**Implementing Medical Expert System Using Java.**

**Code:**

**import** java.util.Scanner;

**public** **class** expert {

**public** **static** **void** main(String args[]) {

**boolean** tag=**false**;

String name;

**if**(**true**) {

Scanner sc=**new** Scanner(System.***in***);

System.***out***.println("Hello!!! I am an disease prediction Expert System");

System.***out***.print("What's your name? : ");

name=sc.nextLine();

System.***out***.print("what's your gender?(m/f) : ");

String sex=sc.nextLine();

System.***out***.println("Please answer the following questions to find out the disease and its cure");

System.***out***.println("For yes/no type questions kindly type y for yes and n for no");

System.***out***.println("When prompted with options, enter space seperated integer values corresponding to all the options which apply to you.");

System.***out***.print("Do you suffer from red eyes? yes/no : ");

String red\_eyes=*yes\_no*(sc.nextLine());

System.***out***.print("Are you suffering from fatigue? yes/no : ");

String fatigue=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having shortness of breath? yes/no : ");

String short\_breath=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having loss of appetite? yes/no : ");

String appetite\_loss=*yes\_no*(sc.nextLine());

System.***out***.print("Do you suffer from fever? Select from options \n 0: None \n 1: Normal Fever \n 2: Low Fever \n 3: High Fever \n Your Choice: ");

String fevers = **null**;

**int** temp=sc.nextInt();

**if**(temp==0) {

fevers="no";

}

**if**(temp==1) {

fevers="Normal\_Fever";

}

**if**(temp==2) {

fevers="Low\_Fever";

}

**if**(temp==3) {

fevers="High\_Fever";

}

System.***out***.println(fevers);

sc.skip("(\r\n|[\n\r\u2028\u2029\u0085])?");

String joint\_pains = **null**, vomits = **null**;

**if**(appetite\_loss.equals("yes") && (fevers.equals("no")) && short\_breath.equals("no") && fatigue.equals("no")) {

System.***out***.print("Are you having any joint pains? yes/no : ");

joint\_pains=*yes\_no*(sc.nextLine());

System.***out***.print("Do you suffer from Vomitings? Select from options \n 0: None \n 1: Normal Vomiting \n 2: Severe Vomiting \n Your Choice: ");

temp=sc.nextInt();

**if**(temp==0) {

vomits="no";

}

**if**(temp==1) {

vomits="Normal\_Vomiting";

}

**if**(temp==2) {

vomits="Severe\_Vomiting";

}

System.***out***.println(vomits);

sc.skip("(\r\n|[\n\r\u2028\u2029\u0085])?");

}

String stiff\_joint, swell\_joint, red\_skin\_around\_joint, decreased\_range, tired = **null**;

**if**(fatigue.equals("no") && short\_breath.equals("no") && appetite\_loss.equals("yes") && (fevers.equals("no")) && joint\_pains.equals("yes")) {

System.***out***.print("Are you having stiff\_joint? yes/no : ");

stiff\_joint=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing swelly Joints? yes/no : ");

swell\_joint=*yes\_no*(sc.nextLine());

System.***out***.print("Did the skin turn red around the Joints? yes/no : ");

red\_skin\_around\_joint=*yes\_no*(sc.nextLine());

System.***out***.print("Did the range of motion decrease at the Joints? yes/no : ");

decreased\_range=*yes\_no*(sc.nextLine());

System.***out***.print("Are you feeling tired even if you walk small distance? yes/no : ");

tired=*yes\_no*(sc.nextLine());

String arr[]= {stiff\_joint, swell\_joint, red\_skin\_around\_joint, decreased\_range, tired};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=3) {

String symptoms[] = {"Stiff joints", "Swelling in joints", "Joint Pains", "Red shik around joints", "Tiredness", "Reduced Movement near joints", "Appetite loss"};

*suggest\_disease*("Arthritis", symptoms);

tag=**true**;

}

}

String nausea = **null**, fullness, bloating, abdominal\_pain = **null**, indigestion, gnawing;

**if**(fatigue.equals("no") && short\_breath.equals("no") && appetite\_loss.equals("yes") && (fevers.equals("no")) && vomits.equals("Normal\_Vomiting")) {

