**07 – FOSS Project Structures**

**and The FarmData2 Community**

**Activities**

COMP190 – Tools and Techniques for Software Development

Dickinson College

**Name:**

FarmData2 is a free and open source software (FOSS) project that is being developed as a partnership between the computer science program and the Dickinson College Farm. The FarmData2 project will be central to our work through the rest of COMP 190 and to the project work in the COMP 290 course next semester.

In today’s activities you will learn more about the structure and content of FOSS projects and the FarmData2 project in particular. This will include some of the non-code elements of FOSS projects that support and protect the communities of contributors that make them possible. As projects grow and evolve these non-code elements benefit from regular review and refinement. Thus, some of the activities will ask you for input and your thoughts on them. Your feedback will be valuable in ensuring that the materials encountered by newcomers to the FarmData2 FOSS community are clear, welcoming, supportive and inclusive.

Then through the remainder of this activity, and a few others this semester, you will have the opportunity to make direct meaningful contributions to the FarmData2 community. If you return next semester for COMP 290, you will continue work on FarmData2 by fixing bugs and working on new features that customize it to the needs of the Dickinson College Farm and other similar small organic farms.

**Exploring some Mature FOSS Projects:**

FarmData2 is a fairly new project. But it aims to become a mature full-fledged FOSS project with active user and developer communities. In this section you’ll explore a few mature FOSS projects to give you a feel for what very successful FOSS projects look like. They will give you some comparison points and a basis for imagining the future of FarmData2. As FarmData2 is a new project, you’ll use your perspective and opinions to help to improve its present state and to shape its future.

1. The table below identifies a number of mature successful open source projects. Like FarmData2 these projects all aim to contribute in some way to the greater good. FOSS projects like these with broadly interpreted humanitarian goals are often referred to as Humanitarian Free and Open Source Software (HFOSS). For each project, find the URL of its primary web presence, its code repository (e.g. on GitHub). Read a little about the project and then give a few sentences describing what you understand the project’s mission to be and how it serves the greater good.

|  |  |  |  |
| --- | --- | --- | --- |
| **Project Name** | **URL** | | **Mission & Value to Greater Good** |
| **OpenMRS** | Web: |  |  |
| Repo: |  |
| **Fineract** | Web: |  |  |
| Repo: |  |
| **Sahana Eden** | Web: |  |  |
| Repo: |  |
| **Oppia** | Web: |  |  |
| Repo: |  |

2. Pick one of the projects above that is of the most interest to you and explore its website and code repository for about 15 minutes. Skim a variety of the documents and information that is available to try to learn more about the project, its purpose and its community.

Identify the project that you chose to explore and write a few sentences about what made that project appealing to you.

3. A project’s mission is often what draws new community members to the project. But how well the project is structured and run, how easy it is to learn about, and how welcoming it feels can affect whether new members engage or leave.

Now take on the mindset of a new developer who is considering engaging with this project. As that developer, focus not on the mission of the project, but on the way the project’s materials and resources are organized.

a. In a few sentences describe something that you liked about the way the project materials are organized and that might make you want to continue engaging with the community.

b. In a few sentences describe something that you did not like about the way the project materials are organized that made it hard to understand or learn about.

**FarmData2 Repository:**

Because FarmData2 is a younger open source project, it does not have a separate web site. Instead, it maintains both all of its information and its code in its GitHub repository.

4. Use the search features of GitHub from the GitHub homepage (<https://github.com/>) to find the *DickinsonCollege GitHub organization (i.e. user)*.

a. What is the URL of the DickinsonCollege organization page on GitHub?

b. What is the URL of the code repository for FarmData2 on GitHub?

5. When you visit a code repository in GitHub it displays a number of things:

* A table of files and directories that contain the code and information about the project.
* Information about the project to the right.
* If you scroll down, more extensive introductory information about the project.
* And many other things, that we’ll learn more about in the coming weeks.

Use the information displayed about the FarmData2 repository to answer the following questions.

a. Which file or folder in FarmData2 has had the most recent changes? How long ago were those changes made? If there are ties, pick one.

b. Look at the basic information displayed on the FarmData2 repository page. What is the purpose/mission of FarmData2?

c. If you scroll down, more detailed information about the project is displayed. Developers provide this information by placing it into a specific file in the repository, and GitHub automatically displays the contents of that file at the bottom of the page. This provides a uniform way for projects to provide introductory information.

Which file contains the introductory information about a project that GitHub displays at the bottom of the repository page?

**Starting a New Open Source Project:**

We won’t be starting a new open source project, but there are some things that all projects should do right at the start that continue to be important throughout a project’s lifetime. This section focuses on identifying and seeing some of those things in practice. The document “*Starting an Open Source Project*” from the Opensource.guide discusses some of these things and highlights the ways that successful projects tend to organize themselves:

* <https://opensource.guide/starting-a-project/>

In the activities below you will apply what you learn from this document recognize, locate, understand and critically evaluate some the resources in FarmData2.

