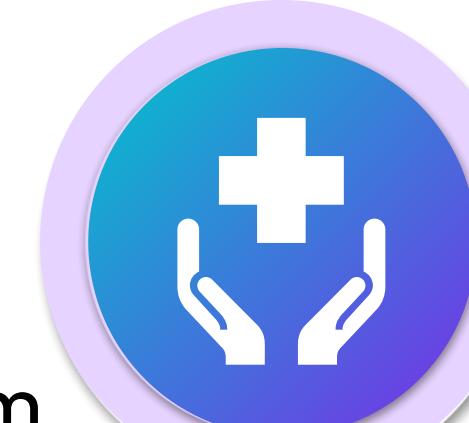


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ByteCare.

A Symptom Diagnosis System



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How our system works

1. Input of Symptoms

- Users are typically prompted to enter their symptoms into a search bar or select them from a list.

2. Database and Algorithm

- The system compares the entered symptoms against a database of medical conditions, symptoms and precautions.

3. Analysis and Matching

- Using an algorithm, the ByteCare analyzes the inputted symptoms and matches them with potential causes or conditions.

4. Results and Information

- Based on the analysis, the ByteCare generates a list of possible conditions that could be associated with the entered symptoms. It may provide additional information about each condition, including description and precautions.



Limitations



Please note that the ByteCare: Symptom Diagnosis System is not a substitute for professional medical advice. It cannot provide a comprehensive diagnosis considering the user's medical history, family history, and other factors that only a trained medical professional can evaluate. Instead, the system serves as a tool to assist in the diagnosis process and help individuals make informed decisions about their medical care.

Since there are many types of diseases, we have narrowed down to focus on the following categories:

1. Infectious diseases
2. Allergic and immune disorders
3. Gastrointestinal disorders
4. Respiratory disorders
5. Cardiovascular disorders
6. Endocrine disorders
7. Liver disorders
8. Skin disorders
9. Musculoskeletal disorders

Model





RandomForest

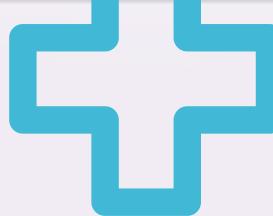


- RandomForest is model comprises with multiple decision trees and works by combining the predictions of multiple individual decision trees to make accurate predictions.
- Each tree has a diverse set of features to consider during the splitting process.
- It independently evaluates the input symptoms and assigns a predicted disease label. The final prediction is determined through majority voting, where the most commonly predicted disease label across the trees is selected.

Training

```
Random Forest
Training Accuracy: 0.9878048780487805
['back pain', 'weakness in limbs', 'neck pain', 'knee pain', 'hip joint pain', 'muscle weakness', 'stiff neck', 'movement stiffness', 'muscle pain', 'painful walking']
C:\Users\Bob Kyle\AppData\Local\Programs\Python\Python310\lib\site-packages\sklearn\base.py:439: UserWarning: X does not
have valid feature names, but RandomForestClassifier was fitted with feature names
    warnings.warn(
[['Osteoarthritis', 'Arthritis', 'Cervical spondylosis']]]
```

Dataset



testing.csv

Symptom_precaution.csv

src > symptom_precaution.csv

1 Disease_Precaution_1,Precaution_2,Precaution_3,Precaution_4

2 Drug Reaction_Discontinue the medication immediately.,Seek immediate medical attention.,Take antihistamines to relieve any allergic symptoms.,Apply a cold compress to reduce inflammation.

3 Malaria,Use mosquito nets while sleeping.,Apply insect repellent on exposed skin.,Eliminate stagnant water around the house to prevent mosquito breeding.,Take prescribed antimalarials.

4 Allergy,Identify and avoid the allergen that triggers your allergy symptoms.,Keep windows closed to prevent pollen or other allergens from entering your home.,Use a HEPA air purifier.

5 Hypothyroidism,Take prescribed thyroid medication as directed by your doctor.,"Maintain a balanced diet with adequate iodine, selenium, and zinc.",,"Avoid consuming excessive amounts of iodine."

6 Psoriasis,Keep your skin moisturized by applying a non-irritating moisturizer regularly.,,"Avoid triggers such as stress, smoking, alcohol, and certain medications.",,"Gently cleanse your skin with a mild soap.".

7 GERD,"Eat smaller, more frequent meals instead of large meals.",,"Avoid trigger foods and beverages such as fatty or spicy foods, citrus fruits, caffeine, and alcohol.",,"Maintain an upright posture after eating."

8 Chronic cholestasis,Follow a low-fat diet to reduce the workload on the liver.,Stay well-hydrated by drinking an adequate amount of water.,Avoid alcohol consumption as it can further raise your cholesterol levels.

9 Hepatitis A,"Practice good hygiene by washing your hands thoroughly with soap and water, especially before handling food or eating.",,"Ensure the consumption of clean and safe drinking water."

10 Osteoarthritis,Engage in regular low-impact exercises to strengthen the muscles around the affected joints and improve joint flexibility.,,,"Maintain a healthy weight to reduce the strain on your joints."

