**MIS 310 Week 8 Homework (30 points)** Name: Megan Leonard

You will not be given credit for answers that are copies or near verbatim transcripts – please use your own words and document sources where appropriate using proper APA guidelines. Apply the principles learned in this chapter (chapter 7) or previous chapters to answer the questions for this assignment.

**Chapter 7 Learning Outcomes**

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| * Discuss the relationships between data, information, and knowledge. * Identify the benefits associated with a sound knowledge management program. * List some of the tools and techniques used in knowledge management. * Define the term "artificial intelligence" and state the objective of developing artificial intelligence systems. * List the characteristics of intelligent behavior and compare the performance of natural and artificial intelligence systems for each of these characteristics. * Identify the major components of the artificial intelligence field and provide one example of each type of system. * Discuss the use of multimedia in a business setting. * Define the terms “virtual reality” and “augmented reality” and provide three examples of these applications. * Discuss examples of specialized systems for organizational and individual use. |

**Week 8 Review Questions (10 points)**

Answer the following questions in one or more paragraphs using proper APA format as required**:**

1. [2 points] Identify and briefly describe two processes frequently used to capture explicit knowledge.

Two processes that are frequently used to capture explicit knowledge are reports and rules. Reports are documents that are written to store the knowledge. Rules are the conditions and regulation of the knowledge. Reports and rules are both used to measure and record the knowledge.

1. [2 points] What is a community of practice (CoP)? Give an example of a CoP. What are some of the advantages of participating in a CoP?

Community of practice are people who share a common interest and work together to create, store, and share knowledge on their chosen topic. The advantage of a CoP is that it can help expand the knowledge base a person has on a topic, more specifics can be seen, and people can connect with others who have the same interests. An example of a CoP would be the SCP site. The SCP site is a wiki page created for a fake government facility that works on researching and containing threats of creatures. The community is made up of people who share the same interest in the SCP and the threats which leads them to build on the creatures and expand the SCP world.

1. [2 points] What are the fundamental components of an expert system and what function does each perform?

The fundamental components of an expert system are knowledge base, inference engine, explanation facility, knowledge base acquisition facility, and user interface. The knowledge base stores all relevant information for the expert system. The inference engine takes the information from the knowledge base and will give answers and suggestions based off the information. The explanation facility will explain how the system came to the conclusion. The knowledge base acquisition facility can store and capture the different parts of the knowledge base. The user interface helps simplify the system so it can be easier for the users to use.

1. [2 points] What is a learning system? Give an example of a learning system and explain.

A learning system is made of software and hardware that helps a computer change its functions and reactions to situations using the feedback it collects. An example of this would be a site called Akinator. This site uses a guessing system with a list of questions to determine the subject the person is thinking about at the start. The AI has a list of different people in its database and will use the questions as a path to get to the desired outcome. If it is not already in the system, the user can add the person and Akinator will learn how to path to that person.

1. [2 points] What is game theory? Identify two applications of game theory.

Game theory is a math theory that is used to create strategies to receive the max gains and minimum loss will staying within the bounds set by the rules and constraints while two people make decisions without knowing the choice of the other until the outcome. Two applications of this would be the prisoner’s dilemma and chess. The prisoner’s dilemma has two different people with the options of if one talks then other has the full time, if both talk then the time is half, but both serve, and if no one talks then no one serves. The people need to think of the best outcome and try to determine what the other is likely to do as well. Chess requires a person to be able to think of multiple possible moves and where the opponent is likely to go. There are also the decisions of which pieces can be sacrificed to get the maximum gain. For example, the person could sacrifice a pawn to set up a move of taking the opponent’s higher pieces putting them in a more advantageous spot.

**Week 8 Critical Thinking Exercise (10 points)**

Read the following and answer the questions in one or more paragraphs using proper APA format as required**:**

***IBM Watson Offers Advice to Cancer Patients***

*IBM and the American Cancer Society (ACS) are working in partnership to develop a Watson-based advisor to support cancer patients. They will create this robust resource by drawing upon massive sources of data from both organizations, and then train Watson to use the data to understand and anticipate individuals’ needs. In addition, the advisor will learn about the patient and that patient’s planned treatment regimen, allowing it to offer personalized advice that matches the patient’s individual characteristics, preferences, and treatment plan.*

*The goal is for the Watson-based advisor to anticipate the needs of people with different types of cancers, at different stages of the disease, and at various points in treatment. For example, a person with lung cancer experiencing unusual levels of pain could ask what might be causing pain. The advisor would be designed to respond with information on symptoms and self-management options associated with that persons’ current and future phases of treatment, based on the experiences of people with similar characteristics.*

1. [2 points] How might visual systems and natural language processing be incorporated into the Watson cancer adviser system?

