2020 Spring CSE305 - PS1 - Pangram

February 3, 2020

Assigned: Mon. 02/03/2020 **Due:** Thurs. 11:59:00pm 02/13/2020

Write a program with OCaml.

Your program will consist of a function that accepts two strings. Each string is the name of a file. The first is the name of an input file and the second is the name of an output file. Name the function **pangram**. (Note that your program can also make use of other helper functions. Just make sure function **pangram** takes as arguments the input file and output file that are specified in the program)

A pangram is a sentence that contains all the letters of the English alphabet at least once. For example, the quick brown fox jumps over the lazy dog is a pangram. The program you are to write must read in an input file (*input.txt* - a plain text file which contains 5 sentences), line by line and check if the line read is a pangram or not. If the sentence read is a pangram, it writes *true* to the output file. If it is not, it writes *false* to the output file.

For example, if *input.txt* contains:

```
we promptly judged antique ivory buckles for the next prize.
how quickly daft jumping zebras vex.
pottery is an art.
crazy fredrick bought many very exquisite opal jewels.
mr.  dumbledore is a funny name for a dog.
```

Then your program must output the following to the *output.txt*:

```
true
true
false
true
false
```

NOTE: Text that you write to the output file (*output.txt*) is case sensitive – please use all lower case when you write to the output file. Moreover, the example provided here is only representative and has been formatted to look good in pdfs , take a look at the sample input and output files for a precise formatting of what your program will actually read in and should output.

You can assume that *input.txt* contains all the letters are in lower case. Please use the sample test cases provided to test your code locally and submit your solution to Autolab for grading. For the purpose of this assignment, you do not need to do any specific error checking on the files. Your program can assume that the files exist (for the input file) or can be created or overwritten (for the output file).

Put your OCaml answers in a file named *pangram.ml*.

OCaml Specific Instructions

Your code should be written in pangram.ml. Create a *pangram* function that takes in two strings as arguments: the first for the name of input file and second for the name of output file. The function must adhere to the following type signature: `string -> string -> unit`.

Skeleton Code

Skeleton code with helper functions are provides within pangram.ml. Please read through the comments before you start to write your code. The assignment can be finished without modifying the helper functions. That is, the code you write does NOT have to deal with file IO directly. Mainly, the focus of your code should be how to processing the string and list.

OCaml Resources

To process string, you may find following function from Module String is helpful:

- contains : `string -> char -> bool`
  String.contains s c tests if character *c* appears in the string *s*

For further detail, please go to String module in the OCaml document. `https://caml.inria.fr/pub/docs/manual-ocaml/libref/String.html`

Submission Instructions

Late submissions will not be accepted. You can use Autolab to confirm your program adheres to the specification outlined. Only your last Autolab submission will be graded for you final grade. This means you can submit as many times as you want. If you have any questions please ask well before the due date.

Autolab account creation

An Autolab account has been already created for you. You can access Autolab at: `https://autograder.cse.buffalo.edu`. If you already have an account for Autolab from a previous course or another course you are taking this semester you can log in normally and you should see CSE305 in your list of courses.

If you have not used Autolab before you will need to go to: `https://autograder.cse.buffalo.edu/auth/users/sign_in` (Fig. 1) and click on the *Forgot your password?* link. The following page will prompt you for your email address. Use your UB email address with your UBIT id as this is the email used to create your account for you. You will receive an email with instructions on how to reset your password and log into Autolab. It is important you verify your account is working well in advance of the turn in date.