System.***out***.print("Are you having a feeling of vomiting(Nausea)? yes/no : ");

nausea=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having a feeling of fullness in your upper abdomen? yes/no : ");

fullness=*yes\_no*(sc.nextLine());

System.***out***.print("Are you feeling bloating in your abdomen? yes/no : ");

bloating=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having pain near abdomen? yes/no : ");

abdominal\_pain=*yes\_no*(sc.nextLine());

System.***out***.print("Are you facing problems of indigestion? yes/no : ");

indigestion=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing gnawing or burning ache or pain in your upper abdomen that may become either worse or better with eating? yes/no : ");

gnawing=*yes\_no*(sc.nextLine());

String arr[]= {nausea, fullness, bloating, abdominal\_pain, indigestion, gnawing};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=4) {

String symptoms[] = {"Appetite loss", "Vomiting", "Nausea", "Fullness near abdomen", "Bloating near abdomen", "Abdominal pain", "Indigestion", "Gnawing pain near abdomen"};

*suggest\_disease*("Gastritis", symptoms);

tag=**true**;

}

}

String burning\_stomach, mild\_nausea, weight\_loss;

**if**(fatigue.equals("no") && short\_breath.equals("no") && appetite\_loss.equals("yes") && (fevers.equals("no")) && vomits.equals("Severe\_Vomiting")) {

System.***out***.print("Is your stomach has burning sensation? yes/no : ");

burning\_stomach=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having a feeling of fullness, bloating or belching? yes/no : ");

bloating=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having mild Nausea? yes/no : ");

mild\_nausea=*yes\_no*(sc.nextLine());

System.***out***.print("Did you lose your weight? yes/no : ");

weight\_loss=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having an intense and localized abdominal pain? yes/no : ");

abdominal\_pain=*yes\_no*(sc.nextLine());

String arr[]= {burning\_stomach, bloating, mild\_nausea, weight\_loss, abdominal\_pain};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=3) {

String symptoms[] = {"Appetite loss", "Severe Vomiting", "Burning sensation in stomach", "Bloated stomach", "Nausea", "Weight loss", "Abdominal pain"};

*suggest\_disease*("Peptic Ulcer", symptoms);

tag=**true**;

}

}

String extreme\_thirst = **null**,extreme\_hunger = **null**,muscle\_weakness = **null**,dizziness = **null**;

**if**(fatigue.equals("yes") && short\_breath.equals("no") && fevers.equals("no") ){

System.***out***.print("Are you feeling extremely thirsty than before? yes/no : ");

extreme\_thirst=*yes\_no*(sc.nextLine());

System.***out***.print("Are you feeling extremely hungry than before? yes/no : ");

extreme\_hunger=*yes\_no*(sc.nextLine());

System.***out***.print("Are your muscles weaker than berfore? yes/no : ");

muscle\_weakness=*yes\_no*(sc.nextLine());

System.***out***.print("Are you feeling dizzy? yes/no : ");

dizziness=*yes\_no*(sc.nextLine());

}

String sores, frequent\_urination, irratabiliry, blurred\_vision, frequent\_infections;

**if**(fatigue.equals("yes") && short\_breath.equals("no") && fevers.equals("no") && extreme\_thirst.equals("yes") && extreme\_hunger.equals("yes")) {

System.***out***.print("Is your Urination more frequent than before? yes/no : ");

frequent\_urination=*yes\_no*(sc.nextLine());

System.***out***.print("Did you lose your weight unintentionally? yes/no : ");

weight\_loss=*yes\_no*(sc.nextLine());

System.***out***.print("Are you more irritable now a days? yes/no : ");

irratabiliry=*yes\_no*(sc.nextLine());

System.***out***.print("Did your vision get blurred? yes/no : ");

blurred\_vision=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having frequent infections such as gums or skin infections? yes/no : ");

frequent\_infections=*yes\_no*(sc.nextLine());

System.***out***.print("Are your sores healing slowly? yes/no : ");

sores=*yes\_no*(sc.nextLine());

