Plug In Generator To Produce Variant Outputs For Unique Data.

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ABSTRACT *: Our modern world comprising of abundant chronic diseases which are affecting humankind, awful thing is that they affect the people without being notified until the end. In this project we proposed a system in which the user identifies the disease by providing the symptoms which he is experiencing. The user selects the multiple symptoms which he/she is suffering and submits them for evaluation using String Matching System. The database consists of limited number of diseases, with well organized pattern structure of symptoms. Using a friendly interface, user can input the data in the questionnaire form developed. Artificial Bee Colony Optimization [ABC] algorithm, i.e., a Machine Learning algorithm embedded in the project provides an optimistic disease along with its prevention and curing methods, but before ABC produces optimistic disease, String Matching System approach gives an accurate disease with which the human is suffering from. The above said data transformed into web can be considered as an offline browsing system which can be used by any educated personalities, to generally know what is happening and gets enough idea before visiting the practitioner.*

Keywords - *Artificial Bee Colony Optimization, ASP.NET, MSAccess, optimistic results, Plug in, Prevention and Curing measures, String Matching System.*

I.   INTRODUCTION

The present system is a stream that needs a lot of technological development mainly in Expert Advisory System[1], it is an offline browsing mechanism which is being operated by human experts where there is lot of trouble and setback. This activity is spread all over Country and in spite of suffering with disease patient is unaware of it for a long time.

Educated personals can use this website to know the disease which they are suffering by entering the symptoms. The Doctors also can use the web site to access the expert information stored in the web portal for upgrading their skills. The other stake holders in Human Health such as Hospitals may also be the indirect beneficiaries for the system as their Services will be consumed in a larger way, because of their advertisements in the portal. Therefore all the stake holders connected with Health Science will be benefited with this web portal to increase their productivity and profitability. The information system developed in this project consists about the modules like Human Health Issues, Human Disease & Surveillance Program.

The system is maintained with both String Matching[2] and Machine learning algorithm[3] techniques in order to provide a closest disease, what happens is, if the user entered the disease symptoms[4] in the input form given by the expert, it displays the actual disease (String Matching) with which the patient is suffering with , or else it show the content saying that the knowledge is insufficient , for this purpose we implemented a technique Artificial Bee Colony Optimization[5] (ABC) i.e., an Optimization algorithm which will calculate the probability of occurrence of the disease.

II.   DOMAIN ANALYSIS

1. **Introduction** The domain is 'Plug-in generator to produce variant outputs for unique data entry' for disease suffering people, doctors, experts & scientists. The main aim of this is to develop a system that which takes the disease symptoms as inputs and producing optimistic results if exact disease is not found in the database.
2. **Glossary Randomization** It is a process of generating the rules and give answers to the questions asked by the user depends on the forward chaining mechanism.
3. **General Knowledge about the Domain** This system will enhance the human life where there is lack of expert doctors, it also provide immediate outputs with the best optimistic values paired up with curing methodologies. They also create awareness among the educated people about the disease and also help them in preventing the disease occurrence by providing the prevention methods.
4. **Customers and Users** In this domain everyone have clearly defined role.
5. **The Environment** It is developed using ASP.NET, C#, HTML, CSS and MSAccess.

6. **Tasks and Procedures Currently Performed** All the tasks are performed by using software by collecting data from experts in that particular field.
7. **Competing Software** A software requirement specification is developed as a consequence of analysis SRS is the medium through which the client and user needs are accurately specified.

III. PROPOSED SYSTEM

Health is a resource for everyday life, not the objective of living and "health is a positive concept emphasizing social and personal resources, as well as physical capacities" The web portals were expected to have a social mission to provide essential health related information in simple language to people. Over the years it will be evolved into Asian regions most comprehensive medical web portal in the health sector in terms of content, viewer ship, technology, leadership and domain expertise.

This offline web portal is created with this inspiration. The development of this web portals are aimed at a collaborative venture with eminent doctors with an excellent team of Computer engineers, programmers and designers

This offline web portal is expected to have the following features:

- This web portal provides time to time health advice to the users at their door steps about disease they are suffering with or disease which they are trying to prevent occurring.
- This web contains 2 major sections named Disease locator system and Diseases system, Disease locator which outputs the human disease which user is suffering.
- In the above mentioned fields Disease system contains the static information and Disease Locator is an advisory system which is a part of the web portal will provide information to the users from time to time regarding the health advice.
- Provides the information about the expert doctors, mailing facility to the users for contacting them for on line medical expert advice.
- Provides information about the various tests and diagnosis, and curing.

