



## Design and Analysis of Algorithms

### Tutorial 10

#### Branch-and-Bound Technique

1. Solve the assignment problem using the branch-and-bound technique for the instance shown in table 1.

	Job 1	Job 2	Job 3
Person 1	5	7	9
Person 2	3	8	5
Person 3	7	4	9

Table 1: A small instance of the assignment problem

#### Space-and-Time Trade-offs

1. Explain the theory behind space-and-time trade-offs.
2. The following relates to the comparison counting sort algorithm.
  - (a) What is the main theory behind the algorithm?
  - (b) State the algorithm.
  - (c) Sort the given array  $A[0..5] = \{34, 67, 12, 56, 14, 65\}$ , where  $n = 6$  using the comparison counting sort algorithm.
3. The following relates to the distribution counting sort algorithm.
  - (a) What is the main theory behind the algorithm?
  - (b) State the algorithm.
  - (c) Sort the given array  $A[0..5] = \{54, 37, 41, 37, 54, 5\}$ , where  $n = 6$  using the distribution counting sort algorithm.