For all following problems, unless otherwise noted, file names refer to classical domains from the classical planning domains repository of http://planning.domains available here: https://bitbucket.org/planning-researchers/classical-domains/src/master/classical/

1. **Elevator Domain:** Open the domain file `elevators-00-strips/domain.pddl`. Then open `elevators-00-strips/s2-3.pddl` and draw the first three layers of the planning graph (initial state, one action layer and one more state layer).

2. **Elevator Domain:** Determine all mutual exclusions in the planning graph from problem 1.

3. **Simple Domain:** Consider the following STRIPS actions:

Name: op1
Precondition: None
Effect: $g1 \wedge \neg g2 \wedge \neg g3$

Name: op2
Precondition: $g3$
Effect: $g4$

Name: op3
Precondition: $g4$
Effect: $g2$

Draw the planning graph for the first 5 layers (initial state layer, action layer, state layer, action layer, state layer) of this problem with the initial state: $g2 \wedge g3$ and the goal: $g1 \wedge g2$.

4. **Graphplan:** Complete the planning graph for problem 3, and determine a solution plan.

5*. **Bonus:** Prove that Graphplan is complete (i.e. whenever a planning problem has a solution, Graphplan will find it).