Student Assignment – Final Project on Python re Module

# 📝 Project Title: Regex Text Extractor Tool

In this project, you will build a command-line Python script using the re module to extract and analyze different types of content from a text file or user input string.

## 🎯 Objectives:

- Apply regular expressions to search and extract patterns.  
- Use re.findall(), re.sub(), re.compile(), etc.  
- Work with real-world examples like tweets, logs, and emails.

## 📌 Tasks to Complete:

1. Accept a paragraph of text input (or read from a text file).  
2. Extract all email addresses from the text.  
3. Extract all phone numbers (10-digit Indian format).  
4. Extract all hashtags and mentions (e.g., #python, @user).  
5. Replace all URLs with the word [LINK].  
6. Display the results in a clean format.

## 📁 Sample Input:

"Contact me at mayuri@gmail.com or call at 9876543210. Follow us on Instagram @mayuri\_k or check https://github.com/mayuri. Let's use #regex #python for parsing!"

## ✅ Expected Output:

Emails found: ['mayuri@gmail.com']  
Phone Numbers: ['9876543210']  
Mentions: ['@mayuri\_k']  
Hashtags: ['#regex', '#python']  
Cleaned Text: "Contact me at [EMAIL] or call at [PHONE]. Follow us on Instagram [MENTION] or check [LINK]. Let's use [HASHTAG] [HASHTAG] for parsing!"

## 🧠 Tips:

- Use re.findall() for extraction.  
- Use re.sub() for replacements.  
- Use raw strings for regex patterns (e.g., r'\d{10}').  
- Try re.compile() to reuse patterns.

## 📎 Bonus Challenge:

- Count how many times each word appears (excluding stopwords).  
- Highlight invalid email addresses using regex.