

Project Initiation Document

CMS-2 Difference Report Generator

Rowan Ducks

Title: Plan for CMS-2 Difference Report Generator	Version: 1.0
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1 Background

ASRC Federal Mission Solutions (ASRC-FMS) currently has a program written in Fortran that checks CMS-2 input files for changes made. The program finds the differences between the two files (how many additions, subtractions, and comments) and then formulates a report containing this information. Because of the antiquated programming language used for this program, upkeep is difficult as very few programmers know the Fortran code well enough to work on it. The Rowan Ducks are proposing a plan to convert the Fortran program into a modern programming language, specifically Python.

2 Purpose and Intended Use

The purpose of this produce is to modernize the CMS-2 report generator, which is currently written in Fortran, so that it can be maintained and upgraded at a lesser cost in the future. As mentioned in the Background section, upkeep is difficult due to the few programmers who are proficient in Fortran. By creating a program with the same capabilities in a modern programming language (Python), ASRC-FMS will be able to better utilize their Fortran programmers by having less experienced programmers who are proficient in Python maintain and upgrade this new program.

2.1 Reasoning Behind Project

In the future, switching to a modern language is far more cost effective. This is described in greater detail in Section 6 and 6.1 on Cost.

3 Scope

The scope of this product specifically pertains to writing a new program that will take the place of the current program, which is written in Fortran, that finds the differences between the two CMS-2 files that are input and creates a report containing the differences found. This scope is specific to the program we are seeking to emulate, and does not include all other Fortran programs that ASRC-FMS may currently use.

3.1 Exclusions, Assumptions, and Limitations

One major limitation at this point in this project is that due to legal security clearance issues, ASRC-FMS cannot provide our team with the Fortran code that we are converting. Our initial plan was to deliver a working prototype of a rule-based Python framework to build an automated translation system. The goal of this framework would be reusability, so that ASRC Federal Mission Solutions would be able to use this same framework, with a few tweaks, to convert their other Fortran programs. Unfortunately, if we are not able to obtain the original Fortran code, we will be forced to go a different route and simply create a new program from scratch in Python.

The product must also be monetarily free, so we will seek to use open source software.

4 Requirements

A modern programming language must be used. Python has been given as a suggestion and while it is not a requirement that we use it, we have decided that we will write the program in Python. The final product must check through two CMS-2 input files and formulate a report that lists how many changes each user made (additions, subtractions, and comments). The report must be identical in format to the sample report provided to us by ASRC-FMS. The new Python report must also be populated by accurate information, which can be verified by asking Chris Bartley to run the same sample code as we are using and send us the report that is created by the Fortran program.

5 Timing

We are using 2 week Sprints for this project. Beginning Sprint 0 on Monday, January 30th, we will complete the project at the Sprint 5 Review on Monday, May 1st. This is a total of 12 weeks.

6 Cost

Due to the fact that the six members of the Scrum Team are students, there is no cost associated with their work for ASRC-FMS or Rowan University.

We estimate that our manager, Jack Myers, will spend 4 hours per week consulting with us regarding this project (2.5 hours in class, 1.5 outside of that). At an estimated pay rate of \$80.00/hour, that is a total of \$320.00/week, and since this is a 12 week project, it is a grand total of \$3,840.00 for Jack Myers on this project.

We estimate that our sponsors, Chris Bartley and Craig Sobieralski, will spend 2 hours per week consulting with us regarding this project (1 hour for each Sprint Review every other week, and 1 hour elsewhere answering questions, etc.). At an estimated pay rate of \$100.00/hour, that is a total of \$400.00/week, and since this is a 12 week project, it is a grand total of \$4,800.00 for Chris Bartley and Craig Sobieralski.

Altogether, that is a total of \$8,640.00 for the duration of the project.

6.1 Cost Benefit

For the current upkeep of the Fortran program that we are modeling, ASRC-FMS needs one programmer to spend two eight hour days each month on maintenance. That programmer is paid at a rate of \$150.00/hour. So, ASRC-FMS pays that programmer \$2,400.00/month to maintain the Fortran code. Over the duration of our project, that programmer will be paid \$7,200.00. This is less than the initial cost of our Python program.

However, the Python program is able to maintained by a less experienced programmer who is paid at a rate of \$75.00/hour. One month after deployment, he will have been paid \$1,200.00. This brings the Python project total up to \$9,840.00. In that same time period, the Fortran upkeep cost is \$9,600.00. Therefore, after one month, the Fortran program is still more cost effective.

