", max\_length=30)  
  
  
class Tablet(models.Model):  
 image = models.FileField(upload\_to='media/')  
 name = models.CharField(max\_length=30)  
 dosages = models.CharField(max\_length=30)  
 problems = models.CharField(max\_length=30)  
 price = models.IntegerField()  
 stock = models.IntegerField()  
 pharmacy = models.CharField(max\_length=30)  
 severity = models.CharField(max\_length=20, default='high')  
  
  
class reqPharmacy(models.Model):  
 pharmacy = models.CharField(max\_length=30)  
 tablet = models.CharField(max\_length=30)  
 dosage = models.CharField(max\_length=30)  
 pharmacy\_boolean = models.BooleanField(default=False)  
 accepted\_pharmacy = models.CharField(max\_length=30, default="")  
 recomended = models.CharField(max\_length=30, default="")  
 doctor = models.CharField(default="", max\_length=30)  
 doctor\_booln = models.BooleanField(default=False)  
 doctor\_boolean = models.BooleanField(default=False)  
 patient\_id = models.CharField(default="", max\_length=30)

GOOD  
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class Lab\_records(models.Model):  
 patient\_id = models.CharField(max\_length=30)  
 problems = models.CharField(max\_length=30)  
 report\_details = models.CharField(max\_length=30)  
 file = models.FileField(upload\_to='media/')

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**CHAPTER 7**

**SYSTEM TESTING**

**7.1 INTRODUCTION**

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive.

**7.2 UNIT TESTING**

Unit testing focuses verification effort on the smallest unit of software design, the module. The unit testing we have is white box oriented and some modules the steps are conducted in parallel.

**1. WHITE BOX TESTING**

This type of testing ensures that

* All independent paths have been exercised at least once
* All logical decisions have been exercised on their true and false sides
* All loops are executed at their boundaries and within their operational bounds
* All internal data structures have been exercised to assure their validity.

To follow the concept of white box testing we have tested each form .We have created independently to verify that Data flow is correct, All conditions are exercised to check their validity, All loops are executed on their boundaries.

**2. BASIC PATH TESTING**

The established technique of flow graph with Cyclamate complexity was used to derive test cases for all the functions. The main steps in deriving test cases were:

Use the design of the code and draw correspondent flow graphs.

Determine the Cyclamate complexity of the resultant flow graph, using formula:

V (G) =E-N+2 or

V (G) =P+1 or

V (G) =Number of Regions

Where V (G) is Cyclomatic complexity,

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E is the number of edges,

N is the number of flow graph nodes,

P is the number of predicate nodes.

Determine the basis of set of linearly independent paths.

**3. CONDITIONAL TESTING**

In this part of the testing each of the conditions were tested to both true and false aspects. And all the resulting paths were tested. So that each path that may be generated on particular condition is traced to uncover any possible errors.

**4. DATA FLOW TESTING**

This type of testing selects the path of the program, according to the location of the definition and use of variables. This kind of testing was used only when some local variable were declared. The definition-use chain method was used in this type of testing. These were particularly useful in nested statements.

**5. LOOP TESTING**

In this type of testing all the loops are tested to all the limits possible. The following exercise was adopted for all loops:

* All the loops were tested at their limits, just above them and just below them.
* All the loops were skipped at least once.
* For nested loop test the innermost loop first and then work outwards.
* For concatenated loops the values of dependent loops were set with the help of a connected loop.

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**7.3 TESTING REPORTS**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Test Scenario** | **Expected Result** | **Test Result** |
| 1 | Username is correct. Password is incorrect. | Username and Password is incorrect. | Username and Password is incorrect. |
| 2 | Username is incorrect. Password is correct. | Username and Password is incorrect. | Username and Password is incorrect. |
| 3 | Username is empty. Password is correct. | Username is required. | Username is required. |
| 4 | Username is correct. Password is empty. | Password is required. | Password is required |
| 5 | Both Username and Password is incorrect. | Username and Password is incorrect. | Username and Password is incorrect. |
| 6 | Both Username and Password is empty. | Username and Password is required. | Username and Password is required. |
| 7 | Both Username and Password is correct. | Login Successful. | Login Successful. |

**Table 7.3.1 Testing reports**

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**CHAPTER 8**

**CONCLUSION**

**8.1 RESULT AND DISCUSSION**

**8.1.1 INPUT AND OUTPUT**

The major inputs and outputs and major functions of the system are follows:

**Input:**

* The employee must create the account for login. All the employee details have been stored the data in our database.
* The employee gets their corresponding machines with prior training by the data trainer.
* The production team updates the error to admin to resolve the issue on production side.
* Customer purchasing the product approach the industry and provide the requirements.

**Output:**

* The production team which is monitoring the machine performance will note the error raised by the machines in the graphical view.
* Reallocating the machine has the same functionality of the faulty machine results in speedy recovery of production efficiency.

**8.1.2 INPUT DESIGN**

* Input design is a part of overall system design. The main objective during the input design as given below.
* Input States: User can maintain a database in MySQL server or sql server for his/her business requirement.
* Input Media:

At this stage choice has to be made about the input media. To conclude about the input media consideration has to be given to:

* In this section user can give the input for storage location and get the output from admin side.

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**8.2 CONCLUSION**

Big data is the concept of which deals with a huge amount of data along with the data transferring at which the velocity for data speed, wherein here when the failure meets then the data of failure is visualized in the respective console for to intimate the failures to the maintainer or the trainer to change the machine or to repair the machine.

In this, we have sorted the time required to find errors that occurred machine. By this production time is not prolonged for the production of material which has to deliver to the customer. So the customer will be getting the materials on time. By making a visualization platform, it can be interactive with, those who are in the monitoring section. If the error machine has been found, then the respective machine can be replaced by the same process machine.

