Suppose there is a bomb in your bathroom. Initially, the bomb is armed and the toilet is unclogged. Your goal is to get the bomb disarmed and the toilet unclogged. The only way to disarm the bomb is to dunk it in the toilet, provided that the toilet is unclogged. Note that dunking the bomb will clog the toilet, which can be unclogged by flushing it. Here is a very simple STRIPS encoding of this planning problem:

Initial state: (NOT clogged) AND armed
Goal state: (NOT clogged) AND (NOT armed)
Operators:

DUNK
precond: NOT clogged
effects: (NOT armed) AND clogged

FLUSH:
precond ---
effects: NOT clogged

Trace the partial-order planning algorithm described in class for the given planning problem. Then look back at your trace and mark the partial plans that are not totally ordered. For each of them, explain why this is so. Give an example of an iteration in which the principle of least commitment is illustrated and explain why this is the case.