Deconstructing the DALRRD project

Whitepaper

Written and Published by

Team 8 @ExploreAi

**─** May 2023

**Contents:**

* Introduction
* Problem Statement
* Aims and Objectives
* Methodology
* Results
* Conclusion
* References
* Appendices

**Introduction**

The South African Department of Agriculture, Land Reform, and Rural Development (DALRRD) has a vision of equitable access to land, integrated rural development, sustainable agriculture, and food security for all. One of the key pieces towards achieving this is the agricultural marketing information system (AMIS), which collects and provides data on daily commodity prices in horticulture, grain, and livestock categories. However, accessing and interpreting this data has been challenging due to its spread across different websites and formats.

To address this issue, our team was tasked with automating the scraping and transformation of commodity prices into a dashboard, applying solid exploratory data analysis (EDA) principles to ensure relevant, useful figures and statistics were presented. The resulting dashboard has improved access to critical pricing information for buyers and sellers, contributing to the development of a more sustainable and equitable agricultural sector in South Africa.

**Problem Statement**

The dispersion of critical commodity price data across various websites and formats is hindering DALRRD's ability to achieve its vision of equitable access to land, sustainable agriculture, and food security. Our team is currently developing an automated data scraping and transformation system that will convert commodity prices into a structured dashboard, using solid exploratory data analysis (EDA) principles to ensure the presentation of relevant and useful statistics. The goal is to improve access to pricing information for buyers and sellers, contributing to the development of a more sustainable agricultural sector in South Africa.

**Overview**

The South African Department of Agriculture, Land Reform, and Rural Development (DALRRD) has the overarching vision of equitable access to land, integrated rural development, sustainable agriculture, and food security for all.

**Aims and Objectives**

The aim of this paper is to highlight the challenges faced by the South African agricultural sector in accessing and interpreting commodity price data and how the automated data scraping and transformation system developed for AMIS has addressed these challenges. The specific objectives of this project include:

* Identifying the different sources and formats of commodity price data in horticulture, grain, and livestock categories in South Africa
* Developing a web scraping tool that automatically collects data from different websites and formats
* Transforming the collected data into a dashboard that applies solid exploratory data analysis (EDA) principles to ensure relevant, useful figures and statistics are presented.
* Testing the dashboard and ensuring that it is user-friendly and easily interpretable by buyers and sellers
* Evaluating the impact of the automated data scraping and transformation system on the agricultural sector in South Africa
* Exploring the potential applications of the project in other regions and sectors, providing insights into the benefits of automating data collection and transformation for decision-making.

**Methodology**

A web scraping tool that utilizes Selenium was used to extract data from the sources. The tool automatically retrieves data from these websites and converts it into a structured format that can be analyzed and displayed on a dashboard. The data encompasses commodity prices across horticulture, grain, and livestock categories. The web scraping tool has been programmed to obtain data regularly to maintain the accuracy and timeliness of the information presented on the dashboard. Furthermore, the collected data is subjected to rigorous exploratory data analysis (EDA) principles to ensure it yields relevant and valuable statistics and figures.

**Results**

The project has achieved its objectives by identifying the different sources and formats of commodity price data in horticulture, grain, and livestock categories in South Africa, developing a web scraping tool that automatically collects data from different websites and formats, transforming the collected data, and applying solid exploratory data analysis (EDA) principles to achieve insights.

Some of the insights gained include;

**Appendices**

Appendix 1: List of Websites Used for Data Collection

1. <https://rpo.co.za/slaughtering-statistics/>
2. <http://webapps.daff.gov.za/amis/Link.amis?method=GrainMarket>
3. <http://webapps.daff.gov.za/amis/amis_price_search.jsp>

Appendix 2: EDA Screenshots