**8.3 FUTURE ENHANCEMENTS**

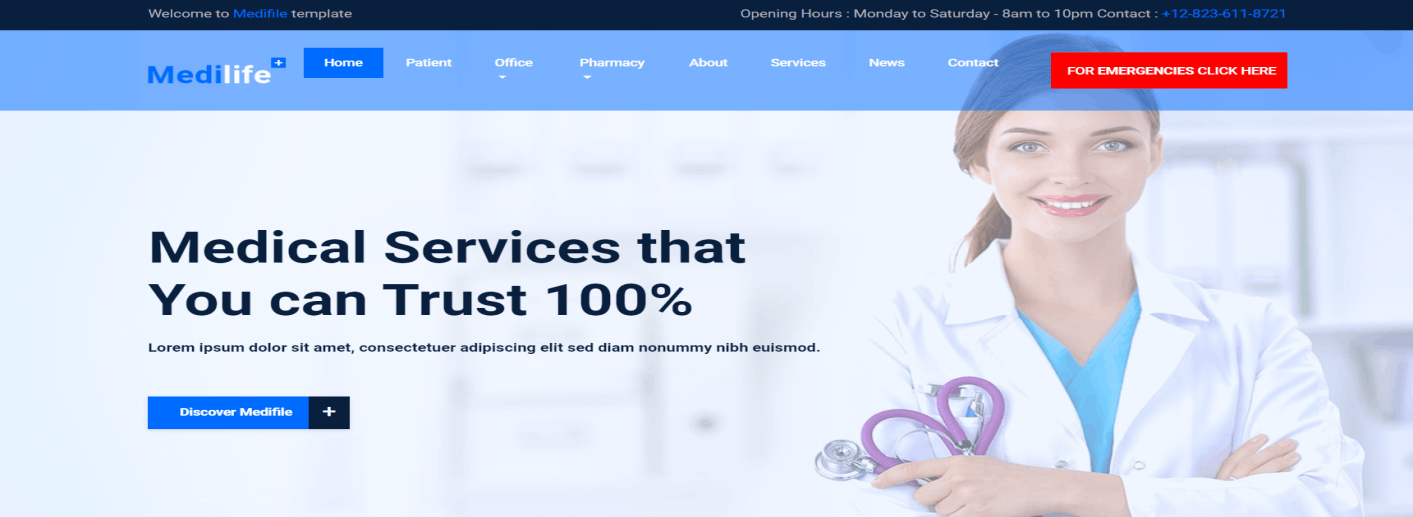
In the future scope need to add some additional features which can assist the trainer or maintainer to reduce the effort for them. This means if failure is found in the console then it visualizes the failure of a particular machine and also it type along with that automatically change or allocate the fail occurred machine with an error-free machine this reduces the effort of the trainer or maintainer.

