CS 278 Fall 2020 Assignments

HW1

Please type your answers and submit them as pdf file on Canvas.

1) Exercise 1.1.2: Expressing English sentences using logical notation (b), (c), (e).
2) Exercise 1.2.7: Expressing a set of conditions using logical operations (b).
3) Exercise 1.3.6: Expressing English sentences in if-then form (a), (b), (c), (d).
4) Exercise 1.4.6: Applying De Morgan's laws (b).
5) Exercise 1.5.2: Using the laws of logic to prove logical equivalence (f).
6) Exercise 1.6.1. Valid and invalid arguments expressed in logical notation (f), (j).
7) Exercise 1.6.3: Valid and invalid arguments in English (a).
8) Exercise 1.7.2: Proving arguments are valid using rules of inference (c).
9) Exercise 1.7.4: Proving arguments in English are valid using rules of inference (b).
10) A woman's purse has been stolen inside an office building. There are 4 people on her office building's floor. One of these 4 people stole her purse. The police interview each of these people and they offer the following statements:
    Adam: David is lying and Carl is telling the truth.
    Bridget: Adam is telling the truth or Carl is lying.
    Carl: If Adam is lying then Bridget is lying.
    David: Either Bridget is lying or Carl is telling the truth.
Assuming that every innocent person ends up lying to protect their friends while the guilty person actually tells the truth, who took the woman's purse? Justify your answer.