



A PRESENTATION ON

“Medicine Recommendation System Using Machine Learning”

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- To design and implement a system that will recommend medicine according to the symptoms using Machine Learning and python Flask Framework.

INTRODUCTION

- Our medicine recommendation system will be capable of accurately predicting medication based on users' input of diseases/ symptoms.
- Medicine recommendation system will be an essential tool in the hands of the doctors who under heavy workload 24x7.

LITERATURE SURVEY

Title of Paper	Details of Publication	Description
Drug Recommendation System based on Sentiment Analysis of Drug Reviews	Satvik Garg Department of Computer Science Jaypee University of Information Technology Solan, India 2021	The entire medical fraternity is in distress, which results in numerous individual's demise. Due to unavailability, individuals started taking medication independently without appropriate consultation, making the health condition worse than usual.
Medicine Recommender Systems	Benjamin Stark, Department of Computer Science, Florida Polytechnic University, Lakeland, USA 2019	Medicine recommender systems can assist the medical care providers with the selection of an appropriate medication for the patients. The advanced technologies available nowadays can help developing such recommendation systems which can lead to more concise decisions.
Medicine Recommendation System Based On Patient Reviews	T. Venkat Narayana Rao, Anjum Unnisa, Kotha Sreni Feb 2020	One of the most concerned and searched topic on the internet is about health information. According to the Pew Internet and American Life Project, almost 60% of grownups are looking for enough health information on the web with 35% of respondents concentrating on diagnosing ailments online only
Drug Recommendation system	Sonak Chowdhury Deepak kumar 2019	In this paper, we review the existing medicine recommendation system solutions, and compare them based on various features. The goal is to demonstrate the existing solutions for the healthcare providers in order to improve the medicine selection process and select an appropriate medication for the patients.

LITERATURE SURVEY

Title of Paper	Details of Publication	Description
Most Important Biomedical Databases	Masic I, Ferhatovica A. Review of Most Important Biomedical Databases for Searching of Biomedical Scientific Literature. Donald School J Ultrasound Obstet Gynecol 2012; 6 (4):343-361.	Databases can contain information about the author(s) and his/their published scientific works or results of research/investigation, including bibliographic data, abstract or full text of the paper. The databases are collecting and processing the best scientific and professional papers, or reviews and case reports published in scientific and professional journals or other publications
Machine learning Algorithms	Rekha Nagar ¹ *, Yudhvir Singh ² * U.I.E.T (M.D.U), India International journal of Emerging Technologies and Innovative Research (www.jetir.org/), ISSN:2349-5162. Vol.6 Issue 4, page no 471-474, April 2019.	Machine Learning (ML) has unfolded from the Artificial Intelligence, a field of computer science. Machine Learning (ML) is multidisciplinary field, a combination of statistics and computer science algorithms which is widely used in predictive analyses and classification
Machine learning Techniques for Recommender System.	Binu Thomas and Amruth K John 2021 IOP Conf. Ser.: Mater. Sci. Eng. 1085 012011, 2019.	Recommender System (RS) is one of the most popular applications of Artificial Intelligence which attracted researchers all around the world. Many machine learning algorithms are used to develop RSs. Choosing the best machine learning algorithm to provide users with a product or service is the most challenging task in the area of RSs