11 (vertigo) Paroxysmal Positional Vertigo,Avoid sudden head movements or changes in body position that can trigger vertigo episodes.,Sleep with your head slightly elevated to reduce the risk of vertigo.

12 Hypoglycemia,"Eat regular, balanced meals with a combination of carbohydrates, protein, and healthy fats to maintain stable blood sugar levels.",,"Monitor your blood sugar levels regularly."

13 Acne,"Cleanse your face twice a day using a gentle, non-comedogenic cleanser to remove excess oil and dirt.",,"Avoid touching or picking at your acne, as it can worsen inflammation."

14 Diabetes ,Monitor your blood sugar levels regularly and keep a record of your readings.,,"Follow a balanced meal plan that includes healthy carbohydrates, lean proteins, and high-fiber foods."

15 Impetigo,Keep the affected area clean by gently washing it with mild soap and warm water.,Avoid scratching or picking at the impetigo sores to prevent spreading the infection.,,,"Apply antibiotic ointment to the affected area."

16 Hypertension ,,"Follow a balanced diet low in sodium and high in fruits, vegetables, whole grains, and lean proteins.",,"Engage in regular aerobic exercise such as brisk walking, jogging, or swimming."

17 Peptic ulcer disease,"Avoid foods and beverages that can irritate the stomach lining, such as spicy foods, caffeine, alcohol, and acidic foods.",,"Quit smoking, as it can increase the risk of peptic ulcers."

18 Dimorphic hemorrhoids(piles),"Increase your daily fiber intake through fruits, vegetables, whole grains, and legumes to soften the stool and reduce strain during bowel movements.",,"Use a sitz bath to soothe the affected area."

19 Common Cold,Get plenty of rest and sleep to support your immune system.,,"Stay hydrated by drinking fluids like water, herbal tea, and clear broth to help loosen mucus and keep your nasal passages clear."

20 Chicken pox,"Keep the affected person isolated to prevent the spread of chickenpox to others, especially individuals who have not had the infection or been vaccinated.",,,"Trim the fingernails of the infected person to prevent them from scratching the blisters."

21 Cervical spondylosis,"Maintain good posture while sitting, standing, and sleeping to minimize strain on the neck and spine.",,,"Engage in regular neck exercises and stretches to improve flexibility and strength."

22 Hyperthyroidism,"Consult with a healthcare professional for appropriate treatment options, which may include medications, radioactive iodine therapy, or surgery.",,,"Follow a well-balanced diet and exercise regimen."

23

24

25 "

26 Urinary tract infection,Stay well-hydrated by drinking plenty of water to help flush out bacteria from the urinary tract.,Urinate frequently and completely to help prevent the growth of bacteria in the bladder.

27

28

29 "

30 Varicose veins,Maintain a healthy weight to reduce pressure on the veins.,Engage in regular physical activity to improve circulation and strengthen the leg muscles.,,"Elevate your legs when possible."

31

32

33 ",,,"Avoid prolonged periods of standing or sitting. Take breaks and move around to promote blood flow."

34 AIDS,Practice safe sex by using condoms consistently and correctly to prevent the transmission of HIV.,,"Get tested for HIV regularly, especially if you engage in high-risk behaviors."

35

36

37 "

38 Paralysis,Ensure a safe and supportive environment.,Follow a balanced and nutritious diet.,,,"Engage in gentle range-of-motion exercises if possible.",,"Seek emotional support and maintain a positive attitude."

39

40

41 "

42 Tremor,"Practice good hygiene by washing hands thoroughly with soap and water before handling food, after using the toilet, and before eating.",,"Drink only clean and safe water, especially when traveling abroad."

