Assignment 5 is due Wednesday, January 4, 23:30.

Suppose that you are given a set T of projects where each project $t \in T$ is associated with

- a positive integer e_t denoting the amount of effort (e.g., the amount of time or energy) required to complete the project t, and
- a positive integer p_t denoting the profit gained by completing the project t.

Given a positive integer c denoting the maximum amount of effort that you can spend on these projects, the goal is to find the largest amount of profit that you can make by completing a subset of these projects such that the total amount of effort spent to complete the projects is at most c.

1. (50 points) State the decision version of this optimization problem: Input? Output?
2. (50 points) Prove that the decision version is **in** NP.

A pdf copy of your own solutions (**at most one page**) should be submitted at SUCourse+.