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**‘**

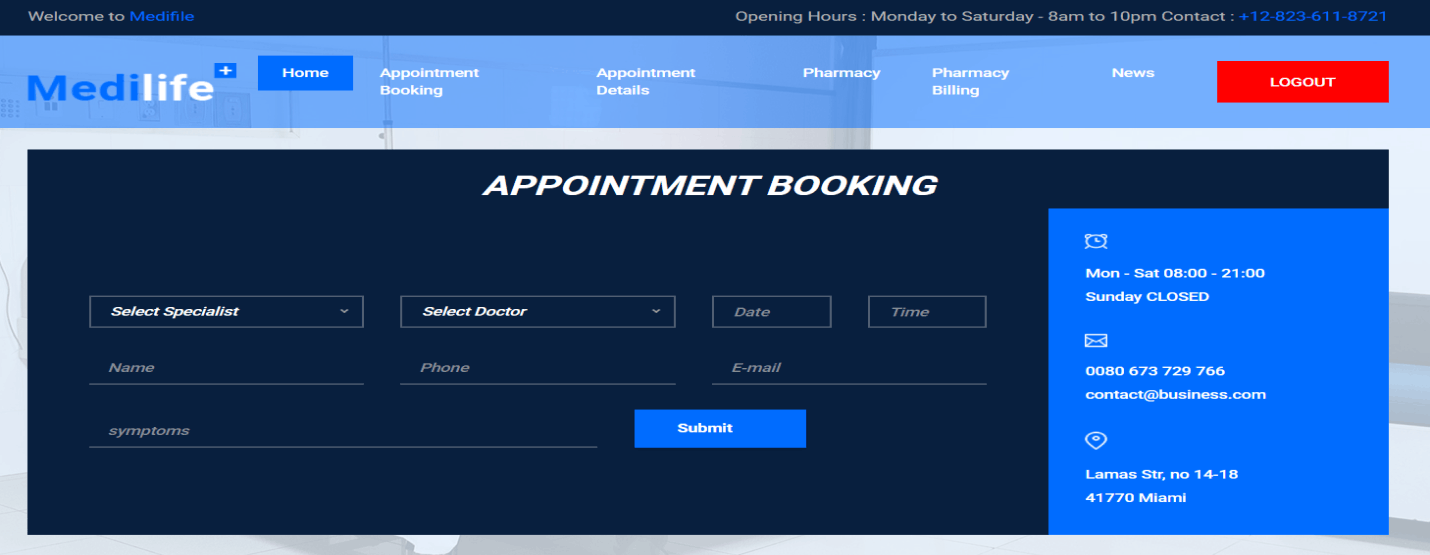
**APPENDICES**

**A1 : SAMPLE SCREEN SHOTS**

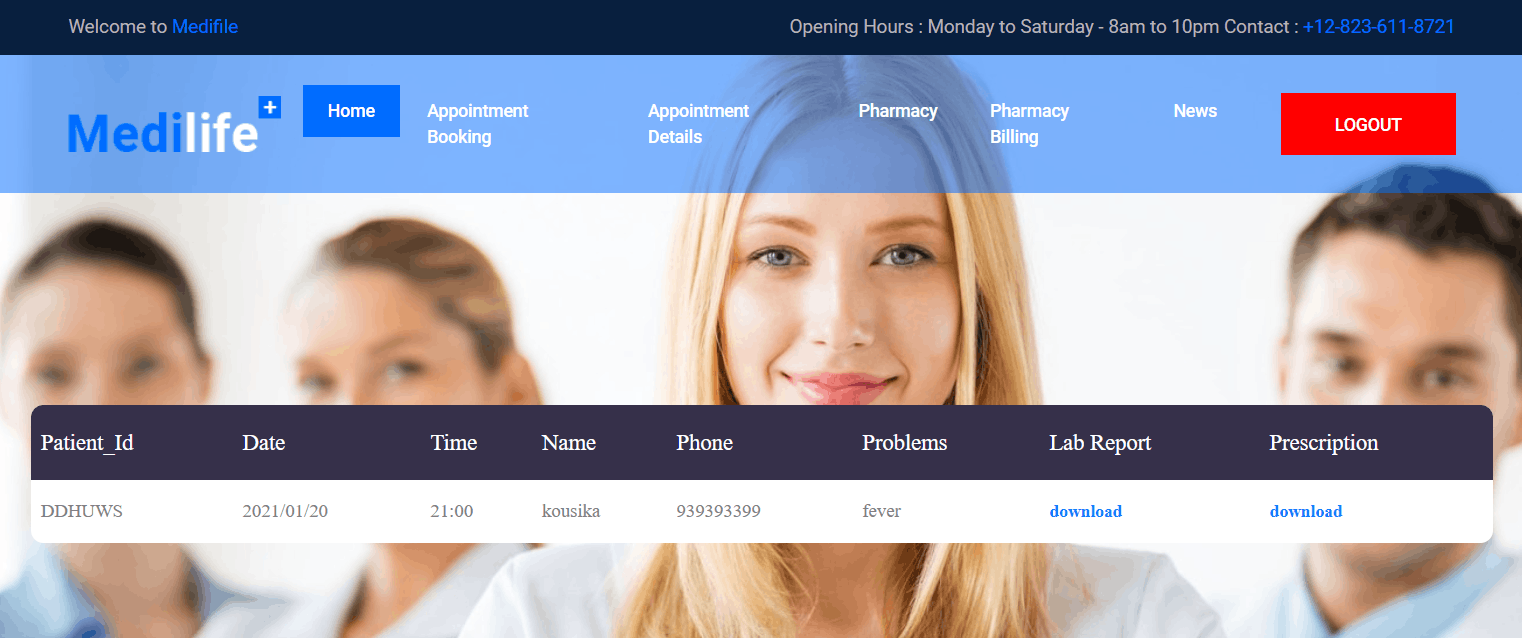
****

**Fig A1.1 Home screen**

* **Consulting Doctor Module:**