Symptom_description.csv

1 Disease,
2 Drug Reaction,"Refers to an adverse response or side effect that occurs after the administration of a medication, ranging from mild symptoms like nausea or drowsiness to severe com
3 Malaria,"A mosquito-borne infectious disease caused by parasites of the Plasmodium genus. It typically presents with symptoms such as fever, chills, headache, and muscle aches. If
4 Allergy,"Is an exaggerated immune response to a substance that is usually harmless to most people. When an allergic individual comes into contact with an allergen, such as pollen, (i
5 Hypothyroidism,"Is a condition characterized by an underactive thyroid gland, which fails to produce enough thyroid hormones. These hormones play a crucial role in regulating metab
6 Psoriasis,"A chronic autoimmune skin disorder characterized by the rapid buildup of skin cells, resulting in the formation of thick, red patches with silvery scales. It is caused by
7 GERD,"A chronic digestive condition characterized by the backflow of stomach acid into the esophagus, leading to symptoms such as heartburn and regurgitation."
8 Chronic cholestasis,"Is a long-term liver condition characterized by impaired bile flow, resulting in the accumulation of bile acids in the liver and bloodstream."
9 hepatitis A,"Is a highly contagious viral infection that affects the liver, typically transmitted through contaminated food or water. It causes inflammation of the liver and can le
10 Osteoarthritis,"Is a degenerative joint disease characterized by the breakdown of cartilage, the cushioning tissue between bones. It commonly affects weight-bearing joints such as
11 Paroxysmal Positional Vertigo,"A type of vertigo characterized by brief episodes of dizziness or spinning sensations triggered by specific head movements. It is caused by the displ
12 Hypoglycemia,"Refers to a condition characterized by abnormally low blood sugar levels. It typically occurs in individuals with diabetes who take medications such as insulin or cer
13 Acne,"A common skin condition characterized by the presence of pimples, blackheads, whiteheads, and inflammation. It occurs when hair follicles become clogged with oil, dead skin c
14 Diabetes,"A chronic medical condition characterized by high levels of blood glucose (blood sugar). It occurs when the body either does not produce enough insulin (a hormone that re
15 Impetigo,"Is a highly contagious bacterial skin infection characterized by the presence of red sores or blisters that can break open and form a yellowish-brown crust. It is primari
16 Hypertension,"Also known as high blood pressure, is a chronic medical condition characterized by elevated pressure in the arteries. It occurs when the force exerted by the blood a
17 Peptic ulcer disease,"Is a condition characterized by open sores or ulcers that develop in the lining of the stomach, upper small intestine (duodenum), or esophagus. These ulcers oc
18 Dimorphic hemorrhoids(piles),"Also known as mixed hemorrhoids or mixed piles, refer to a type of hemorrhoids that exhibit characteristics of both internal and external hemorrhoids.
19 Common Cold,"Is highly contagious and spreads through respiratory droplets when an infected person coughs, sneezes, or talks. It can also spread by touching contaminated surfaces a
20 Chicken pox,"Also known as varicella, is a highly contagious viral infection caused by the varicella-zoster virus (VZV). It is characterized by a widespread rash of itchy, fluid-fi
21 Cervical spondylosis,"Is a degenerative condition that affects the joints and discs of the cervical spine (neck). It occurs due to the wear and tear of the cartilage and bones in t
22 Hyperthyroidism,"Is a condition where the thyroid gland becomes overactive, resulting in excessive production of thyroid hormones and causing symptoms such as increased metabolism,
23 Urinary tract infection,"(UTI) is an infection that can occur in any part of the urinary system, including the kidneys, bladder, ureters, and urethra. It is most commonly caused by
24 Varicose veins,"Are enlarged and twisted veins that commonly occur in the legs. They develop when the valves within the veins that help blood flow back to the heart become weak or
25 AIDS,"Is a late stage of HIV (Human Immunodeficiency Virus) infection. It is a chronic and potentially life-threatening condition that affects the immune system, leaving the body v
26 Paralysis,"Is the loss of muscle function in part or all of the body, resulting in the inability to move or control certain muscles. It can occur due to various causes, including
27 Typhoid,"Is a bacterial infection caused by the bacterium *Salmonella enterica* serotype *Typhi*. It is primarily transmitted through contaminated food or water, typically in areas w
28 Hepatitis B,Is a viral infection that primarily affects the liver. It is caused by the hepatitis B virus (HBV) and can lead to both acute and chronic liver disease. HBV is transmit
29 Fungal infection,"Also known as a mycosis, is an infection caused by a fungus. Fungi are microorganisms that can live on the skin, nails, and mucous membranes of the body. While so
30 Hepatitis C,"Is a viral infection that primarily affects the liver. It is caused by the hepatitis C virus (HCV) and can lead to both acute and chronic liver disease. HCV is primar
31 Migraine,"Is a neurological condition characterized by recurring episodes of moderate to severe headaches. These headaches are typically pulsating or throbbing and often affect one
32 Bronchial Asthma,"Commonly referred to as asthma, is a chronic respiratory condition characterized by inflammation and narrowing of the airways. It causes recurrent episodes of whe
33 Alcoholic hepatitis,Is a condition characterized by inflammation and liver damage caused by excessive alcohol consumption over an extended period of time. It is a form of alcoholic
34 Jaundice,"Is a medical condition characterized by yellowing of the skin, eyes, and mucous membranes. It occurs when there is an excess of bilirubin, a yellow pigment produced during
35 Hepatitis E,Is a viral infection that primarily affects the liver. It is caused by the hepatitis E virus (HEV) and is typically transmitted through the consumption of contaminated
36 Dengue,"Is a viral infection transmitted by mosquitoes, primarily the *Aedes* mosquito species. It is prevalent in tropical and subtropical regions around the world. Dengue fever is
37 Hepatitis D,Is also known as delta hepatitis, is a viral infection caused by the hepatitis D virus (HDV). HDV is an incomplete virus that requires the presence of the hepatitis B vir
38 Heart attack,"Occurs when there is a sudden blockage of blood flow to the heart muscle. This blockage is usually caused by a clot that forms in one of the coronary arteries, which
39 Pneumonia,"Is an infection that causes inflammation and swelling in the air sacs of the lungs. It can be caused by a variety of infectious agents, including bacteria, viruses, fun
40 Arthritis,"Refers to a group of conditions characterized by inflammation and damage to the joints. There are several types of arthritis, with the most common being osteoarthritis
41 Gastroenteritis,"Commonly known as the stomach flu, is an inflammation of the gastrointestinal tract that causes symptoms such as diarrhea, vomiting, abdominal pain, and nausea. It

training.csv

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Demo Time



ByteCare