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CIS129

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### Final Project - Illness Identifier

#### Project goal:

For my final project, I have chosen to research and outline an Illness Identifier. An Illness Identifier could serve as a tool for those who may need assistance or guidance in determining the symptoms they are experiencing. The identifier is not meant to replace a doctor but merely to help find a possible explanation. The program should ask the user a series of questions, and based on the responses, the program will determine possible illnesses or causes.

#### Related applications:

- MayoClinic Symptom Checker
- WebMD Symptom Checker

#### Presentation:

- Begin with program idea and summarize its utility (justify)
- Show examples of current software solutions and evaluate effectiveness (and accuracy)
- Provide flow chart of user interface and program flow
- Examples of my app design and user interaction
- Include pseudocode and any code (+ github)

Flow of program:

- Begin by prompting user for input to gather patient info. Such as, birthdate, height, weight, medications, or previous conditions. (file for patient record)
- Provide disclaimer that program is only to aid in possible explanation and to contact a licensed physician if your health is at risk.
- Ask patient what category of symptoms they are experiencing, or multiple. Such as, respiratory, physical pain, headache, digestive, and so on.. (input loop to add more symptoms)
- Using outside research, code program to detect similarities in symptoms of various illnesses
- If an illness has 3 or more symptoms in common with patient, add it to list of possible causes (track % of similarities for most likely list at end)
- Provide a list of most likely to least likely cases following the interview
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Pseudocode:

```

begin
import conditions file
#gather patient info
input age, weight, gender
  #get patient history
input current medications, relevant medical history
  #account for gender-specific conditions
create empty list relevantConditions
copy all conditions to list if value of condition is both genders
if patientGender is male
  update relevantConditions with male values
if patientGender is female
  update relevantConditions with female values
#gather symptoms
display body diagram appropriate to gender
allow user to choose section experiencing symptom
create empty list patientSymptoms #use to track all symptoms
create variable symptomAccuracy #use to track accuracy
display list of symptoms related to chosen body section
display initial symptom-to-cause accuracy percentage bar # 0%
while user wants to add symptoms:
  allow user to choose symptom
  if user chooses a symptom:
    append symptom to patientSymptoms
    #calculate likelihood bar
    update symptomAccuracy if symptom matches cause
    calculate new accuracy percentage
    display updated accuracy percentage bar
  ask if user wants to add more symptoms
end while
#present results
function presentResults
create empty list possibleCauses
for each condition in relevantConditions:
  if condition has >= two symptoms matching with patientSymptoms
    append condition to possibleCauses
  display results from possibleCauses in order
  display likelihood bar of accuracy percentage
end

```

## App Design:

- After getting the info, display the body diagram
- A clickable list of symptoms, highlighted with a checkmark to indicate it is chosen
- Dynamic likelihood bar
- Continue button to move on from adding symptoms
- after symptoms are chosen, present causes in order from most likely to least likely
- Each cause is clickable with a drop-down arrow on the side; once clicked, it provides further information about the condition, including other symptoms, causes, and treatments.
- Include helpful resources for users to reach out to.
- Include a disclaimer that this app is just for assistance, etc...

WebMD. *Symptom Checker*. WebMD Symptom Checker, <https://symptoms.webmd.com/>.

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Mayo Clinic. *Symptom Checker*. Mayo Clinic Symptom Checker,

<https://www.mayoclinic.org/symptom-checker/select-symptom/itt-20009075>. Accessed 9

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“The Evolution of Telehealth: Where Have We Been and Where Are We Going?” *NCBI*, 2012,

<https://www.ncbi.nlm.nih.gov/books/NBK207141/>. Accessed 9 December 2024.