Ειδικά Θέματα Αλγορίθμων
Ασκήσεις Φροντιστηρίου #8
Approximation Algorithms

1. Give an f approximation algorithm for the SET-COVER problem with frequencies, where f is the maximum frequency of an element.

2. Give a greedy approximation algorithm for the MAX COVERAGE problem.
(MAX COVERAGE: Given a universe $\mathcal{U} = \{e_1, e_2, ..., e_n\}$, a list of sets $S_i \subseteq \mathcal{U}$ (possibly overlapping) and a bound k, the goal is to pick k sets $S'_1, S'_2, ..., S'_k$ such that $|\bigcup_{i=1}^{k} S'_i|$ is maximized.)

3. Design a 2-approximation algorithm for the METRIC-TSP problem.
(METRIC-TSP: The METRIC-TSP problem is similar to the TSP problem, except now, the costs on the edges satisfy the triangle inequality.)

4. Problem 2 from Midterms.