

COVID-19 Information Application – Dr. Racket

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What started out as a simple questionnaire, I was able to turn into a small NLP and live data retrieval tool for COVID-19 related information in the Windsor-Essex area.

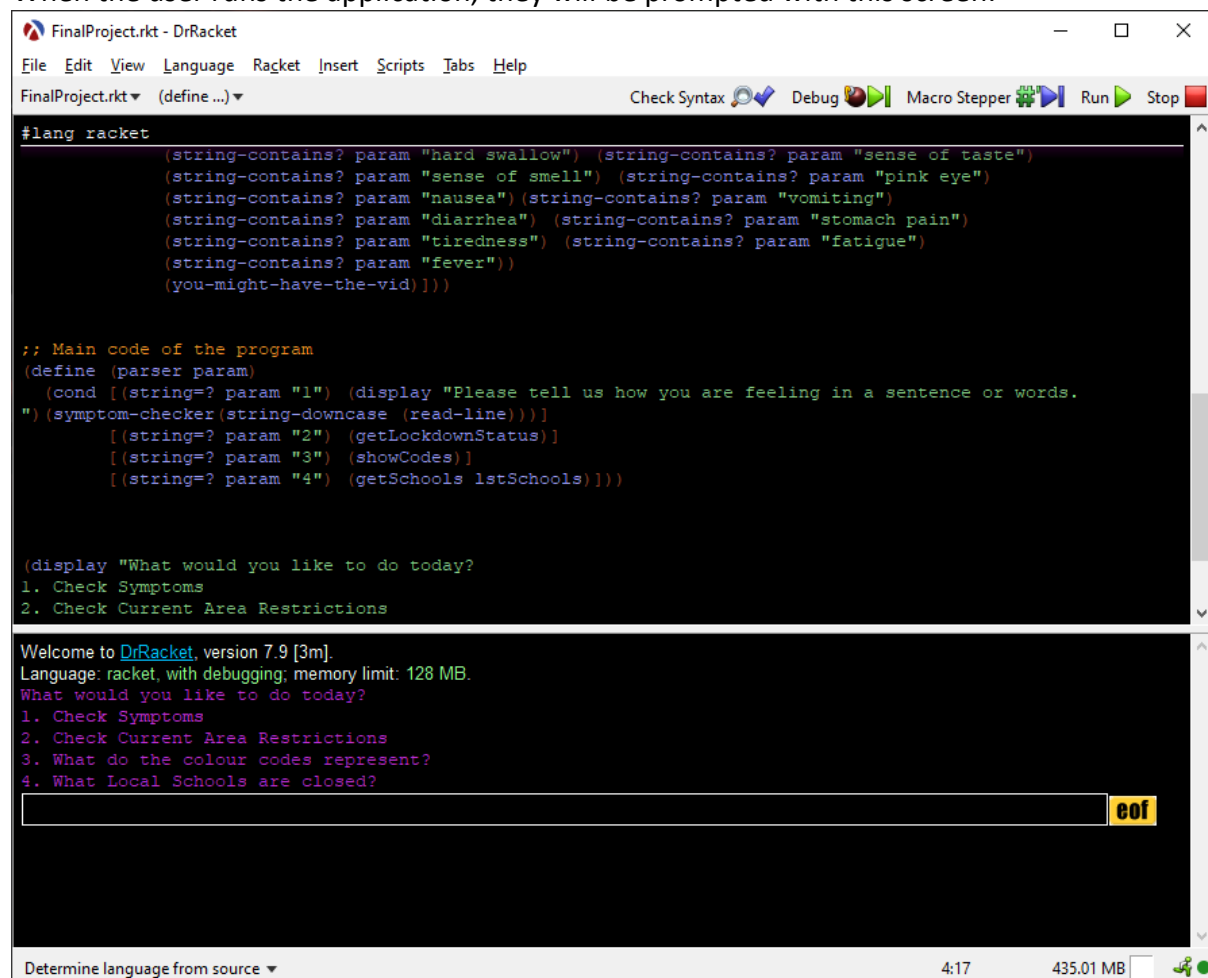
The application is partial AI, in the sense that it can do some Natural Language Processing by checking for keywords in a string and presenting the user with necessary information regarding their input. The application is also able to understand a user's input and fetch live COVID-19 data from the web regarding a few topics.

After some extensive research, I was able to figure out a way to do a web scrape on websites. This allowed me to pull the live COVID-19 related data into the app. I do this by scraping the HTML of the whole website and creating my own lists of constants to compare the source code to. If any of these are a match, using recursion, I output those values in a clean way to the user. This required me to have a separate constants file with various definitions there as to not clutter up the main file.

Initially, I wanted to build a much more sophisticated application using Hadoop and PySpark to develop a Stock Prediction model, but having never used the languages, I was worried I would not be able to finish the project in time. Thus, I had to opt for an easier solution, but try to make it increasingly more challenging with every additional implementation.

