

## Advanced-Data Structures and Algorithms Lab Assignment

1. In a city, a group of 3 people planned to go out for dinner to eat Biryani on Sunday. There are 'n' number of restaurants and all are connected by roads from their home. Given the traveling expenses of each road and the cost of the Biryani in each restaurant. Help them to find out the restaurant which costs them minimum including traveling expenses.

Input:

N = Number of restaurants

Travelling expenses Matrix (N+1 X N+1) [0<sup>TH</sup> INDEX represents home, 1-N are restaurants]

Biryani Cost Matrix (1 X N)

Output:

Restaurant ID and Optimal Cost

2. There is a company called R&C wants to buy players for their new IPL team. For the selections, 'n' number of players participated in which they require 'k' number of players for their team. Among these k players, k1 are bowlers, k2 are batsmen, and k3 are all-rounders. Given the respective roles of the players (batsmen-[1,0,0], bowler-[0,1,0], all-rounder-[0,0,1]) and purchasing rates of each player. Find out the minimum budget needed to select the players with the given requirements.

Constraints:

$$11 \leq n \leq k \leq 1000$$

$$k1 + k2 + k3 = k$$

Input:

N: Number of players who participated in selections

K: Number of players need to be selected

Rolls (N X 3): Roles of participating players

Rate (1 X N): purchasing rate of each player

Output:

Optimized Budget required

3. Given N non-negative integers representing an elevation map where the width of each bar is 1 unit and 0 represents holes from which water can go out. compute how much water it can trap after rain for the given elevation map.

Input: Array of integers represents heights of bars

Output: Amount of water tapped.