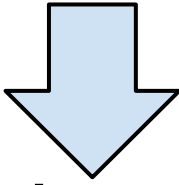## Part 1: Initialization

Disease1 name \t symptom1 \t symptom2...

Disease2 name \t symptom1 \t symptom2...

- 1 Disease (struct)
  - name
  - vector<Symptom *>

Multiple Symptom (struct)
  - name
  - Disease it belongs to

VectorContainer<Disease *>

(a.k.a vector<Disease *>)

Part 2: Search
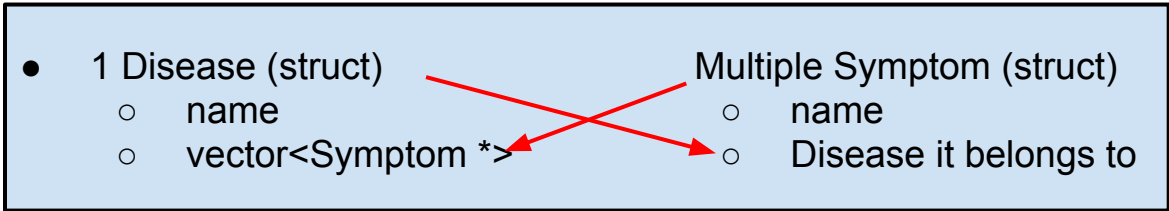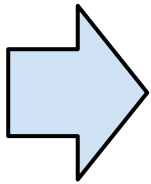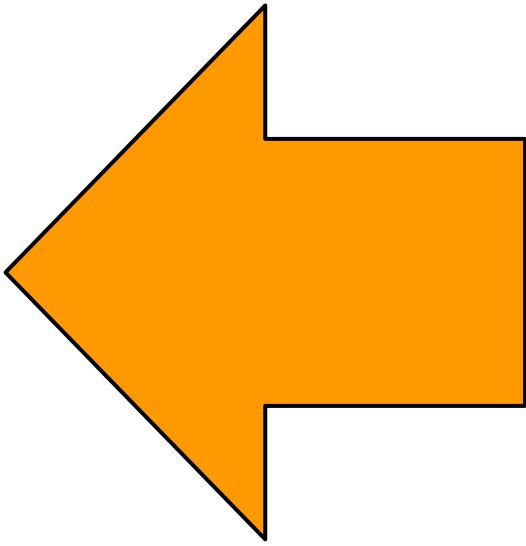
User inputs "I have a high fever"

high fever

For loop will loop through diseases, in turn going through symptoms, to see if it can find matches.