LITERATURE SURVEY

Title of Paper	Details of Publication	Description
Algorithms in machine learning	David R. Cheriton School of Computer Science University of Waterloo, ON, Canada iportugal@uwaterloo.ca 2019.	Recommender systems use algorithms to provide users with product or service recommendations. Recently, these systems have been using machine learning algorithms from the field of artificial intelligence. However, choosing a suitable machine learning algorithm for a recommender system is difficult because of the number of algorithms described in the literature.
Intelligent Medicine Recommender System	Bao, Y. and Jiang, X. 2016. An Intelligent Medicine Recommender System Framework. 2016 IEEE 11th Conference on Industrial Electronics and Applications (ICIEA).	More and more people are hearing about the health and medical diagnosis problems. However, according to the administration's report, more than 200 thousand people in China, even 100 thousand in USA, die each year due to medication errors. More than 42% medication errors are caused by doctors because experts write the prescription according to their experiences which are quite limited. Technologies as data mining and recommender technologies provide possibilities to explore potential knowledge from diagnosis history records and help doctors to prescribe medication correctly to decrease medication error effectively
Medicine Recommendation System	Varun A. Goyal ¹ , Dilip J. Parmar ² , Namaskar I. Joshi ³ , Prof. Komal Champanerkar ⁴ ^{1,2,3} Department of Information Technology, Shree L.R. Tiwari College of Engineering, Maharashtra, India	Nowadays people are progressively started caring about the health and medical diagnosis problems. However, according to the administration's report, more than 1 crore people every year die due to medication error done by novices (New doctor's). More than 42% medication errors are caused by doctors because they provide prescriptions according to their experience which are quite limited.

PROBLEM STATEMENT

- Nowadays, people are busy in their day to day life, and it is not feasible for everyone to visit doctor for minor symptoms of a disease.
- It is also a time spending process to visit a doctor and consult him for minor disease.

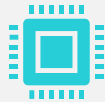
OBJECTIVES

- This system will predict disease according to the symptoms that are entered by user/patients.
- System prescribes medicine according to the disease.

METHODOLOGY



analysis of review dataset.



data pre-processing.

