

# Policy Support System (PSS)

## Project Elective Assignment

Jan - Apr 2024

**Note: A taluka is an administrative unit of a district. The sub-divisions of a district are the talukas/taluk/tehsil of the district. Sub-divisions of the state are known as districts.**

**A list of all abbreviations and important links can be found at the end of the document.**

1.) For the given dataset, write a Python code to do the following:

(a.) Find IMR and MMR correlations with:

- (i) ANC\_IMR
- (ii) ANC\_MMR

(b.) From (a.) choose the ANC column that has the strongest correlation with both MMR and IMR. If both have high correlations, pick the one with the lowest p-value. For the selected column(name it to AntenatalCareVisits(ANCV)), use simple linear regression to find the predicted change(impact) in IMR for the below interventions:

ANC+20% = there has been a 20% increase in ANC values

ANC-20% = there has been a 20% decrease in ANC values

You can perform this by taking the example formula below for (ANC+10%) i.e. there has been an increase in ANCV values by 10%:

(based on  $y=mx+c$ )

$IMR_{old} = m \cdot ANCV + c$  {the original IMR values from the dataset}

$IMR_{new} = m \cdot (1.1 \cdot ANCV) + c$

$Change\ in\ IMR = IMR_{new} - IMR_{old}$

$Predicted\ Change\ in\ IMR = m \cdot 0.1 \cdot ANCV$

(c.) generate normalized values between the scale [0,1] for the predicted changes for all four interventions and name them as '**Impact Score IMR (ANCV-20%)**', **Impact Score MMR (ANCV+20%)**.

(i) Plot two separate *impact vs stability* graphs. For instance, Stability vs Impact(ANCV+20%) and Stability vs Impact(ANCV-20%). All these

visualisations will be at the Taluka level.

**Note: *Stability* = 1-Stress**

(ii) Use a good Python visualization library to visualize the results. Proper labelling should be done such that the values and names are visible.

(d.) Aggregate (average) the data/results and visualize the same *stability vs impact* for all the districts of Karnataka.

List of abbreviations:

- i.) ANC\_IMR = Percentage of women who did not go for at least 4 Antenatal Care checkups (column associated with Infant Mortality Rate dataset)
- ii) ANC\_MMR = Percentage of women who did not go for at least 4 Antenatal Care checkups (column associated with Maternal Mortality Rate dataset)
- iii) MMR = Maternal Mortality Rate
- iv) IMR = Infant Mortality Rate

Useful Links:

- 1.) <https://kdl.iiitb.ac.in/>
- 2.) <https://kdl.iiitb.ac.in/predictive-impact-analysis-for-imr/>
- 3.) <https://kdl.iiitb.ac.in/data-story-for-maternal-mortality-rate-mmr/>
- 4.) <https://kdl.iiitb.ac.in/sdg-3-good-health-and-well-being/>