Before you begin, please note that unlike other course projects you may have worked on, FarmData2 is a real live project, and its development does not necessarily conform to a class schedule. We come to it in the state that it is in right now. It will be imperfect and incomplete. It will be changing and improving. This is what makes it exciting. It also means that it is expected that you will find shortcomings, flaws and mistakes in it. Identifying and communicating these findings helps to improve the project. Some of the questions ask for your thoughts on FarmData2. Please don’t hesitate to provide critical constructive positively phrased feedback. Being critical here is not a negative, it is exactly the type of input from the community that will helps open source projects, like FarmData2 to move forward.

6. Skim thorough Sections 1 and 2 for now. They will provide the context and background for understanding the remainder of the article.

a. The article highlights three reasons that people might choose to open source their project. What are those three reasons?

b. Many people have argued that open source software holds some potential to help improve diversity, equity and inclusion (DEI) in computing. Write a few sentences giving your thoughts on how the reasons identified in part a might enable open source to address DEI issues in computing.

**Documentation in an Open Source Project:**

Successful open source project share many commonalities. Some of these have evolved as conventions within the open source community, while other have been driven by the need to grow and support the communities around open source projects.

Section 3 of “*Starting an Open Source Project*” has the title “*Launching your own open source project*” and it talks about commonalities in the types of documentation that most successful projects have. You will be using the information from that section to answer the questions below.

7. What are the four types of documentation does the beginning of Section 3 identify as things that every open source project should have?

The following sub-sections will take a deeper look at how and where projects typically provide the types of documentation you identified in #7.

*Open Source License:*

8. Based on the “Choosing a License” sub-section of “*Starting an Open Source Project,*” what is the purpose of the open source license?

9. All open source projects must have a license. If they do not have a license, they are not open source because the original author has not granted permission for anyone to use the copyrighted material. This question asks you to identify the license(s) that apply to FarmData2 and to the project you selected in question #2.

In the License column give the name of the license that apply to the code or to other content (e.g. documentation) in the project. Note: Some projects may use a single license that covers both code and documentation. If that is the case, you may list “Same” in the “Other” column.

In the Location column give the location where the license information was found. If the information appears in a file in the project’s repository give the URL for that file. If the information appears somewhere else, briefly describe where it was found.

|  |  |  |  |
| --- | --- | --- | --- |
| **Project** | **License** | | **Location** |
| **FarmData2** | Code: |  |  |
| Other: |  |  |
| **<chosen project>** | Code: |  |  |
| Other: |  |  |

10. Because open source projects, like FarmData2, accept contributions of new code and documentation from community members, there are some additional licensing concerns. For example, when FarmData2 receives a contribution from a community member, what ensures that FarmData2 is allowed to release that contribution under the license that it uses? Different projects answer this question in different ways. The way that FarmData2 handles this is described in the “Contributions” section of the LICENSE.md file.

a. Contributors to FarmData2 must certify that their contributions satisfy the terms of what document?

b. Click on the link to the document that you identified in part a and read it. Now imagine that you are working on FarmData2 and would like to contribute code that implements a new feature. For each of the following statements, indicate the clause of the document - (a), (b) or (c) - that would apply to your contribution:

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  | **Description** | **Applicable Clause** |  |
|  | Instead of writing all of the code from scratch you find some useful code in another open source project an incorporate that into your contribution. |  |  |
|  | You have individually written and tested all of your code. |  |  |
|  | You talk to some friends about you feature. Later, one of them sends you a function that they had written and tells you that they wrote it and that you can use it if you find it useful. |  |  |
|  |  |  |  |

c. Optional: Consider the LICENSE.md file for FarmData2 that you have been reviewing. Is there anything that could be communicated more clearly? Is there anything missing that should be there? Is there anything there that could be omitted? Are there any other ways you might improve this file? These are just examples of the types of questions you might answer here. You are not required to answer all or any of these questions. Nor are you limited to these questions in your comments. However, any thoughts you are willing to provide will be appreciated and helpful in improving FarmData2.

*README:*

11. Based on the “*Writing a README*” sub-section of “*Starting an Open Source Project,*” what is the purpose of the README file?

