KBAI

Homework 1 (Spring 2021)

Answer the following prompts in a maximum of 6 pages (excluding references) in JDF format. Any content beyond 6 pages will not be considered for a grade. 6 pages is a maximum, not a target; our recommended per-section lengths intentionally add to less than 6 pages. This length is intentionally set expecting that your submission may include diagrams, drawings, pictures, etc. These should be incorporated into the body of the paper.

If you would like to include additional information beyond the word limit, you may include it in clearly-marked appendices. These materials will not be used in grading your assignment, but they may help you get better feedback from your classmates and grader.

Question 1: ~2 pages

Rey has managed to capture Snoke and Kylo Ren on the planet Quesh. Quesh has a poisonous atmosphere, however, and so Rey, Snoke, and Kylo Ren will have to be kept together in quarantine for two weeks upon arriving back on the orbiting ship.

Only one shuttle is available to transfer individuals back and forth between Quesh and the orbiting ship, and that shuttle can only seat one person. The shuttle has an autopilot, though, so it can fly without anyone in it.

Leia, in the orbiting ship, refuses to let Rey be alone with Snoke (without Kylo) either on the planet or in quarantine, knowing that Snoke will turn Rey to the dark side. Snoke would rather stay and die than let Rey be alone with Kylo Ren, knowing that she will turn Kylo to the light side. Leia wants Snoke alive, and therefore agrees to his demand that Kylo and Rey never be alone together (without Snoke) either on the planet or in quarantine. It is okay, however, for Kylo & Rey or Rey & Snoke to be together if the shuttle is with them, as long as one of them departs on the shuttle.

In simple terms: the goal is to move Rey, Snoke, and Kylo from the planet to the ship. Only one can move at a time, and the shuttle can move without a passenger. Rey and Kylo can never be alone together without the shuttle, and Rey and Snoke can never be alone together without the shuttle. (If you are unfamiliar with Star Wars, know that this paragraph contains everything you need to know to solve this problem.)

First, **construct** a semantic network representing this problem. This should take approximately half a page, including a figure of two states with a transition between them. Make sure to include all components of the state, and an operator indicating how we transition from one state to another.

Second, **apply** generate & test to this semantic network in order to solve the problem. In applying generate & test, your generator should be smart enough to only make valid moves (e.g. it will not try to move two people at once or make consecutive planet-to-ship moves without the transport ship coming back), but it should not be smart enough to only make moves that result in valid states (e.g. it should still try to move Kylo first, even though that move results in an invalid state). Your tester, in turn, should check each generated state to see if (a) it follows the rules, and (b) if it has met the goal. You may decide whether identifying states that have already been visited is the responsibility of the generator or the tester.

Include the entire semantic network that solves this problem. Clearly indicate which states are failed, and why. The semantic network should explore the entire problem space: every state should be either ruled out or have its following states explored. We expect this will fit on one page; you may create a more space-efficient representation if need be. As long as it is legible, you may also hand-write the network and insert it as an image into your paper.

Question 2: ~2 pages

Research the recently-passed General Data Protection Regulation passed by the European Union. **Describe** what the regulation says about the usage of personal data to personalize individual user experiences online. **Analyze** how that regulation might apply to the use of artificial intelligence to create personalized experiences.

Then, **select** an example of a device, company, or industry for which personalization is *deeply* embedded in its functional purpose or business model. Personalization should be deeply rooted in the purpose or model: Amazon, for example, uses personalized recommendations, but it is not difficult to imagine a user being able to specifically opt out of those recommendations and still use most of the service. Select a device, company, or industry for which, without personalization, there *is* no service.

Then, **evaluate** how these devices, sites, or services may be adapted to these GDPR restrictions. **Determine and defend** whether it is even possible to allow users in the European Economic Area to use these tools without waiving their GDPR rights.

Submission Instructions

Complete your assignment using JDF, then save your submission as a PDF. Assignments should be submitted to the corresponding assignment submission page in Canvas. You should submit a **single** PDF for this assignment. This PDF will be ported over to Peer

Feedback for peer review by your classmates. If your assignment involves things (like videos, working prototypes, etc.) that cannot be provided in PDF, you should provide them separately (through OneDrive, Google Drive, Dropbox, etc.) and submit a PDF that links to or otherwise describes how to access that material.

This is an individual assignment. All work you submit should be your own. Make sure to cite any sources you reference, and use quotes and in-line citations to mark any direct quotes.

Late work is not accepted without advanced agreement except in cases of medical or family emergencies. In the case of such an emergency, please contact the Dean of Students.

Grading Information

Your assignment will be graded on a 20-point scale coinciding with a rubric designed to mirror the question structure. Make sure to answer every question posted by the prompt. Pay special attention to bolded words and question marks in the question text.

Peer Review

After submission, your assignment will be ported to Peer Feedback for review by your classmates. Grading is *not* the primary function of this peer review process; the primary function is simply to give you the opportunity to read and comment on your classmates' ideas, and receive additional feedback on your own. All grades will come from the graders alone.

You receive 1.5 participation points for completing a peer review by the end of the day Thursday; 1.0 for completing a peer review by the end of the day Sunday; and 0.5 for completing it after Sunday but before the end of the semester. For more details, see the participation policy.