# **HOMEWORK WEEK 2**

**This week’s homework will be purely Project based. You need to work as a group and the homework will be submitted by one of the members of your group. List the other members of your group in the document, so that your instructor can mark every student.**

Group members: Chloe Koura, Irina Mateescu, Mayumi Hamaoka, Patricia Pedro

**1.Your group needs to decide what kind of project you are going to work on and lock in your decision.**

Our group project will analyse education and health data from Kenya to recommend whether a charity, Operation Orphan, should expand their project, [Rubbish Science](https://www.operation-orphan.org/rubbish-science), to a new community.

**2.You need to submit a free style paper that describes your project on a high level. Please cover the following questions:**

**2.1.What kind of data research and analysis are you going to take on?**

Education and health data in Kenya

**2.2.What industry or areas does it cover?**

Charity, education, health and children

**2.3.What questions are you planning to answer?**

Rubbish Science aims to increase “scientific literacy to help children develop systemic strategies for problem solving using skills and resources that are freely available from rubbish” through experimental projects, such as creation of fly traps and fishing rods. The program is currently operating in some African countries, and we want to investigate whether it would be recommended for it to expand to Mombasa, Kenya.

Our research will focus on school-aged children education data in Kenya to see how the community compares to others where the program already operates. In parallel we will also analyse health data from Kenya to understand how to best increase the impact of the program based on the issues directly faced by the new community.

Our plan is to understand if it is a good decision to expand the project Rubbish Science of the charity Operation Orphan to Kenya, answering the following questions:

* What is the current state of education availability for children in Kenya?
* What constitutes a ‘good’ decision?
* They have implemented the project in Nairobi already, how does Mombasa compare - if the data granularity allows? Otherwise we’ll compare Kenya to another African country where the project operates
* What is the poverty status of the population?
* What diseases/issues is the population facing and making recommendations in how to update the Rubbish Science project to address them?

**2.4.What data sources are you planning to use?**

* Opendata Kenya - https://www.opendata.go.ke/datasets/bbcd64cbce5347189ead08c23d6a0d38/explore
* WHO API - https://www.who.int/data/gho/info/gho-odata-api

**2.5. Describe the team approach to the project work: how are you planning to distribute the workload, how are you managing your code, how are you planning to work on your project?**

We’ll distribute the workload as follows:

* Two people are working on the comparative research of the existing and the new locations from an education perspective
* Two people are working on analyzing the health data available for Kenya and understanding what experiments Rubbish Science could implement to address common issues the Kenyan population is facing

We’ll manage code via github and we’re planning to work on the project individually as well as through peer programming over Zoom, and meet on a weekly basis to ensure well paced progress.

Useful sources

* Nairobi case study: <https://www.operation-orphan.org/rs-stories/2016/9/14/nairobi-hope-a-school-in-the-slums>
* https://www.opendata.go.ke/datasets/bbcd64cbce5347189ead08c23d6a0d38/explore - opendata kenya
* https://www.operation-orphan.org/rs-stories/2016/9/14/nairobi-hope-a-school-in-the-slums
* The 2019 Kenya census report - <https://housingfinanceafrica.org/documents/2019-kenya-population-and-housing-census-reports/>
* <https://kenya.hurumap.org/compare/county-1/vs/county-1/?release=2019> - cool graphics that we don’t know the source data for...everything from mosquito nets to education level
* openafrica data - <https://openafrica.net/dataset?q=kenya&sort=score+desc%2C+metadata_modified+desc> that <https://kenya.hurumap.org/> is based on

Potential ideas (depending on available data/what we know)

* census projections
* comparison with third city or rural region

Limitations

* outdated data
* suburb (not representative of other areas)
* data not granular enough

what we can use for what:

* pandas:
* matplotlib:
  + Create comparative graphs between Nairobi and Mombasa data
* NumPy:
  + Cleaning the data

| Things we’ve tried | Status (working, blocker-why?) | Potential extensions from this | Extra comments |
| --- | --- | --- | --- |
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Strengths:

* Irina - coding and git
* Patricia - interpretation and graphs
* Mayu - presentation, cleaning data
* Chloe - qualitative research