String arr[]= {frequent\_urination, weight\_loss, irratabiliry, blurred\_vision, frequent\_infections, sores};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=4) {

String symptoms[] = {"Fatigue", "Extreme thirst", "Extreme hunger", "Weight loss", "Blurred vision", "Frequent infections", "Frequent urination", "Irritability", "Slow healing of sores"};

*suggest\_disease*("Diabetes", symptoms);

tag=**true**;

}

}

String dark\_urine,less\_frequent\_urination,lethargy,dry\_mouth;

**if**(fatigue.equals("yes") && short\_breath.equals("no") && fevers.equals("no") && extreme\_thirst.equals("yes") && dizziness.equals("yes")) {

System.***out***.print("Are you having less frequent urination? yes/no : ");

less\_frequent\_urination=*yes\_no*(sc.nextLine());

System.***out***.print("Did the urine become dark? yes/no : ");

dark\_urine=*yes\_no*(sc.nextLine());

System.***out***.print("Are you feeling lethargic? yes/no : ");

lethargy=*yes\_no*(sc.nextLine());

System.***out***.print("Is your mouth considerably dry? yes/no : ");

dry\_mouth=*yes\_no*(sc.nextLine());

String arr[]= {less\_frequent\_urination, dark\_urine, lethargy, dry\_mouth};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=2) {

String symptoms[] = {"Fatigue", "Extreme thirst", "Dizziness", "Dark urine", "Lethargic feeling", "Dry mouth", "Less frequent urination"};

*suggest\_disease*("Dehydration", symptoms);

tag=**true**;

}

}

String depression,constipation,feeling\_cold, dry\_skin, dry\_hair,weight\_gain, decreased\_sweating, slowed\_heartrate,pain\_joints, hoarseness;

**if**(fatigue.equals("yes") && short\_breath.equals("no") && fevers.equals("no") && muscle\_weakness.equals("yes")) {

System.***out***.print("Are you feeling depressed now a days? yes/no : ");

depression=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing constipation? yes/no : ");

constipation=*yes\_no*(sc.nextLine());

System.***out***.print("Are you feeling cold? yes/no : ");

feeling\_cold=*yes\_no*(sc.nextLine());

System.***out***.print("Has your skin became drier? yes/no : ");

dry\_skin=*yes\_no*(sc.nextLine());

System.***out***.print("Is your hair too becoming dry and also thinner? yes/no : ");

dry\_hair=*yes\_no*(sc.nextLine());

System.***out***.print("Did you gain your weight considerably? yes/no : ");

weight\_gain=*yes\_no*(sc.nextLine());

System.***out***.print("Are you not sweating much as earlier? yes/no : ");

decreased\_sweating=*yes\_no*(sc.nextLine());

System.***out***.print("Did your heart rate slow down? yes/no : ");

slowed\_heartrate=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing pain and stiffness in joints? yes/no : ");

pain\_joints=*yes\_no*(sc.nextLine());

System.***out***.print("Is your voice changing abnormally? yes/no : ");

hoarseness=*yes\_no*(sc.nextLine());

String arr[]= {depression, constipation, feeling\_cold, dry\_skin, dry\_hair, weight\_gain, decreased\_sweating, slowed\_heartrate, pain\_joints, hoarseness};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=7) {

String symptoms[] = {"Fatigue", "Muscle weakness", "Depression", "Constipation", "Cold feeling", "Dry skin", "Dry hair", "Weight gain", "Decreased sweating", "Slow heart rate", "Joint pains", "Hoarseness in voice"};

*suggest\_disease*("Hypothyroidism", symptoms);

tag=**true**;

}

}

String back\_joint\_pain = **null**, chest\_pain = **null**,cough = **null**, headache = **null**, pain\_arms = **null**;

**if**(fatigue.equals("yes") && short\_breath.equals("yes") && fevers.equals("no")){

System.***out***.print("Are you having back and joint pain? yes/no : ");

back\_joint\_pain=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having chest pain? yes/no : ");

chest\_pain=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having cough frequently? yes/no : ");

cough=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having headache? yes/no : ");

headache=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having pain in arms and shoulders? yes/no : ");

pain\_arms=*yes\_no*(sc.nextLine());

