

COMP6341 - Multimedia and Human Computer Interaction

Compression – Lossless Exercises

Week 6 - Session 3

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Session Learning Outcomes

Upon completion of this session, students are expected to be able to

- LO 6 - Distinguish the different compression principles, techniques and multimedia compression standards

Pattern Substitution

- ❖ Using pattern substitution method, encode the paragraph below by replacing the 5 words (you decide which 5 words you want to encode) with the following code: 1, 2, 3, 4, 5.

There once was a man who had a sister,
his name was Mr. Fister. Mr. Fister's
sister sold sea shells by the sea shore.
Mr. Fister didn't sell sea shells, he
sold silk sheets. Mr. Fister told his
sister that he sold six silk sheets to
six shieks. The sister of Mr. Fister said
I sold six shells to six shieks too!

Pattern Substitution

- ❖ Explain why you choose those words.
- ❖ Write down the results of the compression and calculate what percentage of compression.
- ❖ Hint: 1 character: 1 byte (8 bits).

Huffman Coding

- ❖ This Using Huffman tree and coding method, compress the sentence below.

**The thirty-three thieves thought that
they thrilled the throne throughout
Thursday**

- ❖ Write the characters, the frequency of occurrence every characters and the character code (in binary).
- ❖ Calculate what percentage of compression.

Lempel-Ziv Algorithm

- ❖ Using Lempel-Ziv algorithm, create a dictionary/table with index number and the encoding output, based on this string:

hippopotomonstrosesquipedaliophobia