VectorContainer<Disease *>

Brain tumour	Common cold	Liver failure	Mad Cow Disease

vector<Symptom *>

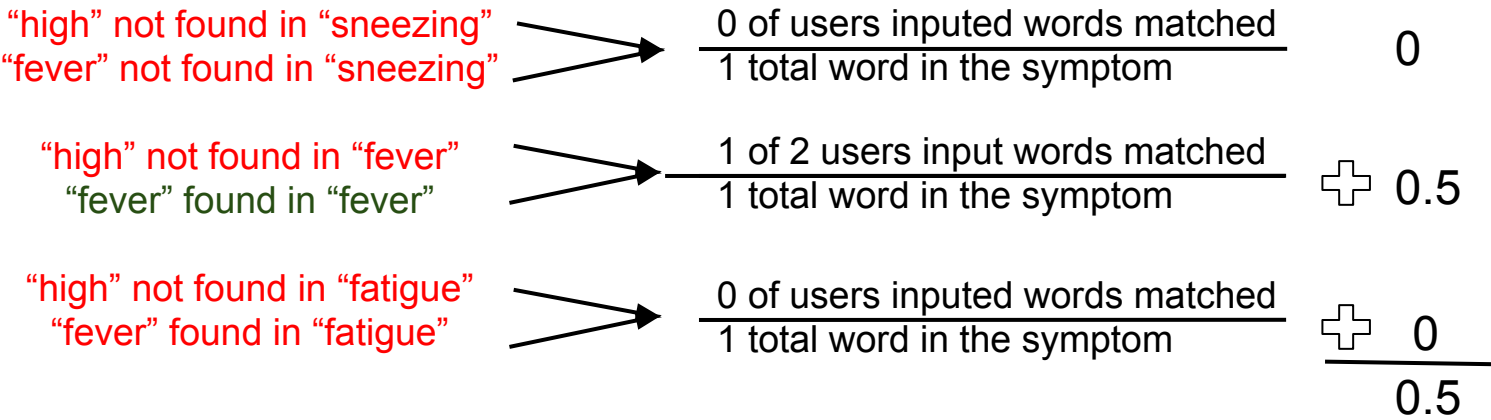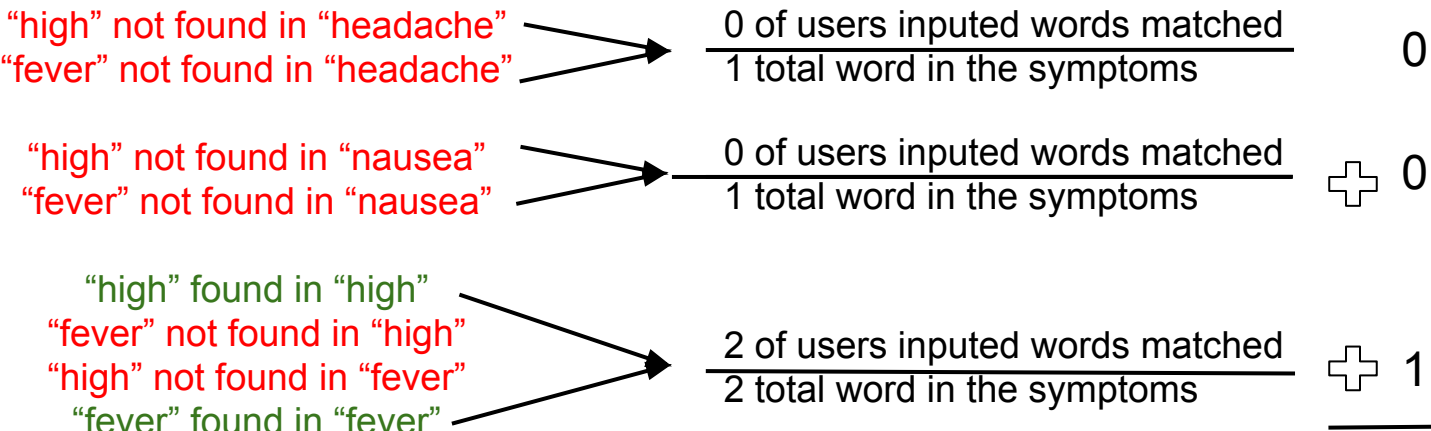| Headache	Nausea	High Fever

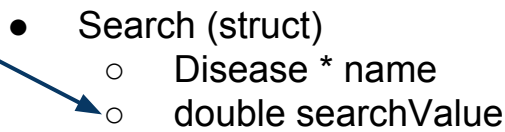(Sneezing, fever, fatigue)

(Abdominal pain, vomiting)

(Becoming a cow)

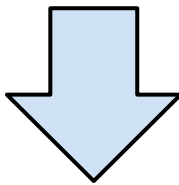Because searchValue = 0, we don't add these to the return vector

Here, we will split the user input into individual words, remove words like "I", "have" etc and then compare each word that the user typed in ("high" first and then "fever") with each word in symptoms

"high" not found in "headache"
"fever" not found in "headache"
→ $\frac{0 \text{ of users inputed words matched}}{1 \text{ total word in the symptoms}}$ → 0

"high" not found in "nausea"
"fever" not found in "nausea"
→ $\frac{0 \text{ of users inputed words matched}}{1 \text{ total word in the symptoms}}$ ➕ 0

"high" found in "high"
"fever" not found in "high"
"high" not found in "fever"
"fever" found in "fever"
→ $\frac{2 \text{ of users inputed words matched}}{2 \text{ total word in the symptoms}}$ ➕ 1

1

"high" not found in "sneezing"
"fever" not found in "sneezing"
→ $\frac{0 \text{ of users inputed words matched}}{1 \text{ total word in the symptom}}$ → 0

"high" not found in "fever"
"fever" found in "fever"
→ $\frac{1 \text{ of 2 users input words matched}}{1 \text{ total word in the symptom}}$ ➕ 0.5

"high" not found in "fatigue"
"fever" found in "fatigue"
→ $\frac{0 \text{ of users inputed words matched}}{1 \text{ total word in the symptom}}$ ➕ 0
0.5

