CS2613: Programming Languages Laboratory (FR02A)
Exploration Activity Instructions – Fall 2023

Exploration Activity 1:
Due: Wednesday, October 11th – 11:59PM

Exploration Activity 2:
Due: Wednesday, November 29th – 11:59PM

Goals

There are three goals of the Exploration Activities: (1) explore a package/library of your choosing, (2) be creative when programming, and (3) become familiar with a markdown language.

For more information about the markdown language used on GitHub, a link is provided on D2L.
https://docs.github.com/en/get-started/writing-on-github/getting-started-with-writing-and-formatting-on-github/basic-writing-and-formatting-syntax

Topic Selection

Start by doing some research on packages and libraries available for the languages covered in CS2613. When you find one that interests to you and that you have not used in-depth before, inform the course instructor to ensure that it is not a topic that will already be covered in CS2613. Some topics that are already covered in CS2613 are fine if you explore them in more depth than what is covered in CS2613. I am open to various topics and additional suggestions if they align with the goals of the Exploration Activities. You must pick a **different** language and type of package/library for each Exploration Activity (i.e., if you do a computer vision package for one Exploration Activity, you should explore a different topic for the other Exploration Activity).

Exploration Activity #2 Amendment

For EA2, students may choose one of the following options:

1. Continue with rules as they were prior to the amendment i.e., select a new language (of the four) and a new package.
2. Build upon EA #1 by adding a second **new** package to enhance the demo that was already made. Students may select the same language as they did for EA #1 if this option is selected.
3. Create a demo in any language in groups of 2, 3, or 4. There must be the same number of packages implemented as there are group members. **At least one new** package must be added and only one **new** package must be covered for the Package/Library Overview.

Sample Program

Once your topic has been approved, research the package/library in more detail. You will create a sample program that utilizes the package/library. Use at least a few basic functionalities of the package. The sample program should be considered *useful* as in, it serves a purpose beyond simply showing off the basic functionalities of the package/library. If you are unsure the depth of the example program, please contact me.

ReadMe File

Your program should have an accompanying ReadMe file on GitHub written in a markdown language that answers the following questions:

1. Which package/library does the sample program demonstrate?
2. How does someone run your program?
3. What purpose does your program serve?

4. What would be some sample input/output?

Note – you may wish to include images if you believe it would help.

Package/Library Overview

The repository should contain a separate markdown file that discusses the package/library selected. Again, this markdown should be easy to read, creative, and aesthetically pleasing. Questions that must be answered:

1. Which package/library did you select?
2. What is the package/library?
    - What purpose does it serve?
    - How do you use it?
    - This section should be the largest and go into lots of detail. Not everything here must be utilized in your sample program.
3. What are the functionalities of the package/library?
    - Snippets of code and examples of output should be given here.
4. When was it created?
5. Why did you select this package/library?
    - "Because it is interesting" is not a valid answer. Should elaborate more.
6. How did learning the package/library influence your learning of the language?
7. How was your overall experience with the package/library?
    - When would you recommend this package/library to someone?
    - Would you continue using this package/library? Why or why not?

References

All outside references should be provided via in-text citations. This can be done in markdown by you can attach a hyperlink directly to the in-text citation. You will be required to have references for this deliverable as all information should come from an external resource. Please select one of the following styles and keep it consistent throughout.

1. **Reference directly with text via hyperlink.**
   "The sun is approximately 150 million kilometres away from Earth [ref]."

2. **Reference given at end of page as a section/subsection. Each page should have its own list of references.**
   "The sun is approximately 150 million kilometres away from Earth [1]."
   …… (rest of text)

   References:
   [1] https://solarsystem.nasa.gov/news/1164/how-big-is-the-solar-system/

Rubrics

Sample Program and ReadMe

	3/3	2/3	1/3	0/3
Depth of Library or Package Usage	The student utilizes various functionalities of the library/package.	The student utilizes some functionalities of the library/package.	The student utilizes one functionality of the library/package.	The student does not use a library/package.
General Programming Skills	The program uses lots of other programming skills beyond simply the library/package.	The program uses various other programming skills beyond simply the library/package.	The program uses some programming skills beyond simply the library/package.	The program uses various little or no programming skills beyond simply the library/package.
Usefulness	The usefulness of the program is apparent and described thoroughly in the ReadMe.	The usefulness of the program is apparent but not explained well in the ReadMe.	The usefulness of the program is not apparent and not explained well in the ReadMe.	The program is simply using the functionalities of the package/library with no additional thought.
Examples Given	The ReadMe provides strong examples of input (where applicable) and output. Screenshots provided when possible.	Some examples are given, but not enough to exhibit full functionality of the program created.	Only few examples or only one example of I/O is given.	No examples of I/O given.
Other Requirements	Style of ReadMe is easy to read, markdown is used properly, and quality of writing is high.	Issue with one of three requirements mentioned in 3/3 solution.	Issue with two of three requirements mentioned in 3/3 solution.	No requirements are met or all requirements are met poorly.

Total:	/15

Overview

	3/3	2/3	1/3	0/3
Structure	The page shows consistent structure and organization throughout. Information is divided using sections, pages, etc.	Some issues with structure OR organization.	Some issues with structure AND organization.	Both structure AND organization are done poorly or not at all.
Understanding	The student shows deep understanding of the library/package. Questions are answered thoroughly.	The student shows understanding of the library/package, but it is neither deep or shallow.	The student shows shallow understanding of the library/package.	The student shows little understanding of the library/package. Questions provided are poorly answered.
Displaying Programming	Frequent programming examples are included and displayed in "language" specific code blocks.	Programming examples are included and displayed in "language" specific code blocks.	Programming examples are included and displayed in code blocks.	Either few programming examples are included or the programming is not included in code blocks of any kind.
Reflection	Student reflects on their learning of the package/library. Reflection questions are answered and elaborated upon.	Student reflects on their learning of the package/library. Reflection questions are answered.	Little reflection is given. Not all reflection questions are answered.	No reflection questions are answered or answered poorly.
Creativity	Student uses various markdown elements to increase the visual appeal of the page.	Student uses some markdown elements to increase the visual appeal of the page.	Markdown elements are implemented poorly.	No or very few markdown elements included. Page is mostly a wall of text.
Quality of Writing	Writing is professional and no errors are made.	Student attempted professional writing with some minor errors.	Errors with spelling and/or grammar are frequent.	Errors are frequent enough that it pulls away from the writing itself.
Reference Usage	References are used in all places they should be.	References are used in most places they should be.	References are used in some places they should be.	References are used in little or no places they should be or no references provided.
Reference Style	All references are consistently in the selected style. Must be in one of the styles required.	Most references are consistently in the selected style. Must be in one of the styles required.	Some references are consistently in the selected style. Must be in one of the styles required.	Reference style used does not match requested or no references provided.

Total:	/24

Exploration Activity Final Grade

Sample Program and ReadMe:	/15
Overview:	/24
Grand Total	/39
Out of 5:	/5