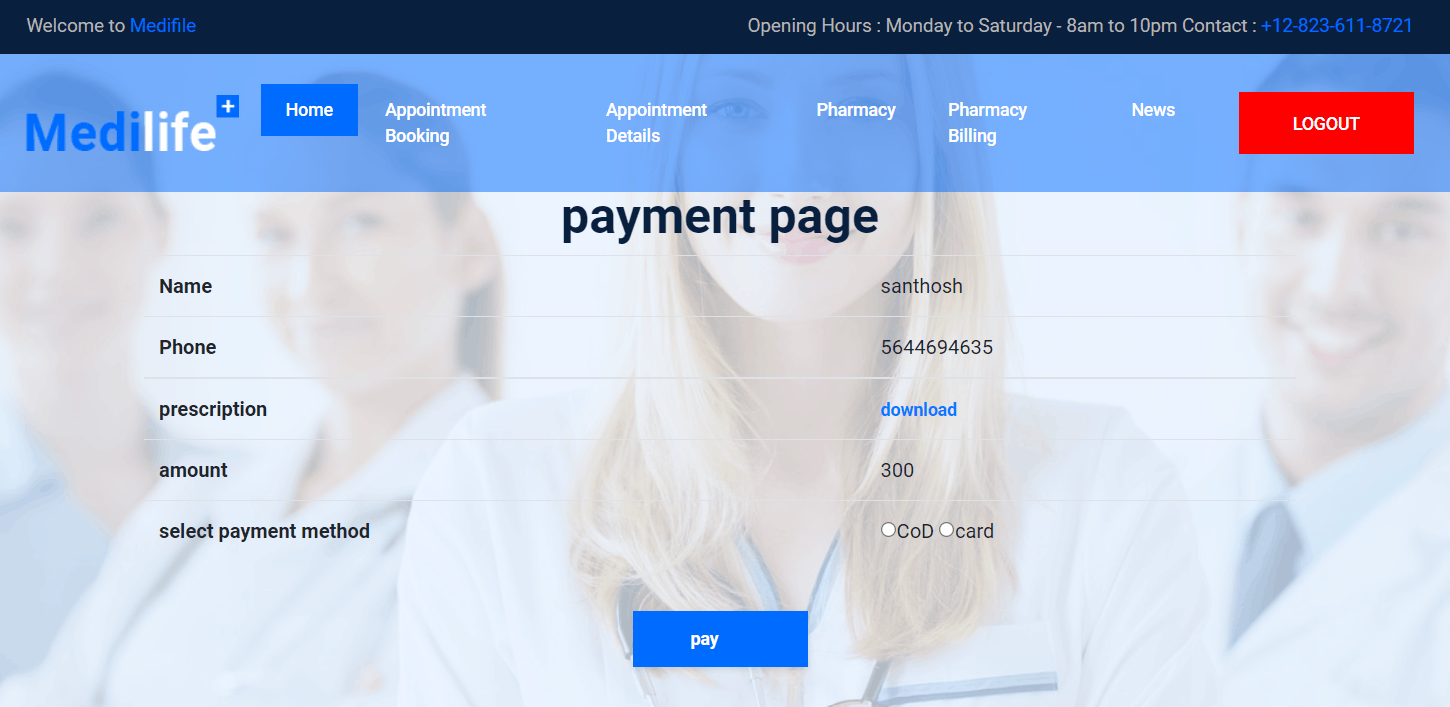
****

**Fig A1.2 Appointment page 1**

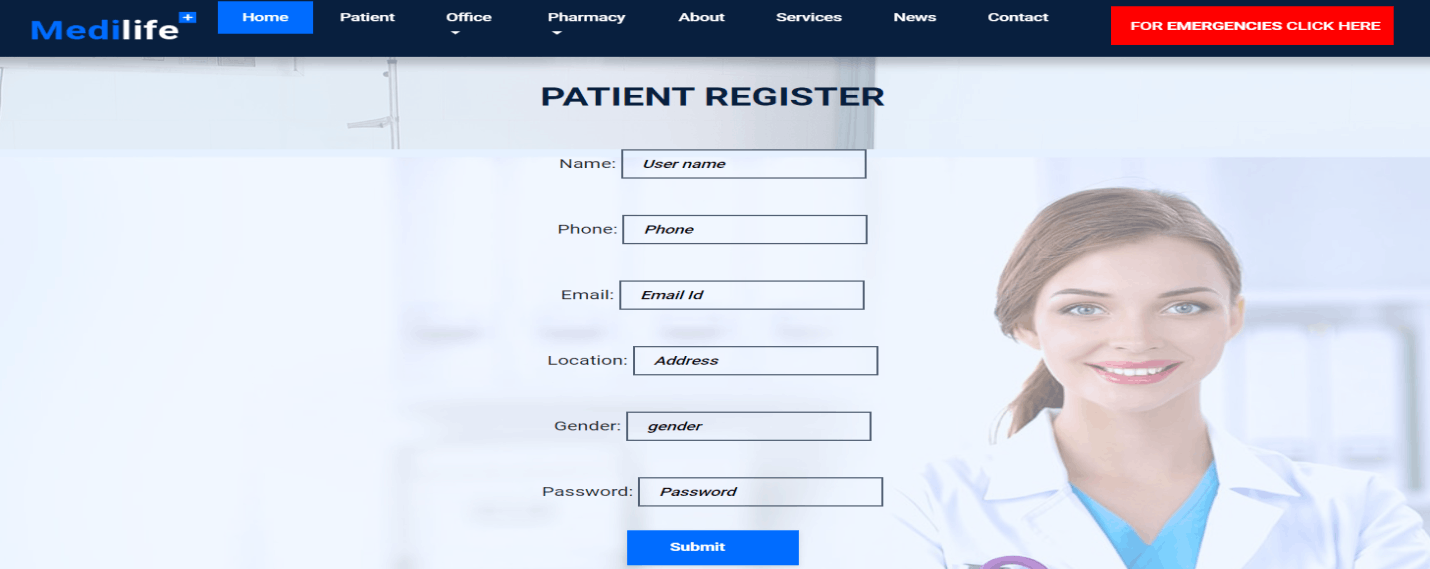
****

**Fig A1.3 Appointment page 2**

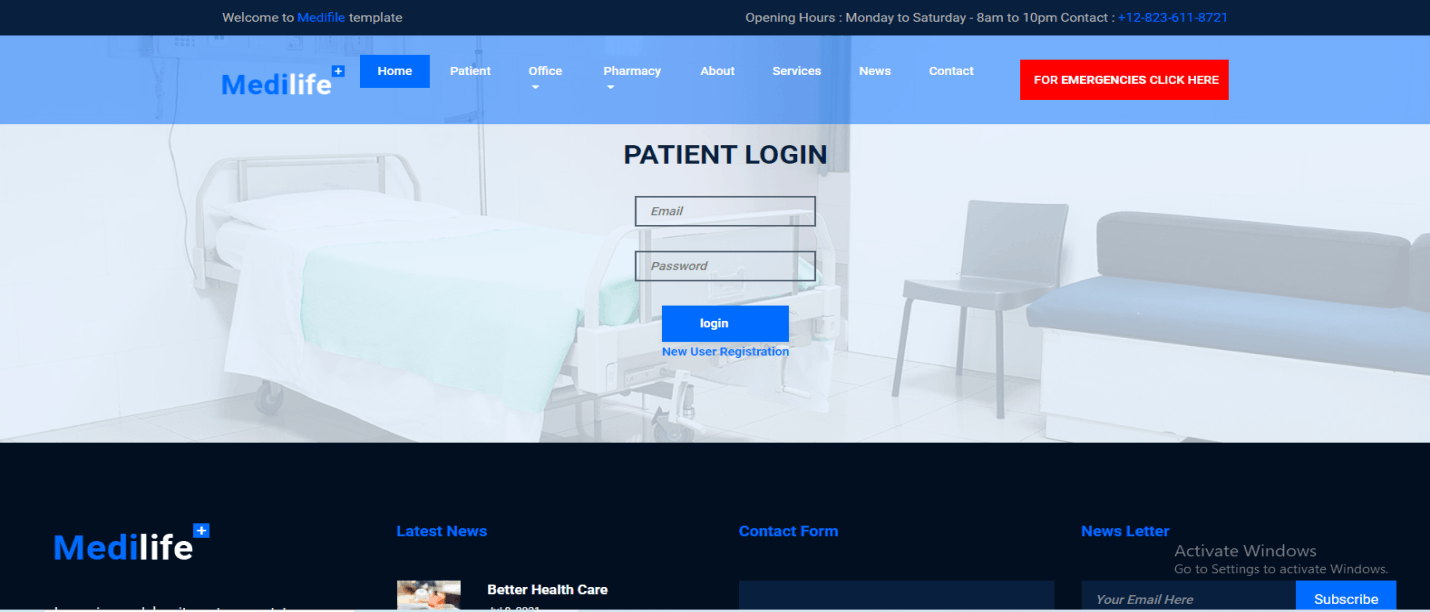
60

****

**Fig A1.4 Patient Payment page**

****

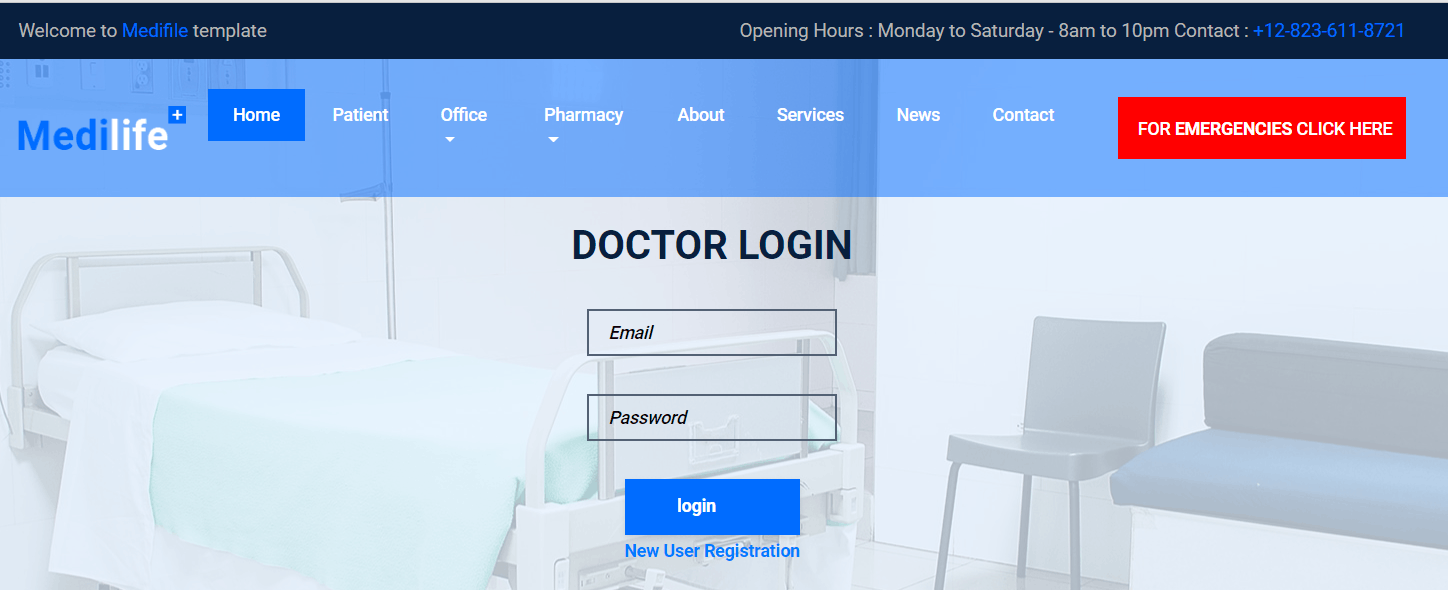