}

String heaviness, burning, sweating;

**if**(fatigue.equals("yes") && short\_breath.equals("yes") && fevers.equals("no") && chest\_pain.equals("yes") && pain\_arms.equals("yes") ){

System.***out***.print("Did you have feeling of heaviness or tightness, usually in the centre of the chest, which may spread to the arms, neck, jaw, back or stomach? yes/no : ");

heaviness=*yes\_no*(sc.nextLine());

System.***out***.print("Are you sweating frequently? yes/no : ");

sweating=*yes\_no*(sc.nextLine());

System.***out***.print("Are you feeling dizzy? yes/no : ");

dizziness=*yes\_no*(sc.nextLine());

System.***out***.print("Do you feel burning sensation near heart? yes/no : ");

burning=*yes\_no*(sc.nextLine());

String arr[]= {heaviness, sweating, dizziness, burning};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=2) {

String symptoms[] = {"Shortness in breath", "Chest pain", "Fatigue", "Arm pains", "Heaviness", "Sweating", "Diziness", "Burning sensation near heart"};

*suggest\_disease*("Coronary Arteriosclerosis", symptoms);

tag=**true**;

}

}

String snoring, sudden\_physical, isolated, confidence;

**if**(short\_breath.equals("yes") && fevers.equals("no") && back\_joint\_pain.equals("yes")){

System.***out***.print("Are you sweating more than normal? yes/no : ");

sweating=*yes\_no*(sc.nextLine());

System.***out***.print("Did you develop a habit of snoring? yes/no : ");

snoring=*yes\_no*(sc.nextLine());

System.***out***.print("Are you not able to cope up with sudden physical activity? yes/no : ");

sudden\_physical=*yes\_no*(sc.nextLine());

System.***out***.print("Are you feeling tired every day withour doing much work? yes/no : ");

tired=*yes\_no*(sc.nextLine());

System.***out***.print("Are you feeling isolated? yes/no : ");

isolated=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having low confidence and self esteem in day to day activities? yes/no : ");

confidence=*yes\_no*(sc.nextLine());

String arr[]= {sweating, snoring, sudden\_physical, tired, isolated, confidence};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=4) {

String symptoms[] = {"Shortness in breath", "Back and Joint pains", "High sweating", "Snoring habit", "Tireness", "Low confidence"};

*suggest\_disease*("Obesity", symptoms);

tag=**true**;

}

}

String irregular\_heartbeat, weakness, pale\_skin, lightheadedness, cold\_hands\_feet;

**if**(fatigue.equals("yes") && short\_breath.equals("yes") && fevers.equals("no") && chest\_pain.equals("yes") && headache.equals("yes") ){

System.***out***.print("Are you experiencing irregular heartbeat? yes/no : ");

irregular\_heartbeat=*yes\_no*(sc.nextLine());

System.***out***.print("Are you feeling weak? yes/no : ");

weakness=*yes\_no*(sc.nextLine());

System.***out***.print("Has your skin turned pale or yellowish? yes/no : ");

pale\_skin=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having dizziness or light headedness? yes/no : ");

lightheadedness=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having cold hands and feet? yes/no : ");

cold\_hands\_feet=*yes\_no*(sc.nextLine());

String arr[]= {irregular\_heartbeat, weakness, pale\_skin, lightheadedness, cold\_hands\_feet};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=3) {

String symptoms[] = {"Shortness in breath", "Chest pain", "Fatigue", "Headache", "Irregular heartbeat", "Weakness", "Pale skin", "Dizziness", "Cold limbs"};

*suggest\_disease*("Anemia", symptoms);

tag=**true**;

}

}

String Wheezing, sleep\_trouble;

**if**(short\_breath.equals("yes") && fevers.equals("no") && chest\_pain.equals("yes") && cough.equals("yes")){

System.***out***.print("Are you having a whistling or wheezing sound when exhaling? yes/no : ");

Wheezing=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having trouble sleeping caused by shortness of breath, coughing or wheezing? yes/no : ");

sleep\_trouble=*yes\_no*(sc.nextLine());

String arr[]= {Wheezing, sleep\_trouble};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=1) {

