
**Submissions:** This assignment is due on the 11th of Nov, 2021. Please note:

1. Each student must submit his or her own assignment.
2. Solutions must be hand-written or typed on a computer and printed onto paper, and then handed to me during class.
3. You must write your name and UUID clearly on your submitted assignment.

**Academic Integrity:** You are encouraged to work in groups, but everyone must write out their own solutions. Absolutely no word to word copying is allowed. **If you have worked with other students on the assignment or referred to external sources, please mention all names and sources on your assignment.**

**Partial solutions:** Document your efforts at solving a problem even if you cannot solve it. Write why your approach failed.

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**Problem 1 [35 pts]:** Solve Problem 6.10 from DPV. On paper show pseudo-code and analysis. But, also write code in Python, print, and include in assignment. There should be a function that takes the list of probabilities and $k$ and computes the desired answer. This function can potentially be called from anywhere in the code. (Don’t worry about the $O(n \log^2 n)$ algorithm mentioned in footnote. For full points the algorithm can be $O(n^2)$.)

**Problem 2 [30 pts]:** Solve Problem 6.13 from DPV.

**Problem 3 [35 pts]:** Solve Problem 6.19. As in the first problem write code as a python function to take the list of values, $k$ and $v$, returning true or false. Print it, and include that.