The visual systems would be able to give a visual representation of the different cancers and the stages to help with understanding where the person is in. This could be images of the stages as well as visuals of a person without to set a standard and show the difference that is causes from a visual standpoint. The natural language processing can help explain to the patient and advisors about the steps that will need to be taken to deal with the cancer as well as tell them in simpler terms what type of cancer it is, if it is lethal or not, and how it is likely to act over time.

1. [2 points] What other major branches of artificial intelligence are employed in the Watson cancer patient adviser?

Other major branches are neural networks which can learn and determine trends and patterns as a means of determining if a patient has cancer, the type, and the stage it falls into and the learning system which helps learn what helps and does not help in the treatment of the patients.

1. [3 points] One of the challenges of a cognitive computing capability such as the Watson cancer adviser is keeping the information that Watson draws on as current as possible. Over time, new approaches, courses of treatment, medicines, and ideas will be discovered that are improvement over the old way of doing things. How might the Watson cancer adviser be kept as current as possible?

To be kept up to date the Watson adviser could compare the new approaches with the previous and see which overlap and replace the outdated with the newer ones if the information is gathered from a proper source.

1. [3 points] Cancer patients frequently suffer from depression. Do you think it is possible for Watson to recognize symptoms of depression and provide encouragement and advice to the patient? How might this be accomplished?

I think it is possible as there are tests that doctors use to help identify depression in the patients. To do this Watson could use the set questions and determine if the answers fit with the likely cases of depression using previously collected data within the medical field.

**Week 8 Case Study (10 points)**

Read the following and answer the questions in one or more paragraphs using proper APA format as required**:**

***Doctor on Demand Enables Physicians to Make House Calls***

*In addition to cost, provider availability and travel time are barriers for many Americans seeking access to healthcare services. In fact, a recent study of 4,000 patients determined that, on average, patients spend 38 minutes on travel time to and from outpatient appointments. Improving patient’s access to care continues to be a priority for healthcare providers and government agencies across the United States, and an increasing number of companies have begun offering telemedicine services, such as video-based doctors’ appointments, as a potential solution.*

*Founded in 2013, Doctor on Demand, offers the possibility of increasing access to health care through video visits with doctors who can diagnose and treat a range of noncritical symptoms for patients who are unable or unwilling to visit a clinic. Using the Doctor on Demand services, patients can connect with one of more than 1,400 licensed physicians through the company’s Web site using a Chrome, Firefox, or Safari browser or via an Android or iOS app. In addition to video conferences, the Doctor on Demand app allows patients to upload high-resolution images so that doctors can better assess certain conditions.*

*The top conditions treated by the service are cold and flu symptoms, sore throats, urinary tract infections, skin rashes, diarrhea and vomiting, eye issues, sports injuries, and travel-related illnesses. The site also offers video visits with board-certified lactation consultants for women who are breastfeeding. In addition, patients who need psychological or psychiatric services can consult with mental health professionals via the service.*

*According to Adam Jackson, CEO of Doctor on Demand, the most frequent users of the company’s services are working mothers, who often have questions about their children’s health but aren’t always able (or willing) to take time off to get every question answered. According to Jackson, 92 percent of video consultations require no in-person follow-up.*

*Although Doctor on Demand suggests that patients have access to Wi-Fi to ensure the highest quality appointment, the company promises a smooth experience as long as patients have a 4G or LTE connection. Patients who have connection problems can also switch to audio only to complete a visit, if necessary. The Doctor on Demand network runs on a cloud-based platform run by Amazon Web Services. Due to the nature of the communication, the company had to go through several steps to ensure that all of its infrastructure**was compliant with HIPAA (Health Insurance Portability and Accountability Act) requirements.*

