



COMSATS Institute of
Information Technology

ECI750 Multimedia Data Compression

Lecture 14

Practice Problems 2

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Practice Problems 2

1. Given an initial dictionary consisting of the letters *a b r y _*, encode the following message using the LZW algorithm:
a_bar_array_by_barrayar_bay

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2. A sequence is encoded using the LZW algorithm and the initial dictionary shown below.

Index	Entry
1	<i>a</i>
2	<i>b</i>
3	<i>h</i>
4	<i>i</i>
5	<i>s</i>
6	<i>t</i>

- a. The output of the LZW encoder is the following sequence:

6	3	4	5	2	3	1	6	2	9	11	16	12	14	4	20	10	8	23	13
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Decode this sequence

- b. Encode the decoded sequence using the same initial dictionary. Does your answer match the sequence given above?

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3. Encode the following sequence using LZ77 algorithm:

barrayar_bar_by_barrayar_bay

Assume you have a window size of 30 with a look-ahead buffer of size 15.

Furthermore, assume that $C(a) = 1$, $C(b) = 2$, $C(_) = 3$, $C(r) = 4$, and $C(y) = 5$.

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4. A sequence is encoded using the LZ77 algorithm. Given that $C(a) = 1$, $C(_) = 2$, $C(r) = 3$, and $C(t) = 4$, decode the following sequence of triples:

$\langle 0,0,3 \rangle, \langle 0,0,1 \rangle, \langle 0,0,4 \rangle, \langle 2,8,2 \rangle, \langle 3,1,2 \rangle, \langle 0,0,3 \rangle, \langle 6,4,4 \rangle, \langle 9,5,4 \rangle$