**Fig A1.5 Patient Registration Page**

****

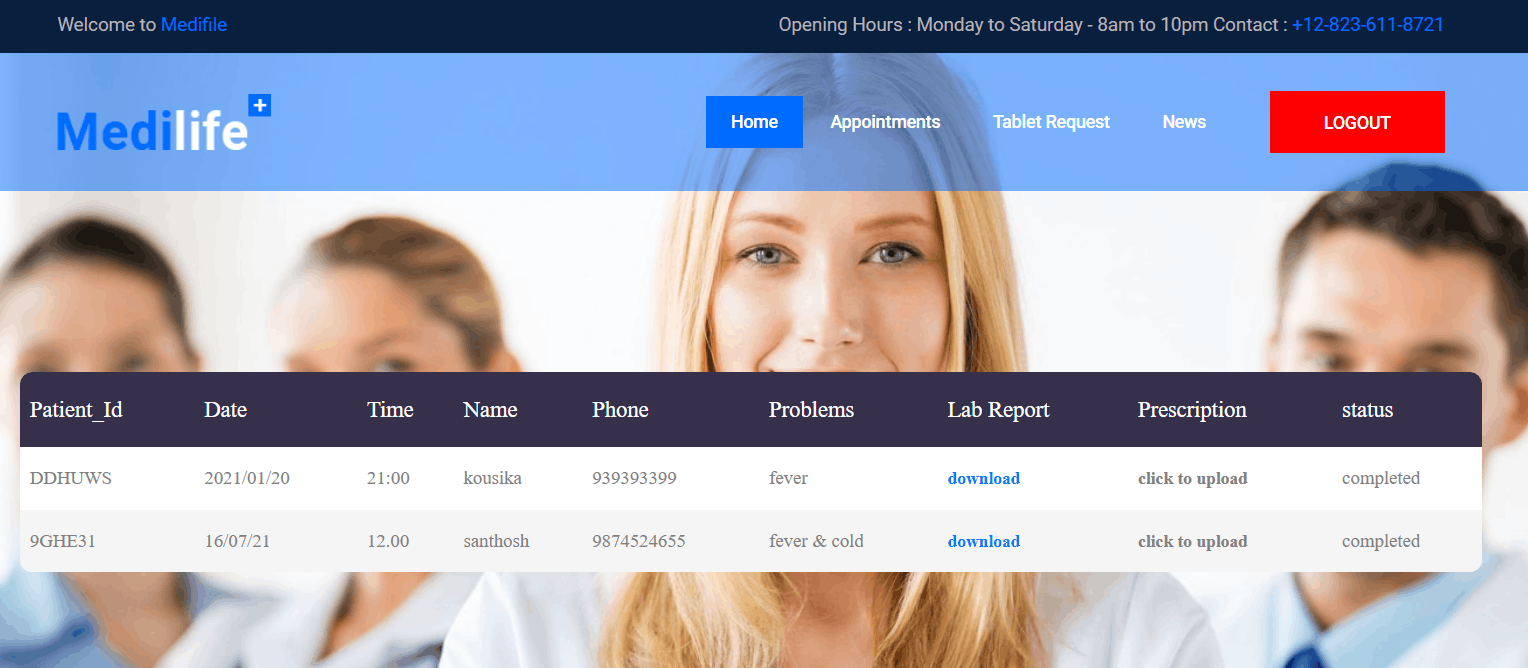
**Fig A1.6 Patient Login Page**

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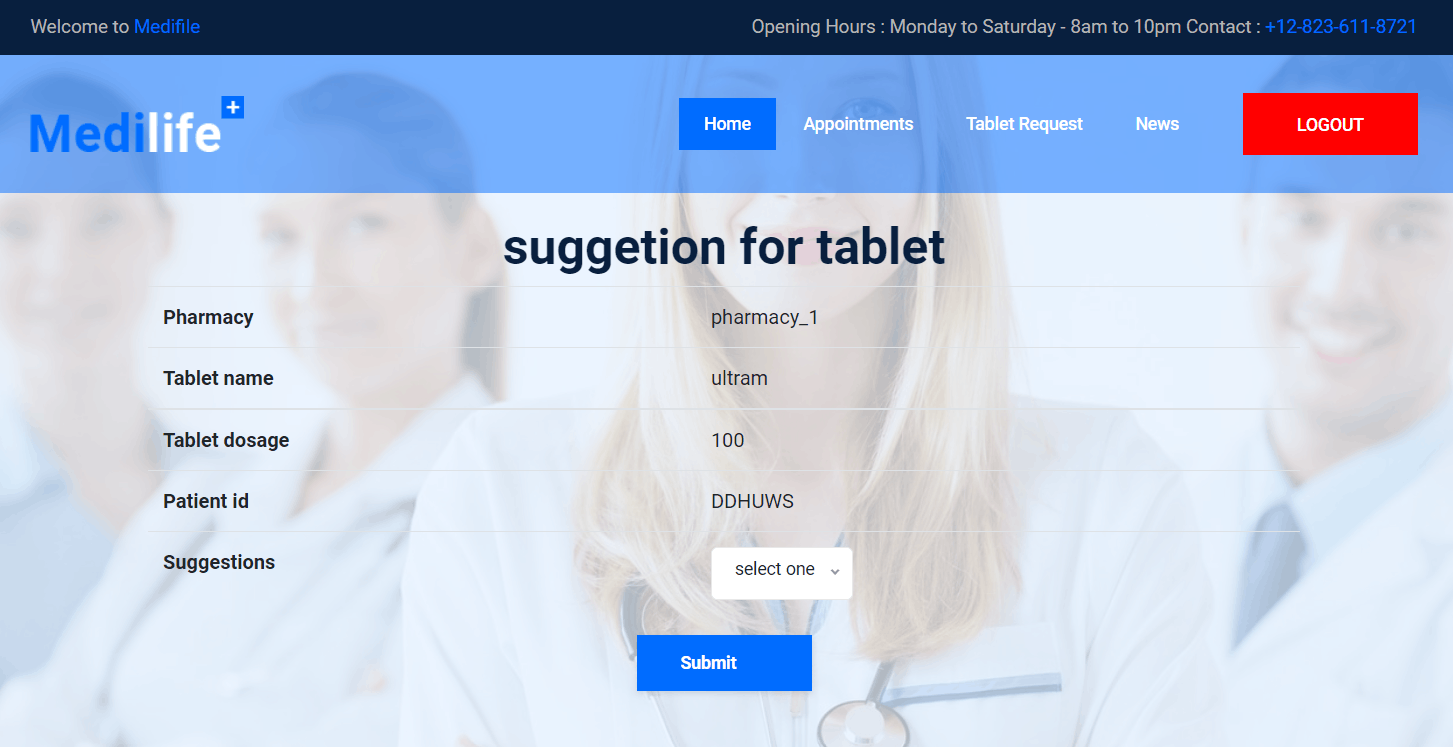
* **Doctor’s Login:**