Two months in, however, that changes. The Python project total increases to \$11,040.00. The Fortran upkeep increases to \$12,000.00. So, after just two months of using the Python program and phasing out of the Fortran version, ASRC-FMS saves just under \$1,000.00. Clearly, in the long run, there is huge savings in investing the money up front for the Python version. (NOTE: this an overestimate of cost for ASRC-FMS because they are not directly paying Jack Myers)

7 Solution Profile

When complete, the Python program will take in two CMS-2 code samples, count and categorize the differences, and formulate a report with format identical to the sample reports ASRC-FMS has provided to us.

8 Deliverables

With regards to documentation, we will deliver 6 technical documents. They are listed in the Supporting References in Section 13 of this document. In addition to this documentation, we will also be providing UML Diagrams.

We will have five 2-week sprints in this project, so we will be delivering a working software product at the end of each sprint. The final product is described in Section 7 (Solution Profile).

8.1 Training Impact

As in any new program, there will be a small learning curve when beginning use. We anticipate that users will spend an average of 2 hours learning how to use the Python program when it is first implemented.

8.2 Maintenance and Upgrade Impact

When it comes time for maintenance or upgrades, we anticipate that it will be more common for programmers to be familiar with a modern programming language such as Python, and therefore, ASRC-FMS may be able to utilize more cost efficient employees to maintain and upgrade this Python program.

9 Roles and Responsibilities

Describe the Roles and Responsibilities for developing, verifying, and implementing a Solution.

Name	Role	Responsibilities
Jack Myers	Manager	Steps in on an as-needed basis. Available for any questions we have.
Chris Bartley	Sponsor	Relay to Product Owner any necessary information, meet with team at each Sprint Review.
Craig Sobieralski	Sponsor	Relay to Product Owner any necessary information, meet with team at each Sprint Review.
Abigail Palen	Product Owner	Maintain Product Backlog, Prioritize PBI's for each Sprint.
Curtis Baillie	Scrum Master	Responsible for making sure the Scrum Team adheres to the values and practices of Scrum. Helps resolve any conflicts between team members.
Johan Burke	Development Team	Responsible for creation and delivery of the working product.
Chris Curreri	Development Team	Responsible for creation and delivery of the working product.
Matthew Gimbut	Development Team	Responsible for creation and delivery of the working product.
Tom Harker	Development Team	Responsible for creation and delivery of the working product.

10 Communications

The Product Owner, Abigail Palen will be responsible for all communication with our two sponsors at ASRC-FMS. If anyone on the Scrum Team has any questions, they will simply let Abigail know and she will either relay the question to our sponsors herself or connect the team member to the sponsor directly. The preferred method of communication for both the sponsors and Abigail is email.

For inter-team communications, Curtis Baillie has set up a channel in Slack where the Scrum Team is able to communicate freely and transparently with each other. In addition to the Slack channel, the Scrum Team meets for a daily scrum three times each week.

11 Progress Reporting

The Monday following the end of each Sprint, we have scheduled Sprint Reviews which include our sponsors from ASRC-FMS, Chris Bartley and Craig Sobieralski, along with our manager at Rowan University, Jack Myers. At these reviews, the Scrum Team will update our sponsors of our progress since the last review, and will seek out criticism and questions the sponsors may have. The chief goal of these Sprint Reviews is of course correction. See Section 14 for dates, times, and locations for each Sprint Review.

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In addition to our scheduled Sprint Reviews, we also have set up a Scrum Board on Trello which outlines what each team member is working on, and what is to come in the future. Our sponsors will be invited to view this board as an effort to be transparent with them at all times.

Finally, Johan Burke has set up a GitHub repository where our Scrum Team will be uploading all of our work as we complete it. We will invite our sponsors to this repository as well.

12 Terms and Definitions

The IT Glossary of Terms maintains the common terms in this document. Additional terms and definitions specific to this document are included below:

Term or Acronym	Definition
ASRC-FMS	ASRC Federal Mission Solutions

13 Supporting References

Identifier	Title
DOC-1	Project Initiation Document (this document)
DOC-2	Requirements Document
DOC-3	Design Document
DOC-4	Validation Plan, including Traceability Matrix
DOC-5	Test Plan, including Test Scripts
DOC-6	Implementation Plan, including Change Management, Training, etc.

14 Sprint Review Dates and Times

Title	Date	Time	Location
Sprint 0 Review	Monday, February 13, 2017	3:30 pm	Robinson Hall, Room 207
Sprint 1 Review	Monday, February 27, 2017	3:30 pm	Robinson Hall, Room 207
Sprint 2 Review	Monday, March 20, 2017	3:30 pm	Robinson Hall, Room 207
Sprint 3 Review	Monday, April 3, 2017	3:30 pm	Robinson Hall, Room 207
Sprint 4 Review	Monday, April 17, 2017	3:30 pm	Robinson Hall, Room 207
Sprint 5 Review	Monday, May 1, 2017	TBD	Robinson Hall, Room 207