جامعة الإسكندرية
ALEXANDRIA UNIVERSITY
كلية الحاسبات وعلوم البيانات


# Final project

**Develop a python application with a decent graphical user interface of all the lossless data compression techniques (Run-length encoding, Huffman encoding, Arithmetic encoding, Golomb encoding and LZW encoding) (5 Techniques).**
**The application inputs any text message from the user, and then it encodes this message using every single technique (if possible and if not then don't encode it using this technique).**
**Then it displays the final results of each technique, and recommendation system for the best (optimal) technique used of all 5 for this message.**
**The results are: The bits before encoding, the bits after encoding, the compression ratio (%), the probability of occurrence for each character in the message, entropy, average length and the efficiency of this message.**

## Requirements:

1- The full source code (.py) file.
2- A video recorded with full explanation of the source code.
3- A report explaining the algorithm of each technique used (From step 1 to step n).
4- Must be in teams (from 5 to 8 members) and every member must have an important role in the team or there will be consequences taken (illustrated in the report in requirement number 3).