****

**Fig A1.8 Doctor Login Page**

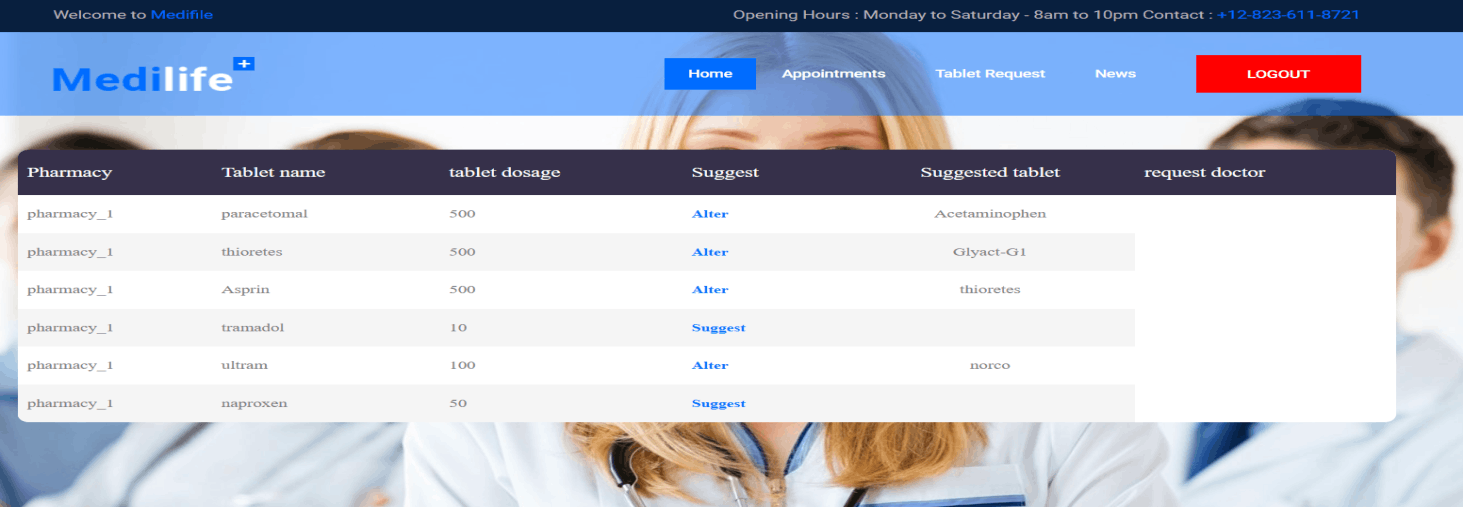
****

**Fig A1.9 Doctor Appointment view Page**

****

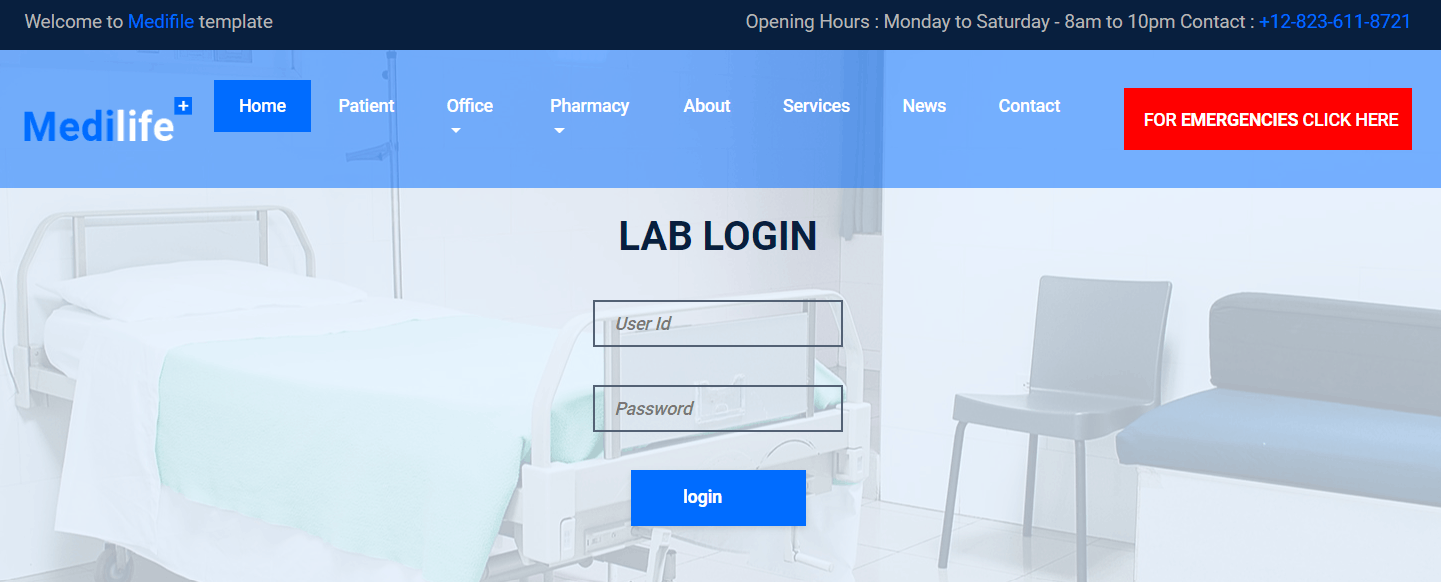
**Fig A1.10 Doctor suggest tablets Page**

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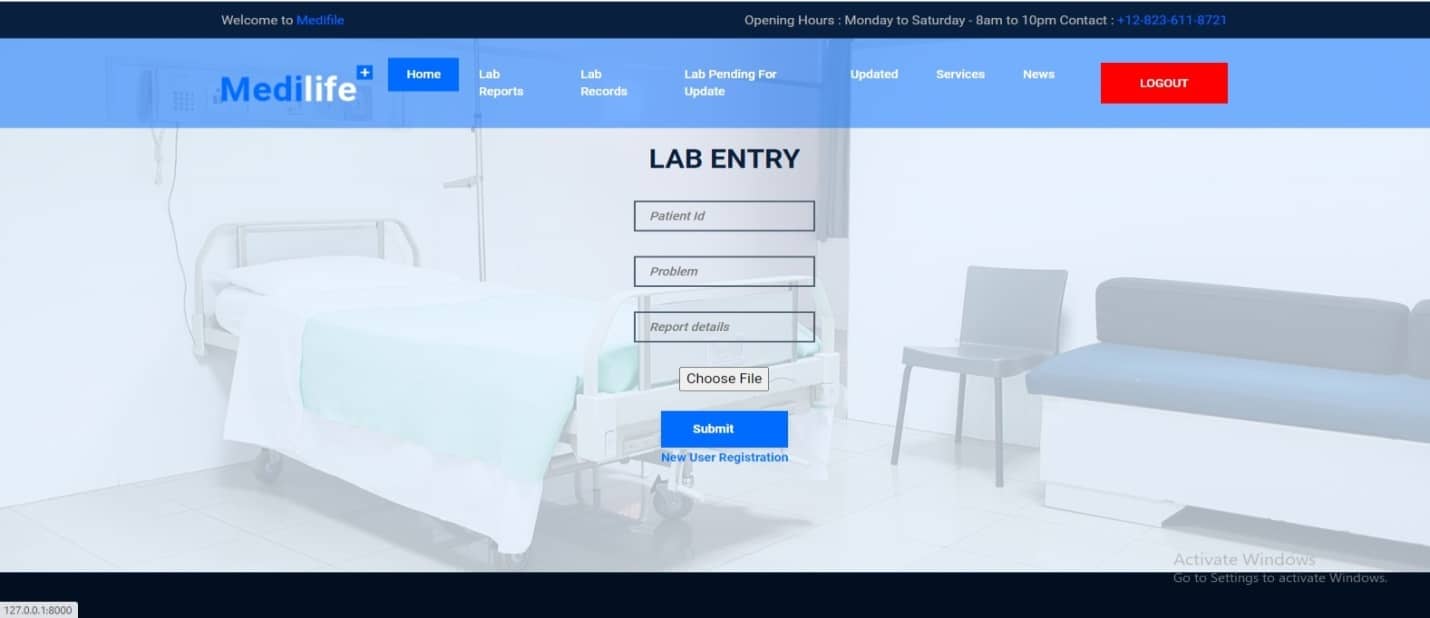
****