String symptoms[] = {"Shortness in breath", "Chest pain", "Cough", "Wheezing sound when exhaling", "Trouble sleep because of coughing or wheezing"};

*suggest\_disease*("Asthma", symptoms);

tag=**true**;

}

}

String eyes\_pain, muscle\_pain, joint\_pain, rashes = **null**, bleeding;

**if**(fevers.equals("High\_Fever")){

System.***out***.print("Are you experiencing severe headache? yes/no : ");

headache=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having pain behind eyes? yes/no : ");

eyes\_pain=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having severe muscle pain? yes/no : ");

muscle\_pain=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having severe joint pain? yes/no : ");

joint\_pain=*yes\_no*(sc.nextLine());

System.***out***.print("Have you vomited or felt like vomiting(Nausea) yes/no : ");

nausea=*yes\_no*(sc.nextLine());

System.***out***.print("Have you experienced rashes on skin which appears two to five days after the onset of fever? yes/no : ");

rashes=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having mild bleeding such a nose bleed, bleeding gums, or easy bruising? yes/no : ");

bleeding=*yes\_no*(sc.nextLine());

String arr[]= {headache, eyes\_pain, muscle\_pain, joint\_pain, nausea, rashes, bleeding};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=5) {

String symptoms[] = {"High fever", "Headache", "Eye pain", "Muscle pain", "Joint pains", "Nausea", "Rashes", "Bleeding"};

*suggest\_disease*("Dengue", symptoms);

tag=**true**;

}

}

String wheezing, chills = **null**, chest\_tightness, sore\_throat = **null**, body\_aches, breathlessness, nose\_blocked;

**if**(fevers.equals("Low\_Fever")){

System.***out***.print("Are you having a persistent cough, which may produce yellow grey mucus (phlegm)? yes/no : ");

cough=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing Wheezing? yes/no : ");

wheezing=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing chills? yes/no : ");

chills=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having a feeling of tightness in the chest? yes/no : ");

chest\_tightness=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having a sore throat? yes/no : ");

sore\_throat=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having body pains? yes/no : ");

body\_aches=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing breathlessness? yes/no : ");

breathlessness=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having headache? yes/no : ");

headache=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having a blocked nose or sinuses? yes/no : ");

nose\_blocked=*yes\_no*(sc.nextLine());

String arr[]= {headache, cough, wheezing, chills, chest\_tightness, sore\_throat, body\_aches, breathlessness, nose\_blocked};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=7) {

String symptoms[] = {"Slight Fever", "Cough", "Wheezing", "Chills in body", "Tightness in chest", "Sore throat", "Body aches", "Headache", "Breathlessness", "Blocke nose"};

*suggest\_disease*("Bronchitis", symptoms);

tag=**true**;

}

}

String eye\_burn, eye\_crusting, eye\_irritation = **null**;

**if**(red\_eyes.equals("yes")){

System.***out***.print("Do you have a burning sensation in eyes? yes/no : ");

eye\_burn=*yes\_no*(sc.nextLine());

System.***out***.print("Do you get pus or crusting on eyes? yes/no : ");

eye\_crusting=*yes\_no*(sc.nextLine());

System.***out***.print("Do you have eye irritation? yes/no : ");

eye\_irritation=*yes\_no*(sc.nextLine());

**if**(eye\_burn.equals("yes") || eye\_crusting.equals("yes")){

String symptoms[] = {"Burning sensation in eyes", "Crusting of eyes", "Redness in eyes"};

*suggest\_disease*("Eye Conjunctivitis", symptoms);

tag=**true**;

}

**if**(eye\_burn.equals("no") && eye\_crusting.equals("no") && eye\_irritation.equals("yes")){

String symptoms[] = {"Irritation in eyes", "Redness in eyes"};

*suggest\_disease*("Eye Allergy", symptoms);

tag=**true**;

}

}

**if**(fevers.equals("Normal\_Fever")){

System.***out***.print("Are you suffering from chest pain? yes/no : ");

chest\_pain=*yes\_no*(sc.nextLine());

System.***out***.print("Are you suffering from abdominal pain? yes/no : ");

abdominal\_pain=*yes\_no*(sc.nextLine());

