

This handout includes space for every question that requires a written response. Please feel free to use it to handwrite your solutions (legibly, please). If you choose to typeset your solutions, the `README.md` for this assignment includes instructions to regenerate this handout with your typeset L^AT_EX solutions.

0.a

Variables: One variable B_i for each button $i \in [1 \dots m]$. The domain for each variable is $[0, 1]$ or **off** and **on**.

Constraints: One constraint f_i for every light bulb $j \in [1 \dots n]$.

$f_i = \text{sum } j \text{ such that switch } B_j \text{ controls light } i B_j = 1 \bmod 2$

- i) There are 2 consistent assignments. [1, 0, 1] and [0, 1, 0]
ii) There will be 9 calls to Backtrack

1. call # 1 assignment []
2. call # 2 assignment ['X1': 0]
3. call # 3 assignment ['X1': 0, 'X3': 0]
don't call for var:X2 val:0 deltaWeight 0.0
4. call # 4 assignment ['X1': 0, 'X3': 0, 'X2': 1]
5. call # 5 assignment ['X1': 0, 'X3': 1]
don't call for var:X2 val:0 deltaWeight 0.0
don't call for var:X2 val:1 deltaWeight 0.0
6. call # 6 assignment ['X1': 1]
7. call # 7 assignment ['X1': 1, 'X3': 0]
don't call for var:X2 val:0 deltaWeight 0.0
don't call for var:X2 val:1 deltaWeight 0.0
8. call # 8 assignment ['X1': 1, 'X3': 1]
9. call # 9 assignment ['X1': 1, 'X3': 1, 'X2': 0]
don't call for var:X2 val:1 deltaWeight 0.0

2.a

3.c