**Fig A1.11 Doctor suggestion list Page**

* **Pharmacy rising request for medicine**

****

**Fig A1.12 Laboratory Login Page**

****

**Fig A1.13 Lab report uploading Page**

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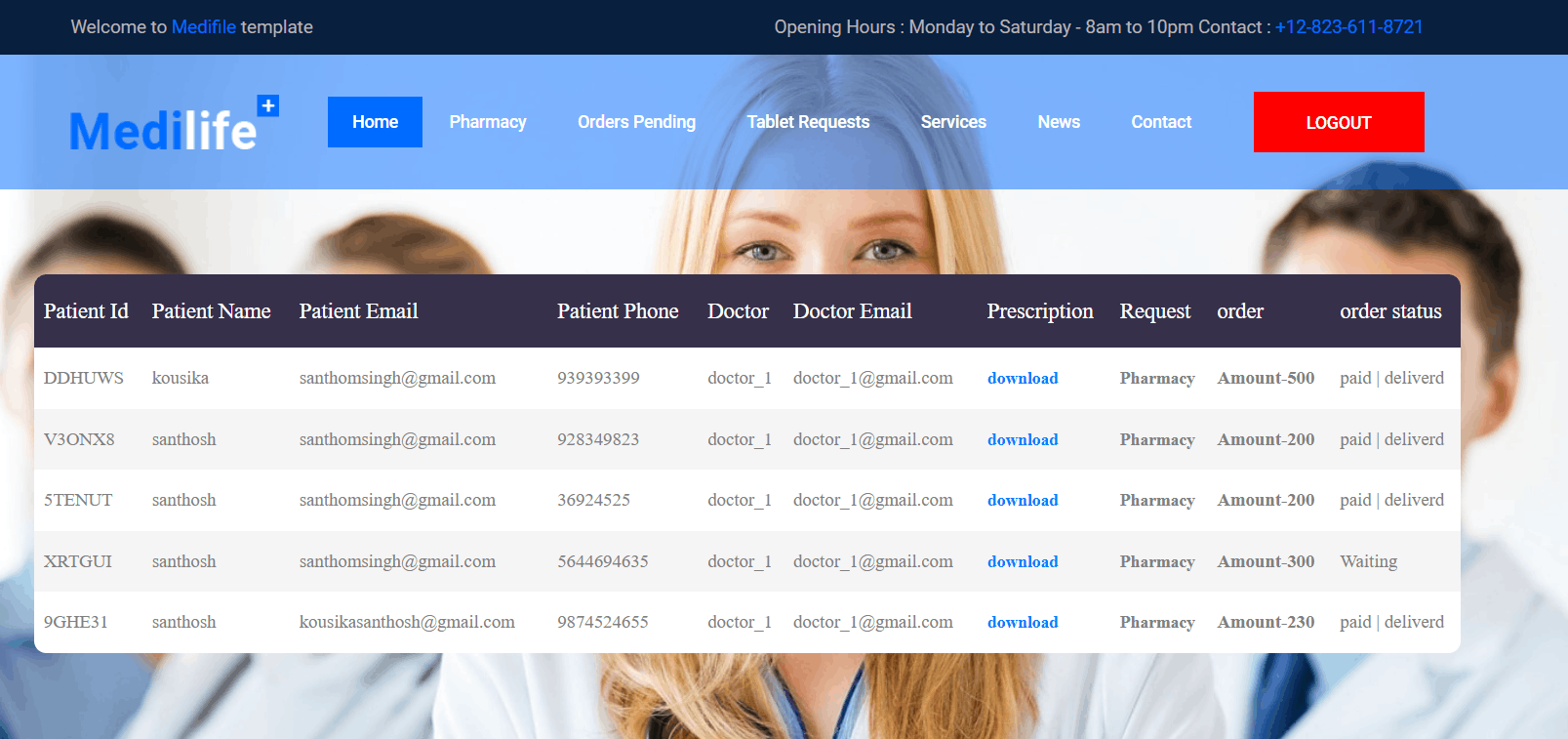
****

**Fig A1.14 Lab report updated list Page**

* **Pharmacy rising request for medicine**

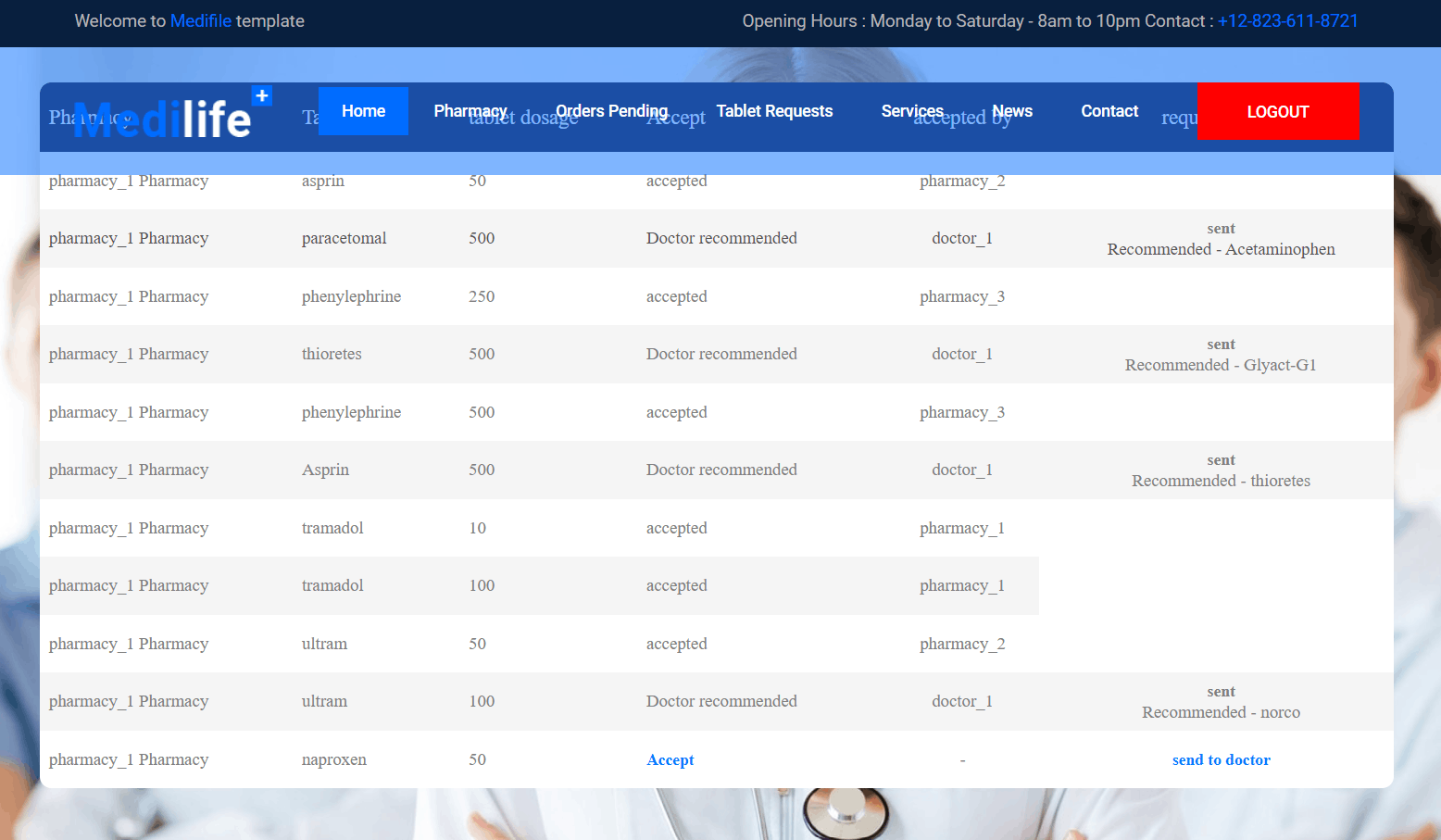
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**Fig A1.15 Pharmacy Login Page**

