Description of Product

## Key Features

The final product aims to contain these features. **Satellite Data Integration** by leveraging open-source satellite data from agencies like NASA and the European Space Agency, focusing on multispectral and thermal imagery for assessing vegetation health and water availability. We will then use **Machine Learning Models** to develop predictive models that analyse historical and current satellite data to identify patterns indicative of impending drought conditions. Finally, an **Interactive Dashboard** will be built to offer a user-friendly web interface that displays drought monitoring data, historical trends, and predictive analytics in an easily digestible format. This dashboard is intended for use by policymakers, farmers, and researchers to facilitate informed decision-making.

## User Goals

The primary value proposition is to enable farmers to receive timely and accurate forecasts about drought conditions to make informed agricultural decisions. Our secondary objective is to assist policymakers in planning and allocating resources efficiently based on data-driven insights about drought conditions.

## User Stories

1. **As a farmer**, I want to access real-time drought conditions so that I can plan irrigation and cropping patterns effectively.

2. **As a policymaker**, I need to monitor drought trends over time to formulate better agricultural policies.

3. **As a researcher**, I wish to analyse historical drought data to predict future environmental impacts.

## User Experience - Step by Step Flow

1. **Login/Registration:** Users access the system via a secure login or registration module.

2. **Dashboard**: After login, users are presented with a dashboard displaying current drought conditions, forecasts, and personalised alerts.

3. **Data Analysis Tools**: Tools for detailed data analysis are available, such as heat maps, trend lines, and predictive analytics.

4. **Report Generation**: Users can generate custom reports based on selected data points and time frames.

5. **Alerts and Notifications**: Users receive notifications based on specific criteria set for drought conditions.

## Narrative

Imagine a farmer in South Africa, previously reliant on conventional wisdom, now using our AI-driven platform to see real-time data visualisations of impending drought conditions. This enables precise planning of water use, potentially saving crops and livelihoods during critical periods. Policymakers, equipped with predictive insights, can allocate resources more effectively, ensuring food security and economic stability in the region.