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Research

• Fields
• Analyze data
Just some codes

```python
import math
import sys

## Loads a file
def load_file(filepath):
    file = open(filepath, encoding="utf8");
    lines = file.readlines();
    lats = []
    longs = []
    for line in lines:
        line = line[:-1]
        lats.append(float(line.split("\t")[-1][0]))
        longs.append(float(line.split("\t")[1][-1]))
    return lats, longs

## Calculates distance in meters given two sets of coordinates
def calc_distance(lat1, long1, lat2, long2):
    R = 6371 * 1000
    phi1 = lat1 * math.pi / 180
    phi2 = lat2 * math.pi / 180
    change_phi = (lat2 - lat1) * math.pi / 180
    change_lambda = (long2 - long1) * math.pi / 180
    a = math.sin(change_phi/2)*math.sin(change_phi/2) + math.cos(phi1)*math.cos(phi2)*math.sin(change_lambda/2)*math.sin(change_lambda/2)
    c = 2*math.atan2(math.sqrt(a), math.sqrt(1-a))
    d = R * c
    return d

## Finds the minimum distance between each house to a health provider
def find_min_distance(houses, healths):
    distances = []
    for i in range(len(houses[0])):
        ds = []
        for j in range(len(healths[0])):
            if houses[0][i] != "-":
                d = calc_distance(houses[0][i], houses[1][i], healths[0][j], healths[1][j])
                ds.append(d)
                # Don't calculate distance if no coordinate provided
            else:
                d = "-"
                ds.append(d)
        # Add the minimum distance between a house and all health providers
        distances.append(min(ds))
    return distances

## Writes distances to a textfile
def save_distances(distances, outfile):
    file = open(outfile, 'w', encoding="utf8")
    for d in distances:
        file.write(str(d) + '\n')
    file.close()

## MAIN FUNCTION
def main():
    # Loads the coordinates of herbalists, clinics, and sangoma
    herbalists = load_file("herbalists.txt")
    clinics = load_file("clinics.txt")
    sangoma = load_file("sangoma.txt")

    # Hard coded in the single hospital because lazy. Laziness saves the world.
    hospital = [(29.060802, -32.050646)]

    # Loads the coordinates of all houses
    houses = load_file("Zibusiz_houses.txt")

    # Finds the minimum distance between each house and the herbalists
    h = find_min_distance(houses, herbalists)
    save_distances(h, "distance_herbalists.txt")

    # Finds the minimum distance between each house and the clinics
    c = find_min_distance(houses, clinics)
    save_distances(c, "distance_clinics.txt")

    # Finds the minimum distance between each house and the sangomas
    s = find_min_distance(houses, sangoma)
    save_distances(s, "distance_sangoma.txt")

    # Finds the minimum distance between each house and the hospital
    ho = find_min_distance(houses, hospital)
    save_distances(ho, "distance_hospital.txt")

    # Finds the minimum distance between each house and the hospitai
    traditional = []
    all_facilities = []
    all_facilities.append(clinics[0] + hospital[0])
    all_facilities.append(clinics[1] + hospital[1])
    t = find_min_distance(houses, traditional)
    save_distances(t, "distance_traditional.txt")

    # Finds the minimum distance between each house and the hospitai
    all_facilities = []
    all_facilities.append(clinics[0] + hospital[0])
    all_facilities.append(clinics[1] + hospital[1])
    a = find_min_distance(houses, all_facilities)
    save_distances(a, "distance_all.txt")
```

# Runs automatically
if __name__ == "__main__":
    main()
    print("DONE")
```
Most rewarding aspect

• Understanding S. African political context
• Immersed in culture
• Learned lots about breastfeeding
• Understand research flaws
Impact on organization

- Helped internal validity
- Made useful analysis
Around the hospital
Impact on academic choice

• Increased interest in GHP
When mothers stop BF and EBF

- On the day of birth: 97% BF, 83% Reported EBF, 76% EBF according to formula introduction
- 1m: 78% BF, 73% Reported EBF, 63% EBF according to formula introduction
- 2m: 76% BF, 64% Reported EBF, 60% EBF according to formula introduction
- 3m: 73% BF, 64% Reported EBF, 50% EBF according to formula introduction
- 4m: 58% BF, 53% Reported EBF, 39% EBF according to formula introduction
- 5m: 53% BF, 33% Reported EBF, 25% EBF according to formula introduction
- 6m: 51% BF, 17% Reported EBF, 15% EBF according to formula introduction

Feeding snapshot at time of interview (all mothers)

- Not currently BF: 530 (530) (530)
- BF but not exclusively EBF: 212 (399) (140)
- EBF: 63 (73) (140)

Cumulative data on feeding trends of F, F+N, and solids

- Formula
- Mixing formula with Nestum
- Solids

- By 1m: 24% Formula, 40% Mixing formula with Nestum, 54% Solids
- By 2m: 26% Formula, 10% Mixing formula with Nestum, 26% Solids
- By 3m: 45% Formula, 24% Mixing formula with Nestum, 45% Solids
- By 4m: 75% Formula, 63% Mixing formula with Nestum, 75% Solids
- By 5m: 63% Formula, 50% Mixing formula with Nestum, 63% Solids
- By 6m: 83% Formula, 80% Mixing formula with Nestum, 83% Solids

Reasons for not EBF

- The baby is 6m old
- I was told by BF on its own family to add food
- Baby was crying all the time
- I went back to work/school so can't BF
- I went away for the day, so carer didn't BF

Lit graphs
Cultural awareness/personal growth

• Complexity of epidemiology
• Traditional vs Western medicine