Assignment #2
COEN164
spring 2021

Question 1.

Define a string using either literal or “here document”, for example, the following variable “str” is defined with a “here document”

```
str = <<EOS
Facebook and its founder must release documents and electronic
correspondence to a defense lawyer whose client has fled from criminal
charges that he falsely claimed a majority ownership in the social media
giant, a federal judge said Friday.
EOS
```

(you can also use %{ } to define string)

then open the String class, add a method to calculate number of occurrence of any given word or string within this "str" string.

if you pass nothing, then it will return a hash with number of occurrences for every word

for example: count_word(“**and**”)

will return: 2

str = %{two, three, two, three, one three}

str.count_word( ), will return: {“one"=>1, "two"=>2, three”=>3}

Question 2.

Define an array of student record, for example,

```
students = [
        {:firstname => "John", :lastname => "LastnameJohn",  :phonenumber => 123456789},
        {:firstname => "Ken", :lastname => "Lastnameken",  :phonenumber => 456734244},
        {:firstname => "Marisa", :lastname => "lastnamemarisa",  :phonenumber => 443234567},
        {:firstname => "Ken", :lastname => "Kenlastname",  :phonenumber => 456734244}
]
```

write a Search class, the instance method of its object is able to query student,

For example: find all the record with first firstname being “ken”:

obj.search_students(students, firstname: “ken”), it will print:

```
First Name  Last Name      Phone#

Ken           Lastnameken  456734244
Ken           Kenlastname   456734244
```

Question 3.
Write a class for compressing a string. When you create an object of this class, you pass a string argument, then the object is initialized with the compressed result of this string (that is, to remove duplicate words) as the state of the object. The compressed result will have two arrays: an array for each word of the initial string and an array for index.

for example: assuming the name of your class is Compress

to create an object, you can call like this:

obj = Compress.new(“i love you but do you love me”). #there are duplicate words in it

then there will be two instance variables created inside the object to hold two values:

```
  [“i”, “love”, “you”, “but”, “do”, “me”]          #  duplicate word removed (compressed)

   [0, 1, 2, 3, 4, 2, 1, 5]      # index to the original array to  represent original string
```

add instance method to return the original string (not compressed)

Question 4.

A template is a HTML file with Ruby code inside. The Ruby code is marked by <% %>.
or if a line start with %, then the whole line is ruby code

For example, the following is an template file:

```
<%= simple_form_for @project do |f| %>
  <%= f.input :name %>
  <%= f.input :description %>
  <h3>Tasks</h3>
  <div id='tasks'>
    <%= f.simple_fields_for :tasks do |task| %>
      <%= render 'task_fields', :f => task %>
    <% end %>
    <div class='links'>
      <%= link_to_add_association 'add task', f, :tasks %>
    </div>
  </div>
  <%= f.submit 'Save' %>
<% end %>
```

write a class, the object of this class has a "template" attribute to store the template and an instance method to “filter” this template, so that all ruby code are removed and the filtered string is returned.

You can define your string using either here document or normal string quotation %{ }

Create object, then filter the template and return the filtered string.

Question 5.

Following is a conversation between ADVISOR and STUDENT in a text file. Each line either starts with ADVISOR or STUDENT or 5 spaces.

Write a program to read this file and print out only conversation by ADVISOR

(including all text between ADVISOR and STUDENT)

ADVISOR: Now, then, Mr., uh, Vickstad. How can I help you?

STUDENT: Well, I'm thinking about transferring, but I'm, I'm not sure ...
I was hoping you could help me make a decision.

ADVISOR: I'll try. Where are you thinking of transferring to? And why do
you want to leave Kryptos U?

STUDENT: Um...I'm thinking of going to Central University, because it's
in my hometown. I've uh, been kind of homesick here this year, and
I haven't made many friends...I just feel so lonely. So, I thought that
uh, maybe, it'd be better to be closer to my parents and friends and
all.

ADVISOR: I see. And would you keep the same major if you transferred?
What is it…business administration?

STUDENT: Yeah, I would. The credits I've earned here will transfer to
Central. I've already checked.

ADVISOR: May I ask why you chose to come to Kryptos University in the
first place?

STUDENT: Sure. Um, well, the main reason is you have a great business
school. And the second reason is that I...I wanted to get away from
home.

ADVISOR: You're right, Mr. Vickstad, we do have an excellent business
school. But, so does Central. The thing is, you've got almost a year
under your belt here now. At Central, you'll be starting from scratch.

STUDENT: Yeah, I know that. But I'm a little bit familiar with Central,
'cuz I had older friends who went there, and I visited it before I came
here.

ADVISOR: You know, freshman year is usually the hardest. I remember how homesick I was my first year. I'll tell you, I was ready to pack it in after the first two weeks. But the longer I stayed, the more comfortable I felt. By senior year, I was glad I chose to stay.

STUDENT: Really? Did it get a lot better your sophomore year?

ADVISOR: Yes, it did. You might well find the same is true for you. Also, even though your credits here will transfer, you will have to take extra courses, because Central has different requirements. You'll probably have to go to school for an extra year.

STUDENT: Hmm...I hadn't thought about that. I'll have to check into it. Maybe I should give it one more year. I mean, it's probably good for me to learn to live away from my family and friends, right? It'll make me stronger in the future.

ADVISOR: You can always move back there after you graduate. Of course, by that time you may not want to!

STUDENT: Thank you for all your help. I guess I'll find out the exact transfer requirements. You've given me a lot to think about.

ADVISOR: Don't mention it. If you feel like you want to talk more, don't hesitate to come back and see me.

Requirement:

- Define your classes in separate .rb files

- write a main .rb file to load these .rb files (use require_relative), and write code to create object and call method and output results.

- write comment

- your program should do some data check, for example, in question 1, check if parameter is string. in question 2, if no match, print out “no match is found”.

- use #! at the beginning of your program to make your main .rb program be able to run directly.