## Sprint 1

**Explore architecture and programming languages**

* The Agro Data Cube was built with Java 8 programming language and the Maven project management tool.
* Postgres 9.2 database was used to develop the data warehouse.
* The API returns information in GeoJSON format.

Example of GeoJSON format

{  
 "type": "Feature",  
 "geometry": {  
 "type": "Point",  
 "coordinates": [125.6, 10.1]  
 },  
 "properties": {  
 "name": "Dinagat Islands"  
 }  
}

* NetBeans IDE 8.0.2 was used in the development.
* The Python programming language would be used to extract information from the database via the API.

**Explore organization of the datacube**

* There are a number of get requests made available through the API to access data in the cube.
* These have been organised into the following folders based on the kind of information they help to retrieve:
  + **AHN (Actueel Hoogtebestand Nederland)** - It seems to provides data on zonal statistics for land altitude but there is an issue with this **\***Check the issues section for details.
  + **Codes** - provides data about crops and soils based on their unique codes.
  + **Field** - provides information about fields such as the geometry (area), soil information, crop information, altitude zonal statistics, Normalized Difference Vegetation Index (NDVI) and nearest meteostations (***weather stations****, ie. facilities, either on land or sea, with instruments and equipment for measuring atmospheric conditions to provide information for weather forecasts and to study the weather and climate.*)
  + **MeteoData** - provides weather data for the various meteostations in the database based on dates.
  + **MeteoStations** - provides data about meteostations in the database.
  + **Regions** - provides boundary information about provinces, postal code areas and municipalities in the Netherlands based on 2015 data.
  + **SoilParams (Soil Parameters)** - provides information about the constituents of a kind of soil.
  + **SoilTypes** - provides information on the different soil types found in the Netherlands.
  + **Sources** - It seems this section is supposed to provide metadata about the content of the Agro Data Cube but there is an issue with this **\***Check the issues section for details.

**Issues (Issues 1, 2 & 4 have been relayed to the team at Agro Data Cube and Issue 3 is being addressed by Diana)**

1. Some descriptions made on the get requests are incomplete and have ellipses(...) in place of needed information. We wish to get a more detailed description of each of the get requests.
2. **AHN** - We are not able to retrieve data on zonal statistics for altitude. Generally, we are having a problem with the geometry parameter and its POLYGON value. We get errors when we supply a given POLYGON value to the geometry parameter(including the example given in the API documentation). We realized that the geometry parameter represents an area of land and the POLYGON values are the vertices of the given area of land which is in the Dutch EPSG:28992 Amersfoort / RD New coordinate system. When we convert this value to the EPSG:4326 WGS 84 GPS coordinate system and locate it in Google Earth, we get an area of land or sea that is not even close to the Netherlands. This is a link to the tool we used in the conversion:<http://epsg.io/4326>

We wish to have more clarification on the geometry that the API is requesting for.

1. **SoilParams** - The keys in the object returned is in Dutch and when we translate with Google, does not give us something we understand.

We wish it would be translated for us.

1. **Sources -** The first get request which is supposed to provide information about available data, only returns a link, which is a link back to the API documentation in Postman. The second get request which is supposed to return all information on a given resource is not helpful as there is no definition of what a resource is and what we guessed to be resources only brought errors.