Arrays and Strings

5.1 Objectives

1. To represent the given problems using single and multidimensional Arrays and Strings.
2. To familiarize the computation using Strings.

Time-span: 1 lab day (2 hrs.)

5.2 Problems

1. Nepal Hawaijahaj Company is an airlines company with the ticket rates between different cities as described by figure 5.1.

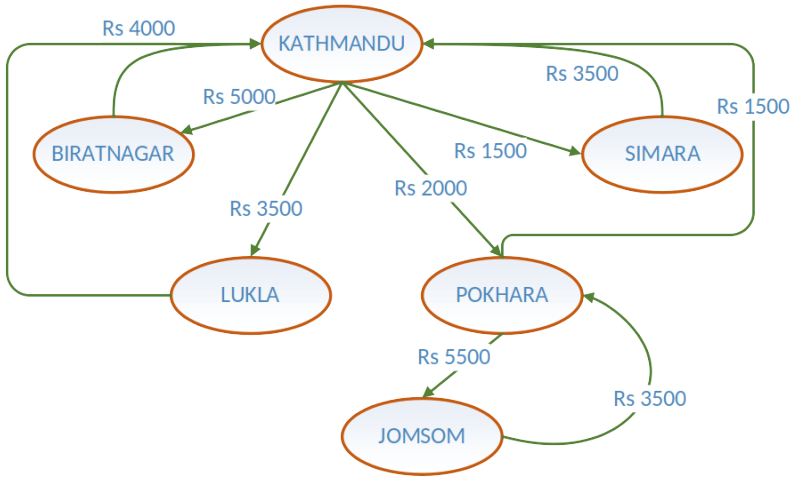

Fig. 5.1 Flight ticket rates of Nepal Hawaijahaj Company.

a. Describe how will you represent the data of figure 5.1? Mention each and every details. [Hint: Use numeric codes to represent cities, for example, 0 for KATHMANDU, 1 for BIRATNAGAR, and so on.]

b. Due to rise in the petroleum price, Nepal Hawaijahaj Company has decided to increase the fight rates uniformly. Write a program to help the accountant of this company. Your program should input the increase percentage of fight rate and update the data represented in part (a). Display the new ticket fares.

2. A square matrix is called skew symmetric if it is the negative of its transpose. In other words A is skew symmetric if $A + A^T = 0$, where 0 denotes the zero matrix, i.e. matrix having all elements equal to zero. The following matrix is skew-symmetric.

$$\begin{pmatrix} 0 & 2 & -1 \\ -2 & 0 & -4 \\ 1 & 4 & 0 \end{pmatrix}$$

Note that the sum of above matrix and its transpose is the 0 matrix. Write a program to read a square matrix and check whether it is skew symmetric or not.

3. Write a program to read a sentence and compute the following:
   (a) Count the number of characters in it,
   (b) Count the number of vowels in it and
   (c) Print the reverse of the string.

Note: Do not use library functions for strings manipulation.

4. Write a program to read a sentence and test whether a given word is in the sentence or not. Consider the sample output.

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Enter a sentence: I love my country Nepal
Enter the word to be searched: country
Result: FOUND
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