This algorithm aims to explore phonetic similarity using the Indic Soundex algorithm, particularly for Indian languages such as Marathi, Punjabi, Bengali, Tamil and Telugu. Additionally, several string similarity metrics are computed, including Hamming Distance, Levenshtein Distance, Jaccard Similarity, and Cosine Similarity, to compare the phonetic encodings generated by Indic Soundex.

1. **Indic Soundex Algorithm:**

* The first letter of the word is retained.
* Subsequent consonants are replaced by specific digits as defined in a pre-determined mapping dictionary.
* Vowels and certain characters are ignored.
* Consecutive duplicate digits are removed, and the code is truncated or padded to four characters.

**2. String Similarity Metrics:**

* **Hamming Distance:**
  + Measures the number of positions at which the corresponding symbols are different between two strings of the same length.
* **Levenshtein Distance:**
  + Measures the minimum number of single-character edits required to change one string into another.
* **Jaccard Similarity:**
  + Calculated as the size of the intersection divided by the size of the union of the sets.
* **Cosine Similarity:**
  + Measures the cosine of the angle between two non-zero vectors in an inner product space, which helps to determine how similar the two vectors are.

**Future Work**

Further analysis can be conducted by:

* Expanding the Indic Soundex algorithm to include additional languages.
* Comparing the performance of different string similarity metrics on a larger dataset.
* Applying machine learning techniques to enhance phonetic matching accuracy.