Because this value is > 0 this means that the search was successful

- Search (struct)
  - Disease * name
  - double searchValue

Because this value is > 0 this means that the search was successful
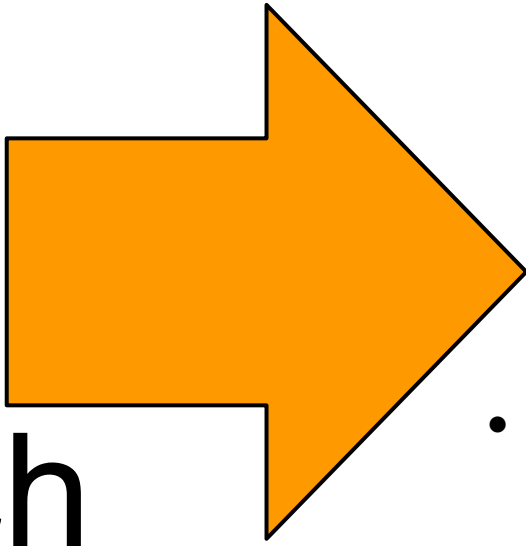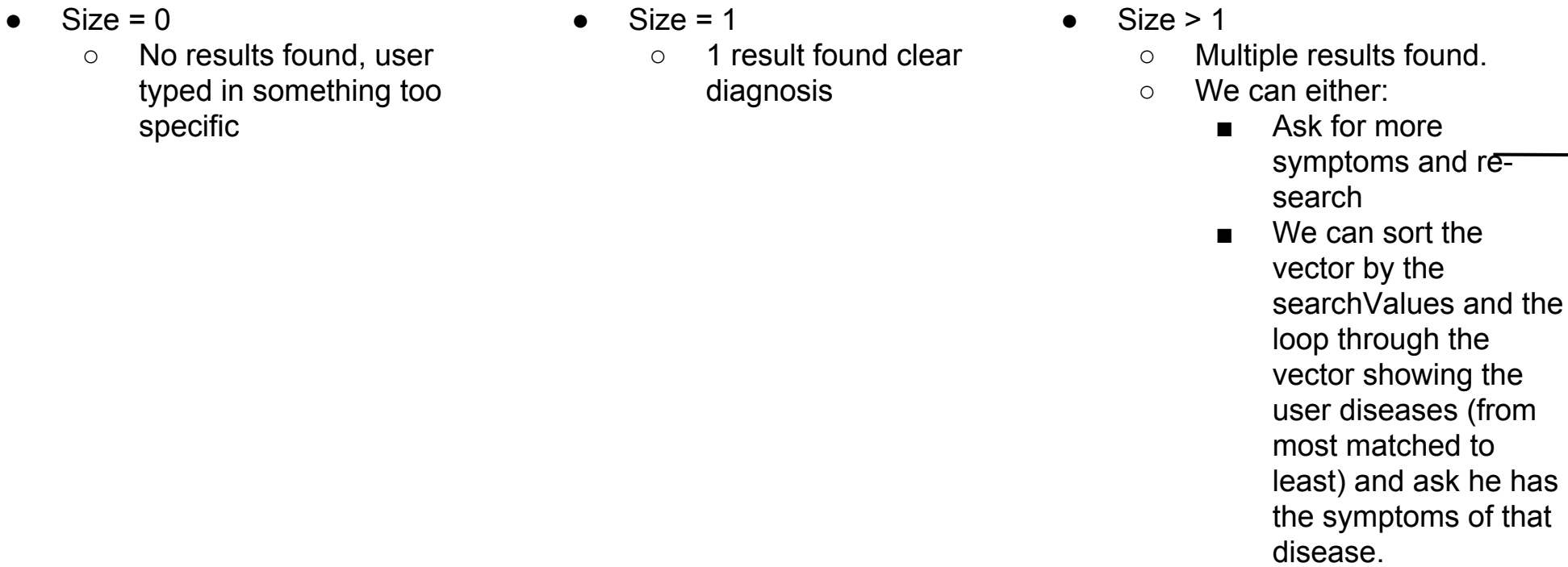
Added to a vector to return:
VectorContainer<Search *>

VectorContainer<Search *>

(a.k.a vector<Search *>)

Part 3: Post-Search

- Size = 0
  - No results found, user typed in something too specific
- Size = 1
  - 1 result found clear diagnosis
- Size > 1
  - Multiple results found.
  - We can either:
    - Ask for more symptoms and re-search
    - We can sort the vector by the searchValues and the loop through the vector showing the user diseases (from most matched to least) and ask he has the symptoms of that disease.