System.***out***.print("Are you suffering from sore throat? yes/no : ");

sore\_throat=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having shaking chills? yes/no : ");

chills=*yes\_no*(sc.nextLine());

System.***out***.print("Are you suffering from rashes on skin? yes/no : ");

rashes=*yes\_no*(sc.nextLine());

System.***out***.print("Did you vomit or feel like vomiting(Nausea) yes/no : ");

nausea=*yes\_no*(sc.nextLine());

}

String persistent\_cough,night\_sweats, cough\_blood;

**if**( fatigue.equals("yes") && fevers.equals("Normal\_Fever") && chest\_pain.equals("yes") && chills.equals("yes")){

System.***out***.print("Are you experiencing persistent cough which lasted for more than 2 to 3 weeks? yes/no : ");

persistent\_cough=*yes\_no*(sc.nextLine());

System.***out***.print("Did you experience unintentional weight loss? yes/no : ");

weight\_loss=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing Night Sweats? yes/no : ");

night\_sweats=*yes\_no*(sc.nextLine());

System.***out***.print("Are you coughing up blood? yes/no : ");

cough\_blood=*yes\_no*(sc.nextLine());

String arr[]= {persistent\_cough, weight\_loss,night\_sweats, cough\_blood};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=2) {

String symptoms[] = {"fever", "chest pain", "fatigue", "loss of appetite","persistent cough"};

*suggest\_disease*("Tuberculosis", symptoms);

tag=**true**;

}

}

String dry\_cough, muscle\_ache, nasal\_congestion;

**if**(fevers.equals("Normal\_Fever") && fatigue.equals("yes") && sore\_throat.equals("yes") ){

System.***out***.print("Are you experiencing weakness? yes/no : ");

weakness=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having dry persistent cough? yes/no : ");

dry\_cough=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having aching muscles, especially in your back, arms and legs? yes/no : ");

muscle\_ache=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing sweats along with chills? yes/no : ");

chills=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing nasal congestion? yes/no : ");

nasal\_congestion=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing headache? yes/no : ");

headache=*yes\_no*(sc.nextLine());

String arr[]= {weakness, dry\_cough, muscle\_ache, chills, nasal\_congestion, headache};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=4) {

String symptoms[] = {"Fever", "Fatigue", "Sore throat", "Weakness", "Dry cough", "Muscle aches", "Chills", "Nasal congestion", "Headache"};

*suggest\_disease*("Influenza", symptoms);

tag=**true**;

}

}

String flu\_like, pale\_stool, jaundice;

**if**(fevers.equals("Normal\_Fever") && fatigue.equals("yes") && abdominal\_pain.equals("yes") ){

System.***out***.print("Are you experiencing flu like symptoms? yes/no : ");

flu\_like=*yes\_no*(sc.nextLine());

System.***out***.print("Are you getting dark urine? yes/no : ");

dark\_urine=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having pale stool? yes/no : ");

pale\_stool=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing unexplained weight loss? yes/no : ");

weight\_loss=*yes\_no*(sc.nextLine());

System.***out***.print("Are your skin and eyes turning yellow? yes/no : ");

jaundice=*yes\_no*(sc.nextLine());

String arr[]= {flu\_like, dark\_urine, pale\_stool, weight\_loss, jaundice};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=3) {

String symptoms[] = {"Fever", "Fatigue", "Abdominal pain", "Flu like symptoms", "Dark urine", "Pale stool", "Weight loss", "Yellow eyes and skin(Jaundice)"};

*suggest\_disease*("Hepatitis", symptoms);

tag=**true**;

}

}

String sweat, rapid\_breath, diarrhea;

**if**(fevers.equals("Normal\_Fever") && short\_breath.equals("yes") && chest\_pain.equals("yes") && nausea.equals("yes") ){

System.***out***.print("Are you experiencing shortness of breath while doing normal activities or even while resting? yes/no : ");

short\_breath=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing sweating along with chills? yes/no : ");

sweat=*yes\_no*(sc.nextLine());

