Welfare Impacts of Disasters in Saint Lucia: Work In Progress Report

Mikhail Sirenko

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1 TL;DR

The project goal is at least twofold. First, analyse potential damage to Saint Lucia (and other countries) from natural disasters with an agent-based model (ABM). Second, ensure the software (ABM) is easy to use, maintain and replicate. So far, we made significant progress in both. Bramka and I prepared the ABM and the input data for Saint Lucia. We made the model code modular (in line with the principles of object-oriented programming). Now we are working on the analysis. We aim to report the findings by the end of June 2023.

2 Introduction

This project is the part of Global Program on Disaster Risk Analytics (GPDRA). More specifically, its Pillar 4 - Economics of Resilience. It aims to use simulation modelling to analyse the welfare and equity impacts of disasters in Saint Lucia.

The project is supervised by Bramka Arga Jafino.

3 Objectives

Terms of reference (ToR) objectives can be summarised as follows:

1. Cleaning and preparing the input data;
2. Developing the model;
3. Analysing the results: understanding which households are vulnerable, how well the are protected and what can be done to improve their resilience;
4. Coding the model in a way that is easy to use, maintain and replicate;
5. Writing a report;

4 Work Completed

As a start, I got a model code in a .py file and a set of input data for Saint Lucia.

As the first step, I made the model modular. Modularity means splitting the code into modules (files) that are easy to understand and maintain. It also means that the code is easy to use and replicate. Thus, from a single .py file I came up with the following structure:

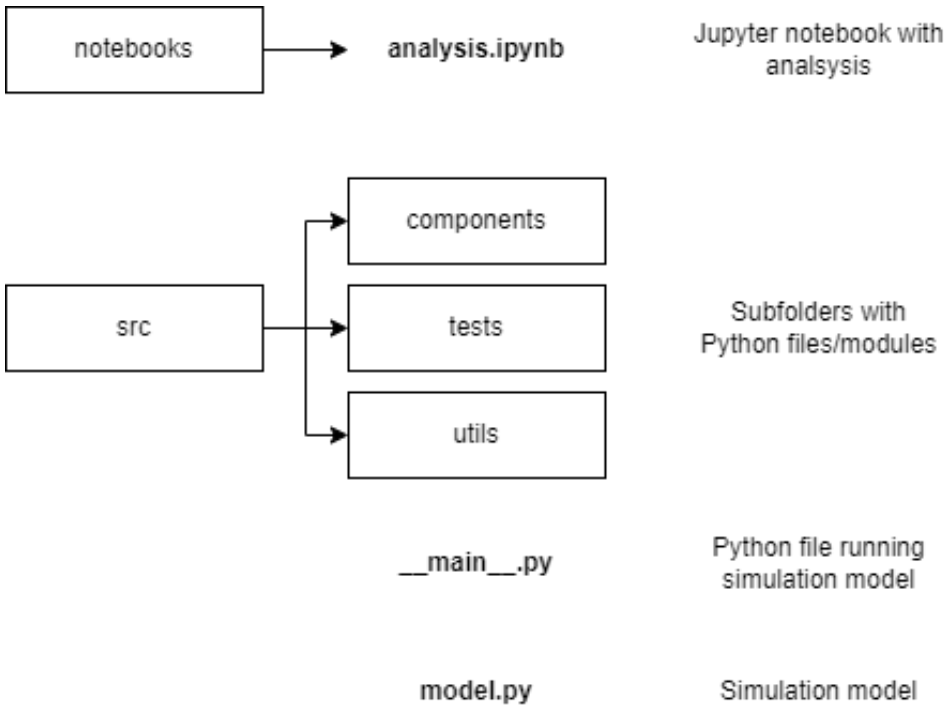

Figure 1: Project structure

I store the model in Model.py and it has the following structure:

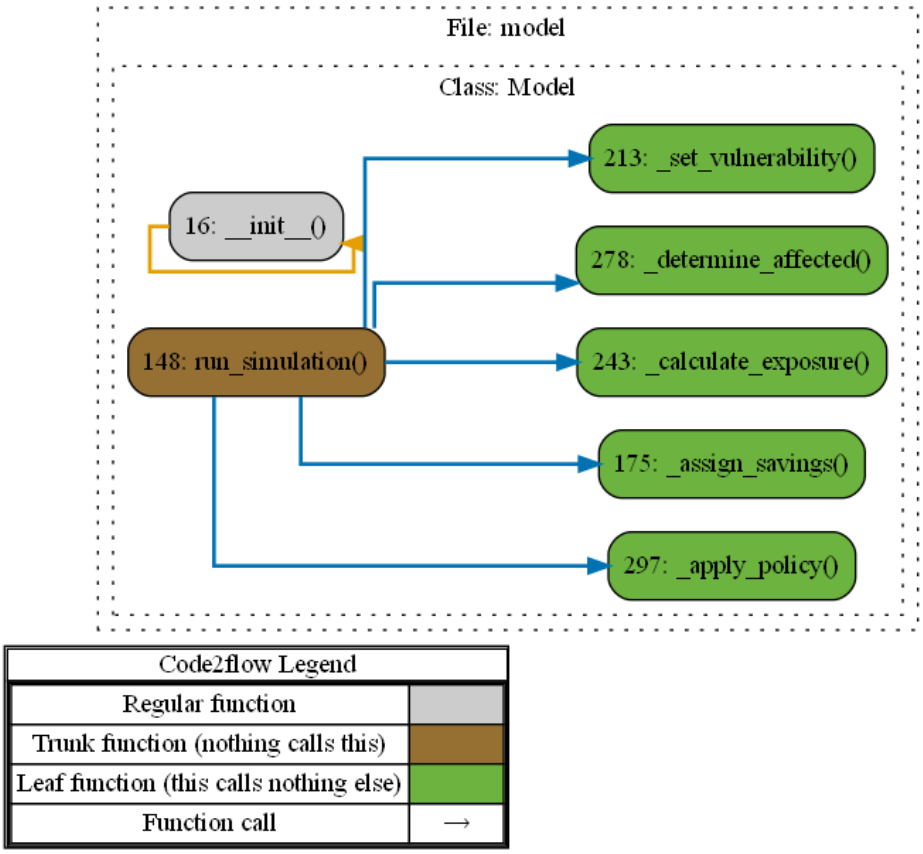

Figure 2: Model structure

Next, I moved

There are two data files: household survey and potential asset damage from a natural distaster.

First, I restructured the code from being a single .py file to a set of modules. Now it has the following structure:

5 Work In Progress

6 Work Planned

7 Challenges Or Problems

Sensitivity analysis

8 Key Perfomance Indicicators

9 Resource Status

10 Recommendations And Actions

11 Conclusion

12 References