AIC365 - Natural Language Processing

**Due Date:** Sep 17, 2025

**CLO-1 Describe fundamental concepts of Natural Language Processing.**

# Introduction

**Sentence Segmentation in Urdu**

In this assignment, the goal is to implement and practice some basic text processing techniques in NLP for the Urdu language. The Urdu language is written in a different style as compared to English, making segmentation a challenging task. There can be several reasons but Space Insertion Problem and Space Omission Problems are the major ones. In this assignment, your task is to perform Urdu Sentence Segmentation. This assignment is designed to be completed from scratch.

A trial Urdu corpus is provided as *urdu-corpus.txt*.

You must also write a function to evaluate the performance of your segmentation technique. This requires you to utilize your problem solving skills.

# Background

Sentence segmentation is the process of determining longer processing units consisting of more than one word. This task involves identifying sentence boundaries between words in different sentences. Here is an example of text combination of two sentences:

بے چاری عوام چونکہ ہمیشہ سے دھوکہ کھانے کی عادی رہی ہے اس لئے ”سرکار‘‘ کی چکنی چپڑی باتوں میں آگئی اور اپنے بہتر مستقبل کے لئے نئی حکومت کو اقتدار کے ایوانوں تک پہنچا دیا

You have to develop a technique that will perform segmentation of sentences and remove extra white spaces in sentences for example by passing the above statement, your model should generate output:

بے چاری عوام چونکہ ہمیشہ سے دھوکہ کھانے کی عادی رہی ہے۔ اس لئے “سرکار” کی چکنی چپڑی باتوں میں آگئی اور اپنے بہتر مستقبل کے لئے نئی حکومت کو اقتدار کے ایوانوں تک پہنچا دیا۔

# Challenges in Implementing a Model

You need to make several decisions in implementing your sentence segmentation techniqiue and its evaluation:

* 1. How can you detect patterns from the text?
  2. Can you identify end-words of a sentence in Urdu?
  3. How can you evaluate your approach?

*Note: Simply counting the number of segments may not be enough!*

**Honor Policy**

This assignment is a learning opportunity that will be evaluated based on your ability to think in a group setting, work through a problem in a logical manner and write a research report on your own. You may use the Internet to do your research, but the written work should be your own. **Plagiarized reports or code will get a zero**.