System.***out***.print("Are you breathing rapidly? yes/no : ");

rapid\_breath=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having a worsening cough that may produce yellow/green or bloody mucus (phlegm) yes/no : ");

cough=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing Diarrhea? yes/no : ");

diarrhea=*yes\_no*(sc.nextLine());

String arr[]= {short\_breath, sweat, rapid\_breath, cough, diarrhea};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=3) {

String symptoms[] = {"Fever", "Chest pain", "Shortness in breath", "Nausea", "Sweating with chills", "Rapid breathing", "Cough with phlegm", "Diarrhea"};

*suggest\_disease*("Pneumonia", symptoms);

tag=**true**;

}

}

String back\_pain;

**if**(fevers.equals("Normal\_Fever") && abdominal\_pain.equals("yes") && chills.equals("yes") && nausea.equals("yes") ){

System.***out***.print("Are you experiencing headache? yes/no : ");

headache=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing sweating frequently? yes/no : ");

sweat=*yes\_no*(sc.nextLine());

System.***out***.print("Are you coughing frequently? yes/no : ");

cough=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing weakness? yes/no : ");

weakness=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having intense muscle pain? yes/no : ");

muscle\_pain=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having lower back pain? yes/no : ");

back\_pain=*yes\_no*(sc.nextLine());

String arr[]= {headache, sweat, weakness, cough, muscle\_pain, back\_pain};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=4) {

String symptoms[] = {"Fever", "Chills", "Abdominal pain", "Nausea", "Headache", "Sweating", "Cough", "Weakness", "Muscle pain", "Back pain"};

*suggest\_disease*("Malaria", symptoms);

tag=**true**;

}

}

String lymph ;

**if**(fevers.equals("Normal\_Fever") && rashes.equals("yes")){

System.***out***.print("Are you experiencing headache? yes/no : ");

headache=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having muscle aches and joint pain? yes/no : ");

muscle\_ache=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing sore throat and painful mouth sores? yes/no : ");

sore\_throat=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing swollen lymph glands especially on the neck? yes/no : ");

lymph=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing Diarrhea? yes/no : ");

diarrhea=*yes\_no*(sc.nextLine());

System.***out***.print("Are you coughing frequently? yes/no : ");

cough=*yes\_no*(sc.nextLine());

System.***out***.print("Did you experience unintentional weight loss? yes/no : ");

weight\_loss =*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing Night Sweats? yes/no : ");

night\_sweats=*yes\_no*(sc.nextLine());

String arr[]= {headache, muscle\_ache, sore\_throat, lymph, diarrhea, cough, weight\_loss, night\_sweats};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=6) {

String symptoms[] = {"Fever", "Rashes", "Headache", "Muscle ache", "Sore throat", "Swollen lymph nodes", "Diarrhea", "Cough", "Weight loss", "Night sweat"};

*suggest\_disease*("AIDS", symptoms);

tag=**true**;

}

}

String upper\_abdominal\_pain, abdominal\_eat, hearbeat, oily\_stool ;

**if**(fevers.equals("Normal\_Fever") && abdominal\_pain.equals("yes") && chills.equals("no") && nausea.equals("yes") ){

System.***out***.print("Are you experiencing upper abdominal pain? yes/no : ");

upper\_abdominal\_pain=*yes\_no*(sc.nextLine());

System.***out***.print("Is the abdominal pain becoming verse after eating? yes/no : ");

abdominal\_eat=*yes\_no*(sc.nextLine());

System.***out***.print("Is your heartbeat at high rate? yes/no : ");

hearbeat=*yes\_no*(sc.nextLine());

System.***out***.print("Did you experience unintentional weight loss? yes/no : ");

weight\_loss=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having oily smelly stools? yes/no : ");

oily\_stool=*yes\_no*(sc.nextLine());

String arr[]= {upper\_abdominal\_pain, abdominal\_eat, hearbeat, weight\_loss, oily\_stool};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=3) {

String symptoms[] = {"Nausea", "Fever", "Upper abdominal pain", "Heartbeat", "Weight loss", "Oily and smelly stool"};

*suggest\_disease*("Pancreatitis", symptoms);

tag=**true**;