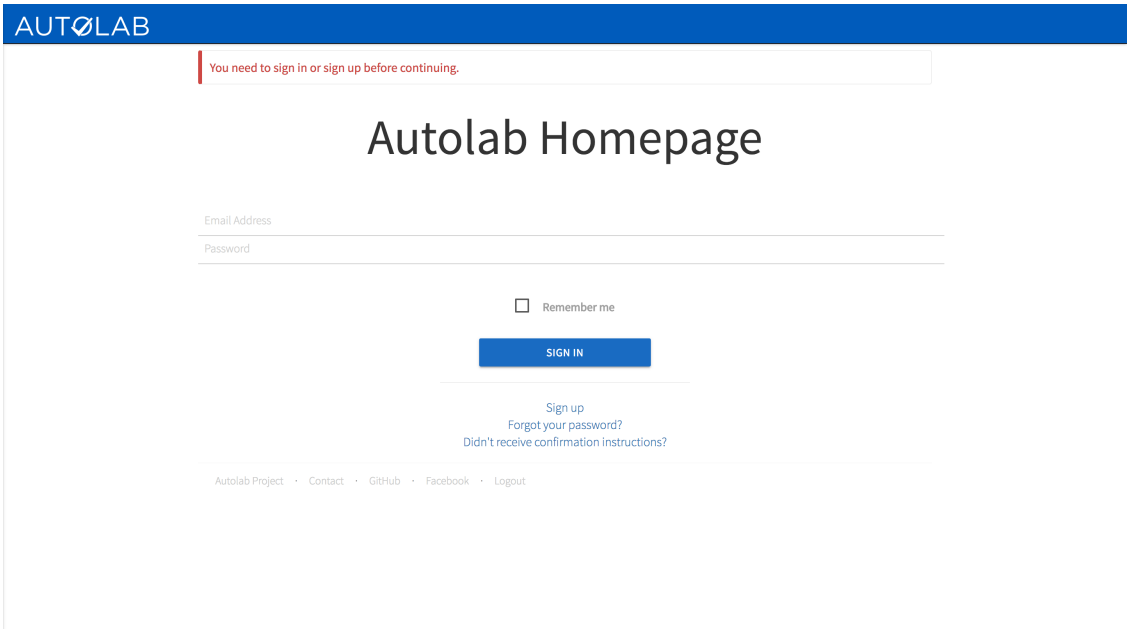

Figure 1: Autolab Home Screen

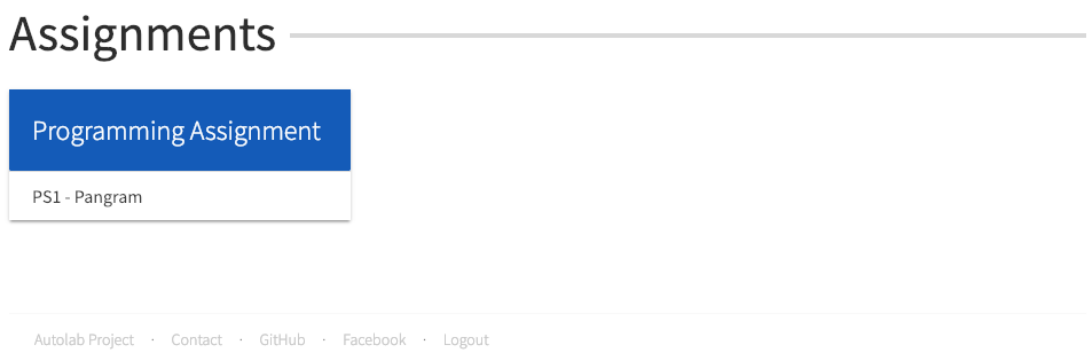

Figure 2: CSE305 Assignment 1 Autolab Overview

Autolab submission instructions

When you log into Autolab and pick the CSE305 course you will see an assignment called Pangram (Fig 2). You will need to submit a solution to receive full credit for the assignment.

Your program can be in a zip or tar archive, or just the .ml file if the program is self-contained. If you are submitting an archive, make sure the 'pangram' file is NOT in any folder. If you don't ensure this, your program will not be found by the grader and you will receive no credit. Of course, you can submit as many times as you wish before the deadline.

At the submission page, you will see a field **MaxInputs**. This indicates how many test files you want to try in this submission. Please enter a value from 1 to 15. There is 2 points for each test file, so we have 30 points in total.

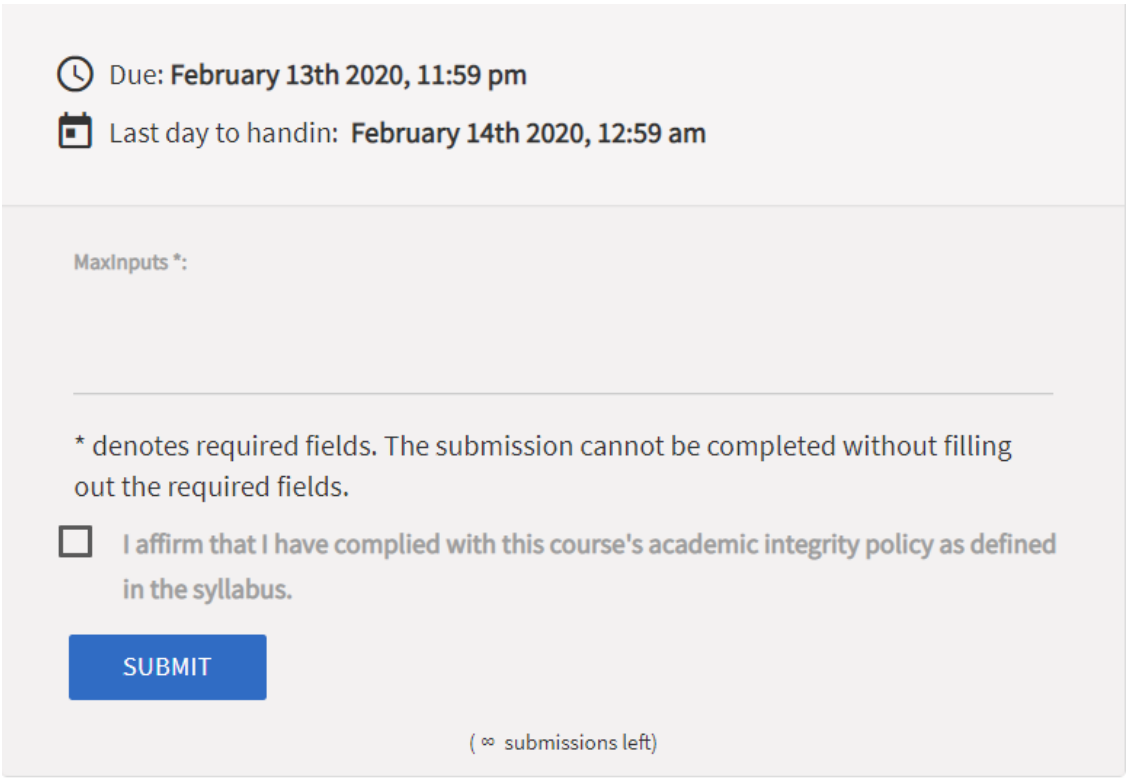

Figure 3: CSE305 Assignment 1 Autolab Submission

Additional Resources

For information on how to run the programming language compilers/interpreters:

- `https://wiki.cse.buffalo.edu/services/content/ocaml`

You will find resources on the Piazza course web site, under the Resources page. You might also find the following page, listing available CSE systems, helpful too: `https://wiki.cse.buffalo.edu/services/content/student-systems`