12. Using the “*Writing a README*” sub-section of “*Starting an Open Source Project,*” fill in the “Question” column below with the four questions that a README should answer. Then complete the table for FarmData2 and for the project you selected in question #2 by indicating [ yes| no | partially ] for each question to indicate if the project’s README answers that question.

|  |  |  |
| --- | --- | --- |
|  | **Project** | |
| **Question** | **FarmData2** | **<chosen project>** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

13. Optional: Compare the README files for FarmData2 and for your chosen project. Is there anything in your project’s README for which FarmData2 should include similar information? Is there anything in the FarmData2 README that could be communicated more clearly or more completely? Is there anything in the FarmData2 README that should be omitted? Are there any other ways you might improve this file? These are just examples of the types of questions you might answer here. You are not required to answer all or any of these questions. Nor are you limited to these questions in your comments. However, any thoughts you are willing to provide will be appreciated and helpful in improving FarmData2.

*Contributing Guidelines:*

14. Based on the “*Writing your contributing guidelines*” sub-section of “*Starting an Open Source Project,*” what is the purpose of having a contributing guidelines document?

15. Find the document that contains information about contributing to FarmData2 and for the project you selected in question #2. Then, fill in the Contributing Guidelines column in the table below. Give the location where the information was found. If the contributing guidelines information appears in a file in the repo give the URL of that file. If the information appears somewhere else, briefly describe where it was found.

|  |  |
| --- | --- |
| **Project** | **Contributing Guidelines** |
| FarmData2 |  |
| <chosen project> |  |

16. Use the “*Writing your contributing guidelines*” sub-section of “*Starting an Open Source Project*” to fill in the “Question” column below with the three main types of information that contribution guidelines should provide. In the projects columns, indicate [ yes| no | partially ] for each question to indicate if the project’s guidelines document identified above provides that information.

|  |  |  |
| --- | --- | --- |
|  | **Project** | |
| **Contribution Guideline** | **FarmData2** | **<chosen project>** |
|  |  |  |
|  |  |  |
|  |  |  |

17. Optional: Compare the contribution guideline for FarmData2 and for your chosen project. Is there anything in your project’s guidelines for which FarmData2 should include similar information? Is there anything in the FarmData2 guidelines that could be communicated more clearly or more completely? Is there anything in the FarmData2 guidelines that should be omitted? Are there any other ways you might improve this file? These are just examples of the types of questions you might answer here. You are not required to answer all or any of these questions. Nor are you limited to these questions in your comments. However, any thoughts you are willing to provide will be appreciated and helpful in improving FarmData2.

*Code of Conduct:*

18. Based on the “*Establishing a code of conduct*” sub-section of “*Starting an Open Source Project,*” what is the purpose of a code of conduct in an open source project?

19. Complete the table below for FarmData2 and for the project you selected in question #2. In the Code of Conduct column, give the location where the information was found. If the Code of Conduct information appears in a file in the repo give the URL to that file. If the information appears somewhere else, give a brief description of where it was found.

|  |  |
| --- | --- |
| **Project** | **Code of Conduct** |
| FarmData2 |  |
| <chosen project> |  |

20. Read the code of conduct for FarmData2 and answer the following questions:

a. What is the code of conduct called?

b. What two pledges does the code of conduct require of those in the community?

c. Who are the community leaders that are responsible for enforcing the code of conduct?

d. What are the four levels of enforcement?

e. This code of conduct was not created for FarmData2. What is the original source of this code of conduct?

21. Optional: As pointed out in the Starting an Open Source Project article, this particular code of conduct has been adapted by tens of thousands of open source projects to guide the behavior of their communities. That said, no policy is ever perfect. If you have concerns about this policy, you may describe them here. Or if you are more comfortable discussing them privately, you may contact any of the community leaders you identified in #20c. If you have no concerns, no answer is required for this question.

*How you write (and code):*

Read the “*How you write (and code) affects your brand, too!*” sub-section in Section 4 of “*Starting an Open Source Project.*” This sub-section talks about different ways in which the tone and style of what is written help to shape a project’s community. In particular, it is important to recognize that writing has on creating a welcoming, inclusive and supportive community. FarmData2’s leaders have attempted to communicate the desire for such a community through the writing in the main project documents. However, we recognize that we have limited perspective, experience and ability and thus we welcome input and constructive criticism.

22. As you have read the materials in the FarmData2 repository for this assignment:

a. Did you notice any instances of language or tone that are not reflective of a welcoming, inclusive and supportive community? If so, please point those out here and make suggestions for improvement, if you have them. Or if you are more comfortable discussing them privately, you may contact any of the community leaders you identified in #20c. If you have no concerns, no answer is required for this question.

b. Do you have any suggestion for more general changes or additions to the FarmData2 materials that would better reflect a welcoming, inclusive and supportive community? If you have no suggestions, no answer is required for this question.

**Optional:** To help us improve and scope these activities for future semesters please consider providing the following feedback.

a. Approximately how much time did you spend on this activity outside of class time?

b. Please comment on any particular challenges you faced in completing this activity.