}

}

String lose\_smell;

**if**(fevers.equals("Normal\_Fever") && short\_breath.equals("yes") && fatigue.equals("yes") && nausea.equals("yes")){

System.***out***.print("Are you having chills sometimes with shaking? yes/no : ");

chills=*yes\_no*(sc.nextLine());

System.***out***.print("Do you cough frequently? yes/no : ");

cough=*yes\_no*(sc.nextLine());

System.***out***.print("Are you having body aches? yes/no : ");

body\_aches=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing headache? yes/no : ");

headache=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing sore throat and painful mouth sores? yes/no : ");

sore\_throat=*yes\_no*(sc.nextLine());

System.***out***.print("Did you lose your sense of smell and taste considerably? yes/no : ");

lose\_smell=*yes\_no*(sc.nextLine());

System.***out***.print("Are you experiencing Diarrhea? yes/no : ");

diarrhea=*yes\_no*(sc.nextLine());

String arr[]= {chills, body\_aches, headache, sore\_throat, lose\_smell, diarrhea};

**int** count=0;

**for**(**int** i=0;i<arr.length;i++){

**if**(arr[i].equals("yes"))

count+=1;

}

**if**(count>=4) {

String symptoms[] = {"Fever", "Fatigue", "Shortness in breath", "Nausea", "Chills", "Cough", "Body aches", "Headache", "Sorethroat", "Diarrhea", "Loose sense of taste/smell"};

*suggest\_disease*("Corona Virus", symptoms);

tag=**true**;

}

}

}

**if**(tag==**false**) {

System.***out***.print("\n Dear "+name+" Sorry!! Kindly check your input data. The symptoms did not match with any of diseases in my database.");

}

}

**private** **static** **void** suggest\_disease(String disease, String[] symptoms) {

System.***out***.print("\nYou might be suffering from "+disease);

System.***out***.print("\nThis conclusion is reached because you show symptoms among the following:\n");

**for**(**int** i=0;i<symptoms.length;i++) {

System.***out***.println((i+1)+" : "+symptoms[i]);

}

System.*exit*(0);

}

**public** **static** String yes\_no(String s) {

String ans = s.toLowerCase();

**if**(ans.equals("y") || ans.equals("yes") || ans.equals("yup")) {

ans="yes";

}

**else** **if**(ans.equals("n") || ans.equals("no") || ans.equals("nope")) {

ans="no";

}

**else** {

ans = **null**;

}

**return** ans;

}

}

**Output :**

Hello!!! I am an disease prediction Expert System

What's your name? : Aashika

what's your gender?(m/f) : f

Please answer the following questions to find out the disease and its cure

For yes/no type questions kindly type y for yes and n for no

When prompted with options, enter space seperated integer values corresponding to all the options which apply to you.

Do you suffer from red eyes? yes/no : n

Are you suffering from fatigue? yes/no : y

Are you having shortness of breath? yes/no : y

Are you having loss of appetite? yes/no : n

Do you suffer from fever? Select from options

0: None

1: Normal Fever

2: Low Fever

3: High Fever

Your Choice: 1

Normal\_Fever

Are you suffering from chest pain? yes/no : n

Are you suffering from abdominal pain? yes/no : n

Are you suffering from sore throat? yes/no : n

Are you having shaking chills? yes/no : n

Are you suffering from rashes on skin? yes/no : n

Did you vomit or feel like vomiting(Nausea) yes/no : y

Are you having chills sometimes with shaking? yes/no : n

Do you cough frequently? yes/no : y

Are you having body aches? yes/no : y

Are you experiencing headache? yes/no : y

Are you experiencing sore throat and painful mouth sores? yes/no : y

Did you lose your sense of smell and taste considerably? yes/no : y

Are you experiencing Diarrhea? yes/no : y

You might be suffering from Corona Virus

This conclusion is reached because you show symptoms among the following:

1 : Fever

2 : Fatigue

3 : Shortness in breath

4 : Nausea

5 : Chills

6 : Cough

7 : Body aches

8 : Headache

9 : Sorethroat

10 : Diarrhea

11 : Loose sense of taste/smell

**Output Screen shot :**