IV.   FUNCTIONAL REQUIREMENTS

The following are the functional requirements of this system:

1. Inputs The system needs the information of the
- ✓ About Human Diseases
- ✓ Common Diseases[6]
- ✓ Common Disease Symptoms
- ✓ Investigations
- ✓ Curing Methodologies
- ✓ Preventions

2. Outputs The outputs of the system will be:
- ✓ Information Disease
- ✓ Description about the disease
- ✓ Diagnosis
- ✓ Healthy Advice

3. Store The information collected through inputs is stored as a knowledge base that serves as a repository for quick processing and future retrieval.

4. Computations Various computations are to be performed while evaluating and generating reports based on the requirement and information collected. These are nothing but forward chaining and backward chaining etc.

5. Non-functional requirements

5.1 Platform Windows platform that is equipped with .NET 4.5 and IIS Web Server.

5.2 Technology to be used C# (C-Sharp)

5.3 Development Process to be Used This is a web enabled application developed using ASP.NET and Datasets. So as to ensure the quality of the software, all software engineering concepts, including test cases are implemented. This depicts the client server architecture and forms a well set layout.

V. KNOWLEDGE BASE

The first paragraph under each heading or subheading should be flush left, and (**Symptoms**

S1=Nausea	S2=Anemia	S3=Weight Loss	S4=Headache	S5=Muscle Pain
S6=Chest Pain	S7=Fever	S8=Muscle Infection	S9=Vomiting	S10= Loss of Appetite
S11=Short Breath	S12=Chills	S13=Fatigue	S14=Cough	S15=Stomach Pain

Indication in Data Sets   1- Yes   0-No

Rule 1

If symptoms S1=1, S2= 0, S3=1, S4= 0, S5=0, S6= 1, S7= 0, S8= 0, S9= 0, S10= 1, S11= 0, S12= 1, S13= 1, S14= 1, S15= 0 **Diagnose**: Then you are suffering with "Pulmonary Tuberculosis" **Prevention or Curing Methodology**: Avoid Tobacco consumption, Smoke from burning of wood or grass, Outdoor air pollution

Rule 2

If symptoms S1=1, S2= 1, S3=0, S4= 0, S5=0, S6= 1, S7= 0, S8= 0,S9= 0, S10= 0, S11= 0, S12= 0, S13= 0, S14= 0, S15= 1 **Diagnose**: Then you are suffering with "Peptic Ulcer" **Prevention or Curing Methodology**: Quit Smoking, alcohol consumption. Eat a diet Rich in fruits and vegetables

Rule 3

If symptoms S1=0, S2= 0, S3=0, S4= 0, S5=0, S6= 0, S7= 0, S8= 0, S9= 0, S10= 1, S11= 0, S12= 0, S13= 0, S14= 1, S15= 0 **Diagnose**: Then you are suffering with "Asthma" **Prevention or Curing Methodology:** Avoid smoking, don't take short breaths

Rule 4

If symptoms S1=0, S2= 0, S3=0, S4= 1, S5=0, S6= 1, S7= 0, S8= 0, S9= 0, S10= 1, S11= 0, S12= 1, S13= 0, S14= 0, S15= 0 **Diagnose**: Then you are suffering with "Blood Pressure" **Prevention or Curing Methodology**: Eat less salt, cut regular exercise, Eat heart-healthy foods.

Rule 5

If symptoms S1=1, S2= 1, S3=0, S4= 1, S5=1, S6= 1, S7= 1, S8= 1, S9= 0, S10= 0, S11= 1, S12= 0, S13= 0, S14= 0, S15= 0 **Diagnose**: Then you are suffering with Malaria. **Prevention or Curing Methodology**: Stay inside when it is dark, use bed-nets, Avoid area where mosquitoes are present.

Rule 6

If symptoms S1=0, S2= 0, S3=0, S4= 1, S5=1, S6= 0, S7= 0, S8= 1, S9= 1, S10= 1, S11= 0, S12= 0, S13= 0, S14= 0, S15= 0 **Diagnose**: Then you are suffering with" Swine Flu" **Prevention or Curing Methodology**: Always carry tissues with you, Wash your hands regularly and Wear masks.