*Most experts predict a shift to telemedicine, including video doctors’ visits, will continue. In fact, a report by analytics company IHS Technology predicts that video consultations will increase from 2 million in 2015 to 5.4 million by 2020. For some patients, however, technology limitations will continue to impede their ability to access health care through telemedicine services. A grainy connection or one that cuts out in the middle of an appointment is unlikely to result in a high quality of care. Other hurdles that will also need to be overcome include patient’s privacy concerns, patients’ uncertainty about when a video appointment is appropriate in terms of symptoms, and patients’ lack of trust that a virtual provider can accurately diagnose and treat them. That concern was reinforced by a recent study published in the JAMA Internal Medicine that found significant variations in the quality of care provided by different companies offering virtual visits for the diagnosis and treatment of common acute illnesses.*

1. [3 points] Would you consider using Doctor on Demand or a similar service to access treatment for a minor healthcare issue? If not, which aspects of the service are most concerning to you (privacy, quality of care, security, or other technology issues, etc.)?

I would consider this for minor healthcare issues as for a cold it would be easier and more cost effect to use Doctor on Demand rather than setting up an appointment in person where you could spread it to others if not careful and could be done with the cold by the time the appointment date comes.

1. [3 points] Do more research online about Doctor on Demand and two of its competitors (such as Amwell, MDLive, and Teladoc). What information does each company provide on its Web site that is designed to ease patients’ concerns about privacy, quality, and technology-related issues? Which company does the best job of convincing you that their service is safe and secure?

Each company provides the privacy policy about what information they collect and show what other sites have discussed them and the groups they work with. The company that does the best job to me is Teladoc as it shows the medical groups it works with, the data they collect is nothing intrusive that would not be collected at a normal appointment, and they have approval from other medical sources.

1. [4 points] In the study on patient travel time, researchers found that minority patients and those who were unemployed faced longer travel times when visiting a doctor. Rural Americans also often have more difficulty accessing health care. Is a video-based telemedicine app likely to improve access for those populations? How might this technology be used in a way that would be more likely to improve healthcare access for those populations?

The video-based app is more likely to improve access for these populations as some may not be able to travel due to distance or not having a car but most people in this day in age have access to a phone or a computer of some sort. Some people are unemployed due to disability which makes it hard to do in person visits making the virtual option easier on them and their health. This can be used in a way to determine the type of health problems in the area and the location that need more medical help. This could help with determining places to build new urgent cares for more serious problems that the application can not solve and get an idea of health problems that the community suffers from like the water problems in Flint, Michigan. This can help those who can access the technology and lead to improvement for the area based off of what the app can gather.

SOURCES: Doyle, Kathryn, “Study: How Long You Wait to See a Doctor Is Linked to Race, Employment,” Huffington Post, October 6, 2015, www.huffingtonpost.com/entry/study-how-long-you-wait-to-see-a-doctor-is-linked-to-race-employment\_us\_5613b0cbe4b0baa355ad2621; “Troubleshooting,” Doctor on Demand, https://doctorondemand.zendesk.com/hc/en-us/sections/200218868-Troubleshooting, accessed April 9, 2016; “Our Mission,” Doctor on Demand, www.doctorondemand.com/our-mission, April 8, 2016; Lapowsky, Issie, “Video Is about to Become the Way We All Visit the Doctor,” Wired, www.wired.com/2015/04/united-healthcare-telemedicine; Van Thoen, Lindsay, “Healthcare IT is Failing (And It Needs AWS), Logicworks (blog), July 20, 2015, www.logicworks.net/blog/2015/07/healthcare-cloud-saas-aws; Japsen, Bruce, “Doctors’ Virtual Consults with Patients to Double by 2020,” Forbes, August 9, 2015, www.forbes.com/sites/brucejapsen/2015/08/09/as-telehealth-booms-doctor-video-consults-to-double-by-2020/#639cbc4e5d66; “Press Release: “39% of Tech-Savvy Consumers Have Not Heard of Telemedicine: HealthMine Survey,” HealthMine, March 27, 2016, www.prnewswire.com/news-releases/39-of-tech-savvy-consumers-have-not-heard-of-telemedicine-healthmine-survey-300241737.html#continue-jump; Schoenfield, Adam J., et al., “Variation in Quality of Urgent Health Care Provided during Commercial Virtual Visits,” JAMA Internal Medicine, April 4, 2016, http://archinte.jamanetwork.com/article.aspx?articleid=2511324.