Application run through:

When the user runs the application, they will be prompted with this screen:



```
#lang racket

(string-contains? param "hard swallow") (string-contains? param "sense of taste")
(string-contains? param "sense of smell") (string-contains? param "pink eye")
(string-contains? param "nausea") (string-contains? param "vomiting")
(string-contains? param "diarrhea") (string-contains? param "stomach pain")
(string-contains? param "tiredness") (string-contains? param "fatigue")
(string-contains? param "fever")
(you-might-have-the-vid)))

;; Main code of the program
(define (parser param)
  (cond [(string=? param "1") (display "Please tell us how you are feeling in a sentence or words.
") (symptom-checker(string-downcase (read-line)))]
        [(string=? param "2") (getLockdownStatus)]
        [(string=? param "3") (showCodes)]
        [(string=? param "4") (getSchools 1stSchools)]))

(display "What would you like to do today?
1. Check Symptoms
2. Check Current Area Restrictions

Welcome to DrRacket, version 7.9 [3m].
Language: racket, with debugging; memory limit: 128 MB.
What would you like to do today?
1. Check Symptoms
2. Check Current Area Restrictions
3. What do the colour codes represent?
4. What Local Schools are closed?

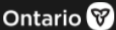
eof
```

The user has a list of four options of how to interact with the COVID-19 Informational System. Check for symptoms, check our current areas restrictions, see what the restriction codes mean, and see what local schools are closed down due to an outbreak.

Selecting the first option will prompt the user to enter in a sentence about how they feel. Depending on their answer, the bot will reply with useful information. If the user has mentioned some COVID-19 Symptoms, they will be informed of such and also redirected to the COVID-19 website for making an appointment to get tested.

```
Welcome to DrRacket, version 7.9 [3m].
Language: racket, with debugging; memory limit: 128 MB.
What would you like to do today?
1. Check Symptoms
2. Check Current Area Restrictions
3. What do the colour codes represent?
4. What Local Schools are closed?
1
Please tell us how you are feeling in a sentence or words.
I am feeling okay, I am a bit under the weather. I have a slight cough and a fever.
You have at least one common symptom of COVID-19. It is recommended to self-isolate and get tested.
Opening browser to check nearest testing location...
```


Sending user to this webpage via browser:

français

Last updated: December 14, 2020

COVID-19 testing locations

Find your closest Ontario testing location to get a COVID-19 test.



Book an appointment
You must make an appointment to get tested at all locations.

Before you go

[Check if you should be tested for COVID-19.](#)

If you can, bring your Ontario health card.

Call the location or your [local public health unit](#) if you have questions or cannot find one near you.

If the user enters information regarding serious health concerns and severe COVID-19 related system, it will instruct the user to seek help and call 911 immediately.

```
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1. Check Symptoms
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3. What do the colour codes represent?
4. What Local Schools are closed?
1
Please tell us how you are feeling in a sentence or words.
I'm experience some severe chest pain and cough
"Call 911 Immediately"
> |
```

Entering 2 will show the user the current lockdown restrictions. This was made when Windsor-Essex was in Red so I will include two screenshots of the transition from Red zone to Gray Zone. This was done using a live webscrape.

```
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Language: racket, with debugging; memory limit: 128 MB.
What would you like to do today?
1. Check Symptoms
2. Check Current Area Restrictions
3. What do the colour codes represent?
4. What Local Schools are closed?
2
"Red - Weekly incidence rate of more than 100 cases per 100,000 people and a positivity rate of more than 10 per cent"
>
```

```
Welcome to DrRacket, version 7.9 [3m].
Language: racket, with debugging; memory limit: 128 MB.
What would you like to do today?
1. Check Symptoms
2. Check Current Area Restrictions
3. What do the colour codes represent?
4. What Local Schools are closed?
2
"Gray- Lockdown"
> |
```

Entering 3 will show the user what each colour code represents.

```
What would you like to do today?
1. Check Symptoms
2. Check Current Area Restrictions
3. What do the colour codes represent?
4. What Local Schools are closed?
3
Green - Weekly rate of less than 10 cases per 100,000 people and a positivity rate of less than one per cent
Yellow - Weekly rate of 10 to 39.9 cases per 100,000 people and a positivity rate of one to 2.5 per cent
Red - Weekly incidence rate of more than 100 cases per 100,000 people and a positivity rate of more than 10 per cent
Orange - Weekly incidence rate of 40 to 99.9 per 100,000 people and a positivity rate ranging from 2.5 to 9.9 per cent
Gray- Lockdown
> $|
```

And lastly, entering 4 shows the user what current local schools are experiencing a closure due to a COVID-19 Outbreak. This was done using a live webscrape.

```
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Language: racket, with debugging; memory limit: 128 MB.
What would you like to do today?
1. Check Symptoms
2. Check Current Area Restrictions
3. What do the colour codes represent?
4. What Local Schools are closed?
4
"F.W. Begley"
> |
```