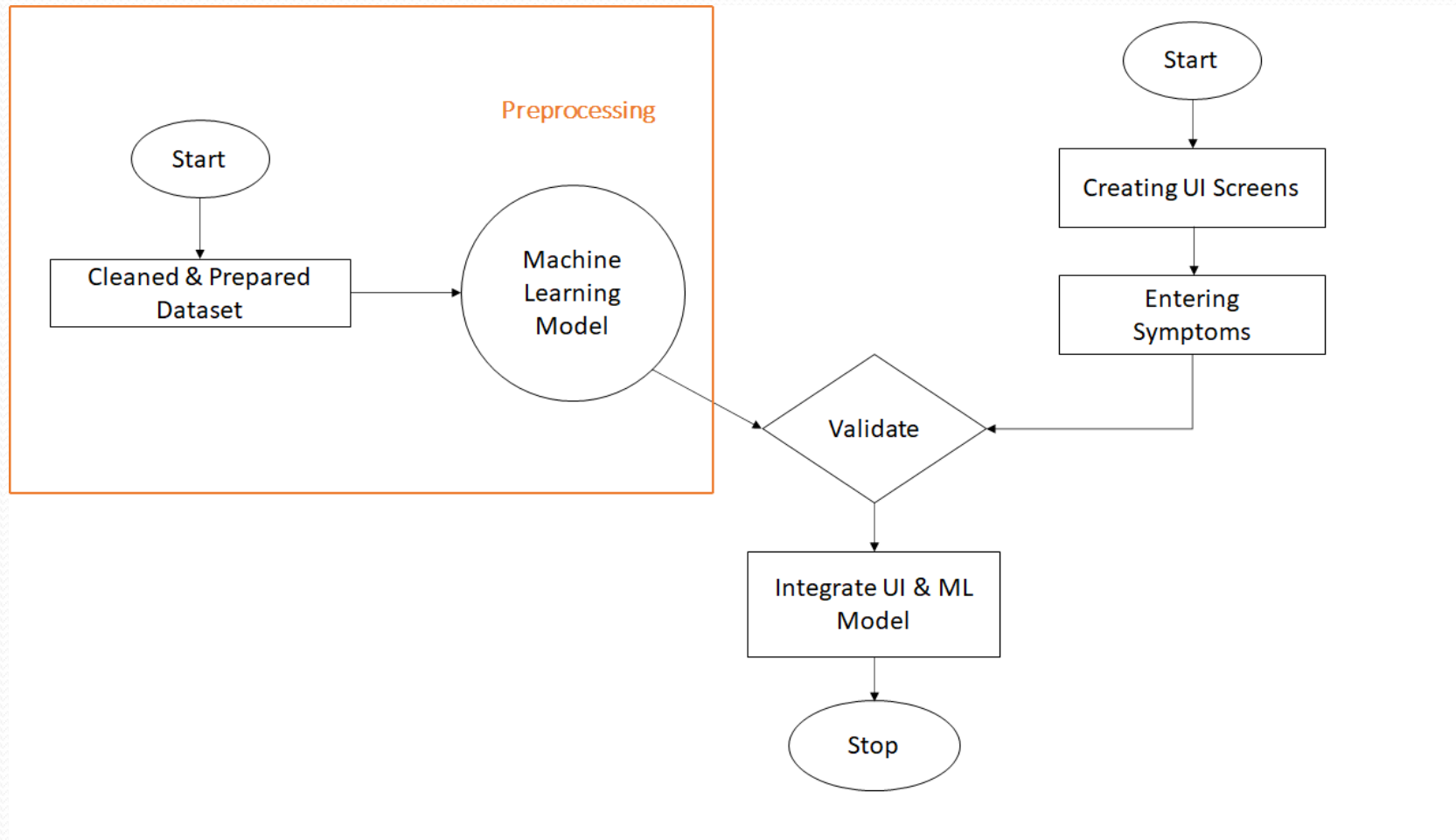


model building.



Recommending the proper medicine for a particular disease

BLOCK DIAGRAM



TECHNOLOGY USED



Vs code editor



Flask framework



Python Programming
Language



MySQL



Machine Learning

ALGORITHM

- UI created using HTML5 and CSS3
- Machine learning model uses three different algorithm
- Merged them together using Flask Framework
- Also MySQL Workbench is connected

MEDICATION

Our system is capable of accurately predicting appropriate medicine to patients according to their symptoms or diseases.

[Let's Check](#)

SYMPTOMS CHECK PAGE

Medication

File | D:/Project/New%20folder/letscheck.html

About Team Contact

Let's Check


Enter Your Symptoms

SYMPTOMS 1

SYMPTOMS 2

SYMPTOMS 3

Check



CONTACT PAGE

Medication

File | D:/Project/New%20folder/contact.html

Medication

About Team Contact

Let's Check

Contact Us

NAME


ADDRESS

EMAIL

PHONE NUMBER

MESSAGE

SEND



Contact Us

A banner image showing a white pill bottle tipped over on a blue surface, with several white and green capsules spilled out. The text "Contact Us" is overlaid on the left side of the image.

MYSQ WORKBENCH

MySQL Workbench

Local instance MySQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

medicine

Tables

contacts

Views

Stored Procedures

Functions

sys

Limit to 1000 rows

1 • ECT * FROM medicine.contacts;

Result Grid

name	address	email	phone	message
adsd	addresssdas	adihargane1@gmail.com	phone number	message
adsd	addresssdas	vamsi7905@gmail.com	phone number	message
name	address	adihargane1@gmail.com	phone number	message
Akhil chomu	Dhanori	aknamb7@gmail.com	7276688052	very good!
akhili	dhanori	aknamb7@gmail.com	8087319951	very good!
akhili	dhanori	aknamb7@gmail.com	465645654	message
akhili	dhanori	aknamb7@gmail.com	465645654	message
name	address	aknamb7@gmail.com	phone number	message
akhili	dhanori	aknamb7@gmail.com	phone number	message
Pratik	asas	adihargane1@gmail.com	phone number	message
aditya	address	adihargane1@gmail.com	96072118796	hi there
name	address	nohitpatel@gmail.com	phone number	message
NP editz	kothrud	nohitpatel@gmail.com	8087319951	hi
NP	Kothrud	nohitpatel@gmail.com	8087319951	Hi
name	address	adihargane1@gmail.com	phone number	message

contacts 1 x

Read Only Context Help Snippets

Output

Action Output

#	Time	Action	Message	Duration / Fetch
✓ 1	16:27:51	SELECT * FROM medicine.contacts LIMIT 0, 1000	21 row(s) returned	0.000 sec / 0.000 sec

Table: contacts

Columns:

name varchar(20)

address varchar(20)

email varchar(250)

phone varchar(20)

message varchar(250)

Object Info Session

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

CODE

The image displays two side-by-side screenshots of a Visual Studio Code editor window, showing Python code for a disease prediction application.

