Algorithms

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期末考時程與評分說明

期末考時程

- ■日期：2025/6/4
- ■時間：9:15開始點名、9:30 開始考試
- ■地點：逸仙樓5樓資管系電腦教室
- ■範圍：全課程(期中考後比重較高)
- ■題目：計算填空、單、複選題共10題，程式題3題。
- ■考試期間：2小時(至11:30截止)
- ■其他事項：Open Book 可參考任何資訊，但不應以任何形式與人或機器於考試時間討論考試內容。
- ■注意：期末考請假需有正式假單，未到者視為缺考。

最重要的事

- Program Exercises 30%
- Midterm Exam 20%(期中考)
- Final Exam 30%(期末考)
- Participation 10% + Bonus 5%
  - Zuvio 出席率*75%+答對率*25% (滿分15，超過部分為Bonus)
  - [(全作答)X1+(部分作答)X0.5]/資料夾(課堂)總數，全作答視同出席、部分作答視同出席半堂課、無作答視同曠課
  - Bonus 5%(95加滿，總分達95以上加分遞減)
    - 公式：*95之前加分+(100-超出95)*(95以上加分)/10*
      $$\min(\max((95-Score),0),Bonus) + \min((100-Score),5) * (Bonus - \min(\max((95-Score),0),Bonus))/10$$
- Programming Assignments 10%

程式題範圍

■Greedy: How many seats are available?
- To protect against COVID-19, we must keep social distance. Seats need to be **rearranged one apart, including pre-arranged ones**. Given a list of seats with 0's (empty) and 1's (pre-arranged), count available seats, excluding pre-arranged. For example, [1,0,0,0,1] returns 1, [0,0,1,0,0] returns 2.
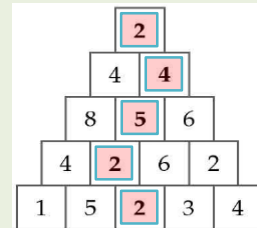
■Graph: Strongly Connected Components
- Find and count the strongly connected components in a given directed graph. The strongly connected components of a graph is a partition of the vertices into subsets (maximal) such that each subset is strongly connected.

■Backtracking: Permutation of a Multiset
- Multisets are allowed to have repeated elements. A multiset of n items may thus have **fewer than $n!$** distinct permutations. For example, [1, 1, 2, 2] has only six different permutations: [1, 1, 2, 2], [1, 2, 1, 2], [1, 2, 2, 1], [2, 1, 1, 2], [2, 1, 2, 1],and [2, 2, 1, 1].

■Dynamic Programming: Find the Minimum Weight Path
- Given a triangle, find the minimum path sum from top to bottom. Each step, **move to adjacent numbers below**. For example, the minimum path weight in the triangle shown is 15.

祝 考試順利

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