Assignment 1

Total points: 20

1. [10 points] Consider an AI based student enrollment system for a university. The system will take into consideration past performance of students and automatically decide whether to enroll students or not.
   a. Discuss what metric (e.g., revenue, student quality, student's expected academic performance) the university authority like to optimize with such a system and why? What do YOU think should be the performance metrics of such a system?
   b. What constitute the environment for such a system and how does it perceive the environment?
   c. What will be its actions?
   d. What sort of AI/machine learning algorithms can be used? What will be its input and outputs?

2. [10 points] Suppose you want to ensure that the system is fair and unbiased. Read **section 27.3.3** of the textbook – Artificial Intelligence: A Modern Approach, 4th ed. by Russell and Norvig.
   a. Considering the performance criteria set by the authority, discuss how can the system be unfair? Answer in light of the discussion on the six commonly used concepts regarding fairness of the system.
   b. What can be the sources of bias in the in the data used to develop the machine learning model.
   c. What practices should be followed to ensure that the system is fair and unbiased?

Due: Saturday June 4 11:59pm

Instructions:

1. Upload a single pdf file named yourID_assign1.pdf (if your ID is 172007007, the filename should be 172007007_assign1.pdf)
2. You must write your name and ID on the top page of the pdf.
3. Your answer should be limited to 2 pages (1.5 line spacing, fond size: 11pt).