Left Window (Disease.py):

```

1  import pandas as pd
2  import numpy as np
3  import seaborn as sns
4  import matplotlib.pyplot as plt
5  import pickle
6
7  test=pd.read_csv("test_data.csv",error_bad_lines=False)
8  train=pd.read_csv("training_data.csv",error_bad_lines=False)
9
10 test.head()
11 train.head()
12 train.info()
13 train=train.drop('Unnamed: 133',axis=1)
14 train.head()
15
16 y_train=train.prognosis
17 x_train=train.drop("prognosis",axis=1)
18 x_train
19 y_train
20
21 y_test=test.prognosis
22 x_test=test.drop("prognosis",axis=1)
23 x_test.head()
24 y_test.head()
25
26 f,ax=plt.subplots(figsize=(75,16))
27 sns.countplot(y_train,label="Count",ax=ax)
28
29 from sklearn.model_selection import train_test_split
30 from sklearn.ensemble import RandomForestClassifier
31 from sklearn.metrics import accuracy_score
32
33 clf_rf = RandomForestClassifier(random_state=43)
34 clf_rf = clf_rf.fit(x_train,y_train)
35
36 ac = accuracy_score(y_test,clf_rf.predict(x_test))
37 print('Accuracy is: ',ac)
38
39 pickle.dump(clf_rf,open("model.pkl","wb"))
40

```

Right Window (application.py):

```

1  from os import name
2  from flask import Flask, render_template, request
3  from flask.mysql import MySQL
4  import pandas as pd
5  import numpy as np
6  import pickle
7  from flask_mail import Mail, Message
8
9  application = Flask(__name__)
10 model = pickle.load(open("model.pkl", 'rb'))
11
12 test=pd.read_csv("test_data.csv",error_bad_lines=False)
13 x_test=test.drop("prognosis",axis=1)
14
15 application.config['MYSQL_HOST'] = 'localhost'
16 application.config['MYSQL_USER'] = 'root'
17 application.config['MYSQL_PASSWORD'] = '@xpsax_@!'
18 application.config['MYSQL_DB'] = 'medicine'
19
20
21
22
23
24 mysql = MySQL(application)
25
26
27 mail = Mail(application) # instantiate the mail class
28
29 # configuration of mail
30 application.config['MAIL_SERVER'] = 'smtp.gmail.com'
31 application.config['MAIL_PORT'] = 465
32 application.config['MAIL_USERNAME'] = 'medication@gmail.com'
33 application.config['MAIL_PASSWORD'] = 'Medicine@1234'
34 application.config['MAIL_USE_TLS'] = False
35 application.config['MAIL_USE_SSL'] = True
36 mail = Mail(application)
37
38
39 @application.route('/')
40 def landing_page():

```


Enter Your Symptoms

Symptom-1

THROAT_IRRITATION

Symptom-2

REDNESS_OF_EYES

Symptom-3

RUNNY_NOSE

Predict

The probable diagnosis says it could be Common Cold use Azee or Monticope

Enter Your Symptoms

Symptom-1

CHEST PAIN

Symptom-2

ULCERS ON TONGUE

Symptom-3

ACIDITY

Predict

The probable diagnosis says it could be GERD use PantoDSR

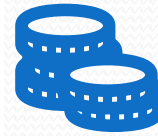
ADVANTAGES



Suggest Quality
Medicine .



Time efficient



Cost efficient



Available to everyone
and at any time.



No middleman .



Multiple patients can
get medication at any
time .

CONCLUSION

- We set out to create a system which can predict disease and its medicine on the basis of symptoms given to it.
- On average we achieved accuracy of 98%.
- Our system also has an easy to use interface.
- It will decrease the work load of doctors.

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- 3) Benjamin Stark¹, Constanze Knahl², Mert Aydin³, Karim Elish⁴ Department of Computer Science, Florida Polytechnic University, Lakeland, US 2019.
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THANK YOU....!!!!