Documentation and Improvements to a Flight Safety Risk Analysis Tool

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Background

The flight safety team utilizes an excel-based tool to facilitate a means of connection between the information shared by the PI and the Sounding Rocket Program Office (SRPO), and the RiskCalc Programs necessary input of column files. These files are then utilized by RiskCalc to determine various risk values for a given input. This code is written as a Visual Basic for Applications (VBA) code with Macros from excels macro feature. This is then used to generate XML code which RiskCalc utilizes to generate risk approximations.

Methods

- A Software Design Description (SDD) to detail the programmatic and data flow structure as well as the graphical interface methods, and a detailed delineation of the numerous sub methods
- This SDD also details the inter-relationships between the VBA, excel, and XML codes that are integrated into this tool
- XML ingestion through a proposed python script capable of reading the XML, and moving data into the correct cells of the template

Objectives

- Generate a descriptive document for the template and its subsequent macros/sub methods
- Generate a working document that details the programmatic and data flow structure within the template VBA code
- Generate a reverse method of the template for xml ingestion into the code

Payload Integration

Tour of Main Base

Results

- A 25-page SDD with details between the data design, interface design, and architecture design
- This SDD details all the programmatic and data flow structures within the VBA, excel, and XML code output with credence to the 57 sub methods
- A python module is being created with methods for ingesting certain chunks of data from the XML parse tree using the package beautifulsoup
- This module calls a main script which will propagate the excel spreadsheet for the flight safety analyst to manipulate the way they see fit

Future Work

- Future work is required for extended capabilities of the python module as the flight safety risk template changes for new risk software inputs
- The SDD will have to be updated as well as the industry shifts from one risk management tool to another, and methods must be changed to match the necessary inputs/outputs to the template