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/s2-4.pddl`. Assuming that every "up" action may fail with a probability of 2%, calculate the plan with the highest probability of success. What is the probability that it will fail?

2. **Elevator Domain:**   Open the domain file `elevators-00-strips/domain.pddl`. Then open `elevators-00-strips/s2-4.pddl`. Assuming that every "up" action may fail with a probability of 1% **per floor** (i.e. going up from floor 1 to floor 2 will fail with 1% probability, going up from floor 1 to floor 3 will fail with 2% probability, etc.), calculate the plan with the highest probability of success. What is the probability that it will fail?

3. **Elevator Domain:**   Open the domain file `elevators-00-strips/domain.pddl`. Then open `elevators-00-strips/s2-4.pddl`. Assuming that every "up" **and** "down" action may fail with a probability of 1% **per floor** (i.e. going up from floor 1 to floor 2 will fail with 1% probability, going down from floor 3 to floor 1 will fail with 2% probability, etc.), calculate the plan with the highest probability of success. What is the probability that it will fail?

4. **Elevator Domain:**   Open the domain file `elevators-00-strips/domain.pddl`. Then open `elevators-00-strips/s2-4.pddl`. Assuming that every "up" action may fail and go up one floor less than it was supposed to, calculate a conditional plan that solves the problem. Such a plan will branch for every "up" action, with one option continuing the plan as normal, and the other accounting for the failure. Note that this graph will technically be "infinite", since if an up action of one floor fails, you will have to retry it again. You may use loops in your plan to avoid this, i.e. "retry this action".

5. **Game Trees:** You and an opponent choose bits until two zeroes or two ones have been chosen in a row, or 5 digits have been chosen in total. If the resulting number is prime, you get that many points, otherwise you lose that many points. Draw the complete game tree for this game. What is your best first move? Example: You pick a 1, then you opponent picks a 0, then you pick a 0, and the game ends because 2 zeroes have been chosen in a row. The resulting number is $100_2 = 4_{10}$, and you lose 4 points.