Rule 7

If symptoms S1=0, S2= 0, S3=0, S4= 0, S5=0, S6= 0, S7= 0, S8= 0, S9= 0, S10= 0, S11= 0, S12= 0, S13= 0, S14= 0, S15= 0 **Diagnose**: No Disease **Prevention or Curing Methodology**: You have provided a insufficient data or you are not suffering from any disease

VI. SYSTEM DESIGN

In the development of this web portal we had implemented
   a) String Matching System
   b) Artificial Bee Colony Optimization Algorithms
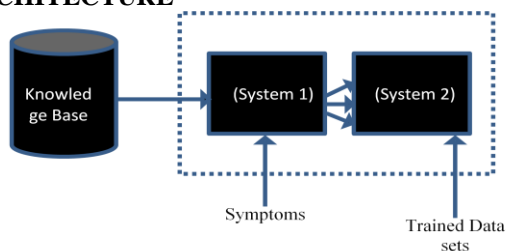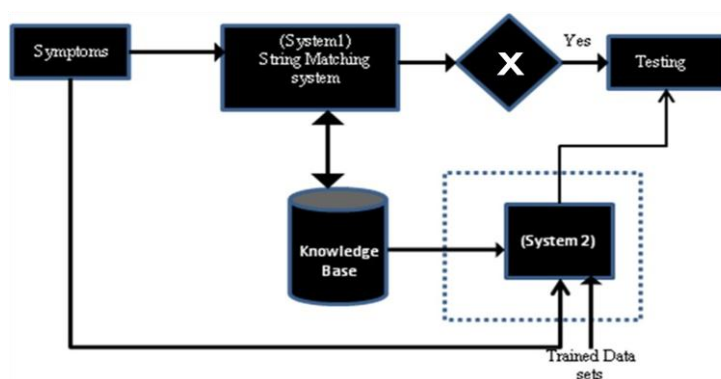
1. MACINE LEARNING ARCHITECTURE

fig (1): impose of knowledge base

VII. EVENT FLOW DIAGRAM

X: System matches the exact disease for the string
fig(2):impose of knowledge with browser

Hybrid architecture is the combination output obtained from both String Matching system and machine learning techniques. Here the System2 Algorithm is the Artificial Bee Colony Optimization. Here ABC Optimization algorithm used to give the Subset of relative diseases and the String Matching System will be giving the accurate and correct disease according to the symptoms entered by the user expert.

VIII. RESULTS / OUTPUTS

RESULT 1
If symptoms in the knowledge base 100% matches then the process of identifying the disease and providing the prevention or curing methodology is done through the knowledge base.(Refer Section V)

RESULT 2
If symptoms
 S1=1, S2= 1, S3= 0, S4= 0, S5=1, S6= 1, S7= 1, S8= 1, S9= 0, S10= 0, S11= 1, S12=1, S13= 0, S14= 0, S15=1
 String Matching System Relevant Data not found
As per the Considered Data Sets: (ABC ➔ **Produces**)
       Malaria   0.55
        Peptic Ulcers   0.33
Prevention Methodology No Curing Methodology

RESULT 3
If symptoms
 S1=0, S2= 1,S3= 1,S4= 1, S5=0,S6= 0,S7= 0,S8= 1,S9= 1,S10= 1,S11= 0,S12=0, S13= 1,S14= 1,S15=0
String Matching System Relevant Data not found
As per the Considered Data Sets: (ABC ➔ **Produces**)
      Swine Flu   0.5   Thyroid   0.375
Prevention Methodology No Curing Methodology

RESULT 4

S1=0, S2= 1, S3= 0, S4= 1, S5=0, S6= 1, S7= 0, S8= 1, S9= 0, S10= 1, S11= 1, S12=1, S13= 0, S14= 0, S15=0

String Matching System Relevant Data not found

As per the Considered Data Sets: (ABC → **Produces**)

Blood Pressure	0.428	Malaria	0.428
Swine Flu	0.428	Bronchial Asthma	0.142

Prevention Methodology No Curing Methodology

fig (3): inputs are given to the system and string matching system fails to match exact disease

fig (4): abc produces the optimistic results which shows given symptoms may cause tb or chicken pox.

fig (5): tuberculosis disease is selected to know the prevention and curing methods

IX. CONCLUSION

This project "Plug-in generator to produce variant outputs for unique data entry" is a offline web browsing enabled application developed using ASP.NET and MSAccess database is used as backend.

Its main objective is to have a well designed interface for giving health related knowledge and suggestions in the area of any disease field by providing the symptoms as an input to the system and interact

with the expert system and the user without the need of an expert at all times. We can also design and develop the expert systems for drug therapy for finding the right drug to cure the disease.

By the thorough interaction with the users and beneficiaries the functionality of the system can be extended further to many more areas in and around the world.

X. FUTURE WORK

This approach to find the disease using ABC optimization algorithm which produce number of outputs that are having same percentage sequence for different optimistic diseases to the given inputs, this system need to be developed in an exclusive hybrid area so that it can produce only one best output considering double optimization using another ML technique or by implementing Rough Datasets.

APPENDIX

USER MANUAL

The project **"Plug-in generator to produce variant outputs for unique data"** is .NET enabled web application developed using ASP.NET and MSAccess database.

The following are the requirements for successful deployment.

1. IIS Web Server
2. MSAccess Database,
3. Windows Xp or above
4. A web browser.

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