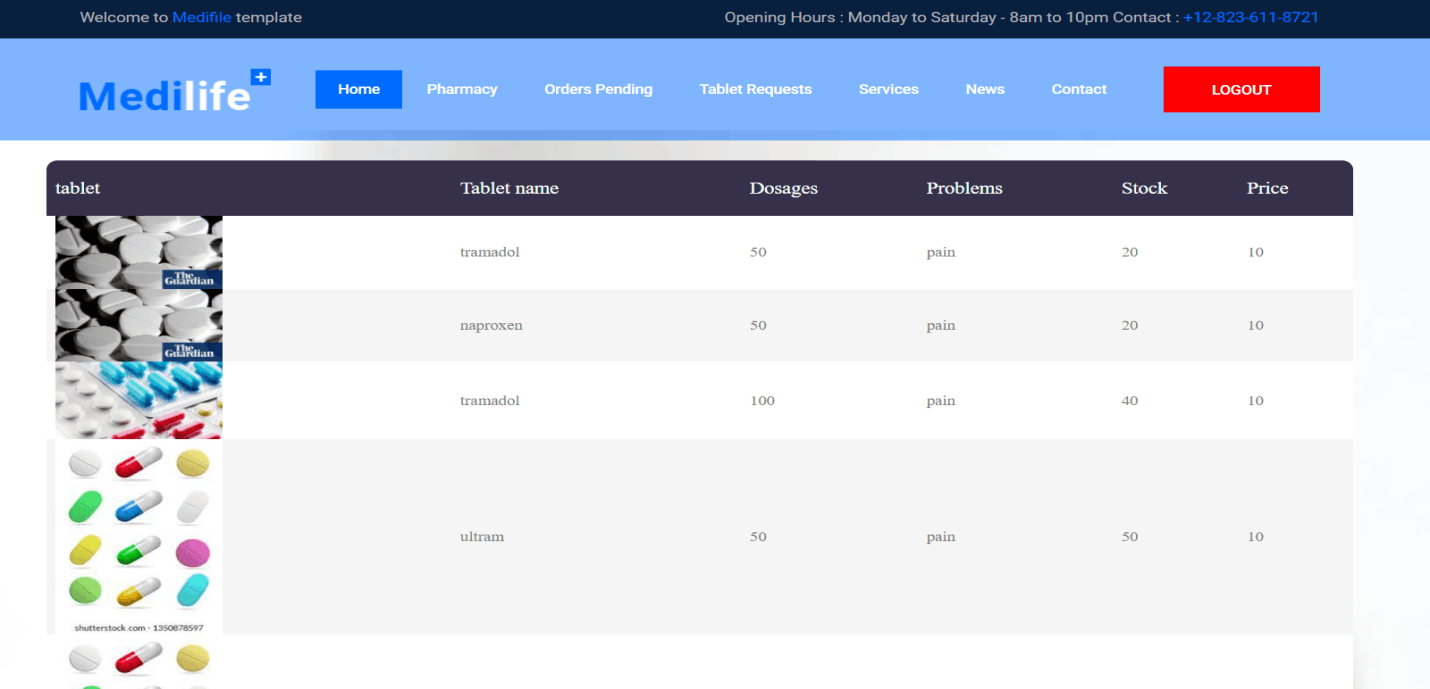
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**Fig A1.16 Pharmacy Medicine pending list Page**

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**Fig A1.17 Pharmacy Request List Page**

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**Fig A1.18 Pharmacy Stock list Page**

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**REFERENCES**

1. Zhou, Victor (2019-12-20). “Machine Learning for Beginners: An Introduction to Neural Networks”. Medium. Retrieved 2021-08-15.
2. Stuart J. Russell, Peter Norvig (2010) Artificial Intelligence: A Modern Approach, Third Edition, Prentice Hall ISBN 9780136042594.
3. MehryarMohri, AfshinRostamizadeh, Ameet Talwalkar (2012) Foundations of Machine Learning, The MIT Press ISBN 9780262018258.
4. Wu, Xindong; Kumar, Vipin; Ross Quinlan, J.; Ghosh, Joydeep; Yang, Qiang; Motoda, Hiroshi; McLachlan, Geoffrey J.; Ng, Angus; Liu, Bing; Yu, Philip S.; Zhou, Zhi-Hua (2008-01-01). “Top 10 algorithms in data mining”. Knowledge and Information Systems. 14 (1): 1–37. Doi:10.1007/s10115-007-0114-2. Hdl:10983/15329. ISSN 0219-3116. S2CID 2367747.
5. Rokach, Lior; Maimon, O. (2014). Data mining with decision trees: theory and applications, 2nd Edition. World Scientific Pub Co Inc. doi:10.1142/9097. ISBN 978-9814590075.
6. Zhou Zhi-Hua (2012). Ensemble Methods: Foundations and Algorithms. Chapman and Hall/CRC. P. 23. ISBN 978-1439830031. The term boosting refers to a family of algorithms that are able to convert weak learners to strong learners
7. “Guide To Data Cleaning: Definition, Benefits, Components, And How To Clean Your Data”. Tableau. Retrieved 2021-10-17.
8. Chicco D (December 2017). “Ten quick tips for machine learning in computational biology”. BioData Mining. 10 (35): 35. Doi:10.1186/s13040-017-0155-3. PMC 5721660. PMID 29234465.
9. Oliveri, Paolo; Malegori, Cristina; Simonetti, Remo; Casale, Monica (2019). “The impact of signal preprocessing on the final interpretation of analytical outcomes – A tutorial”. AnalyticaChimicaActa. 1058: 9–17. Doi:10.1016/j.aca.2018.10.055. PMID 30851858. S2CID 73727614.
10. Piryonesi S. Madeh; El-Diraby Tamer E. (2020-06-01). “Role of Data Analytics in Infrastructure Asset Management: Overcoming Data Size and Quality Problems”. Journal of Transportation Engineering, Part B: Pavements. 146 (2): 04020022. Doi:10.1061/JPEODX.0000175. S2CID 216485629.

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