Name _____

CS456 - Exam 2 - DUE 12/11 by 11:59pm
(99 + 1 Points)

Directions

- You may spend as much time prior to writing the solutions as you wish *organizing* your thoughts. This includes making notes, sketching outlines, etc. but should not involve discussing the questions with anyone other than the instructor or writing any portions of your final answers. Answers will be graded based upon the recognition of the validity of differing viewpoints (and the consequences of each position) and a *thoroughly justified* discussion of your opinions on the issue **utilizing the resources from class**. **Be sure to cite any class resources you use in your discussion.** You *should not* use any other resources except, if desired, for strictly factual statistics.

- You are allowed **1 hour 30 min** (approximately 30 min. per question) to write your final answers. You may divide up the alloted time into parts, but you must complete any questions you begin within a given session. You may then take an additional 10 min. per question to *proofread* your answers and correct grammar, spelling, etc.

- Answers for each question should be **no more than one and a half pages**. Each answer should begin on a new page and use 10-point font with double spacing - **a 10% penalty will be deducted for improper formatting**. Include a citation page at the end for any references used. Upload a single .pdf (named *username*-CS456-Exam2.pdf) with all your final submission answers to Marmoset **by 11:59pm Tuesday, Dec 11**.

1.(33 points) **Information Superhighway**

Initially the Internet was designed to be a communication network that was immune from disruption to facilitate secure military communication. Academia then expanded its utility to foster free dissemination of information and ideas. Eventually with the birth of the World Wide Web, the information superhighway became more and more accessible to the average citizen as technology improved and became more user friendly. Today the Internet is an integral part of everyday life from mobile access to automobile connectivity. At no stage of its growth was there any governmental regulation of how or what this new medium was used for, in essence allowing the organic evolution of the technology with all the inherent benefits and abuses that provided. Thus the unregulated (and even possibly unregulatable) state of the Internet, which initally allowed for a new information renaissance, also now allows for much greater pervasiveness of technology through a vast array of connected IoT devices, GPS tracking, social media scanning, and even facial recognition from public cameras, all of which often have significant vulnerabilites calling into question data collected by them, e.g. bodycam evidence. Thus a major concern for technology companies is can the Internet continue to provide conveniences yet be used in a secure/private manner through preventing users from modifying the software on their devices or forcing them to upgrade to current technologies to remove legacy systems. Discuss whether or not it is possible for information to be truly *free* while preventing the Internet from either devolving into an anarchistic technological wasteland full of spoofed or simply false noise, and/or becoming a mechanism for current political agendas through censorship and cyber manipulation of public opinion. Does government enforced net neutrality improve or impede the basic purpose of the Internet? Do private companies, such as Facebook, have an obligation and responsibility to help maintain the useability of the Internet through automated or user complaint removal of content, or will society as a whole eventually demand some form of regulation to address the less desireable aspects?

2.(33 points) **Virtual Interactivity**

For better or worse, more and more of our daily lives exists within virtual worlds. Whether it be education, social networks, on-line games, virtual business meetings, or even just simple texting/e-mail, an increasing amount of our interaction with people, including how we define ourselves, occurs through electronic means. For members of the younger generation, this is the natural way of establishing and maintaining relationships in today's world. Hence some would argue that the new iGeneration (for lack of better term), despite the emphasis on STEM education, is losing to some extent *effective* critical thinking and communication skills even though they may be able to find information and communicate faster and with a wider range of people. Furthermore, technological interactions, especially ones done anonymously, provide a certain amount of detachment resulting in a lack of empathy for other people causing an increasing amount of calousness and passive acceptance of such behaviors as normal. Discuss how you feel technology has changed what it means to be *human*? Are respect for others and a certain amount of consideration towards other people's feelings simply an old fashioned passe relic now that hurtful content can be virally disseminated anonomously online? Are the behaviors that are tolerated (and even encouraged) online, such as creating inappropriate videos using deep fake and other similar technologies, appropriate or has the line between acceptable and unacceptable behavior changed because of technology? Do we as the computing professionals need to take the first step in being educated, beyond just the technical aspects, on our ethical responsibilities, and then develop software that encourages society to use the technologies ethically and responsibly? At what point are our online personas, which may be stored and retrieved through digital representation such at Face ID data, indistinguishable from our real personalities as we interact more and more with the electronic *representations* of others and how does this define who we really *are*?

3.(33 points) **Future World**

As technology continues to expand into our daily lives, we begin to have the ability to utilize it for not only individual benefit but also for improving the functioning of society as a whole. We can improve the response time of emergency services, reroute power and other utilities in an optimal manner, better monitor public places, provide safer communities in which to live, and even begin to transport us from place to place autonomously. Conversely, governments and other malicious entities can now utilize the pervasiveness of technology as a new weapon to produce chaos and disruption in the general population. While initially techology focused on reducing our manual labor, with increasing amounts of computing power available in smaller and smaller devices, it is possible to embed AI software that can adapt to changing situations and replicate higher level cognitive processes in a much broader range of areas. Will technology continue to become more and more advanced (possibly even to the point of deserving rights) and even more tightly integrated into society, and at what point will the technology itself become the problem rather than the solution? Discuss your view of the future of society with respect to technology, how it will be part of our lives, what will the greatest challenges be, and to what extent you as a computing professional will be responsible for ensuring it remains beneficial to society through your own decisions and/or collective actions, e.g. through tech union movements.