*Context diagram is the above without the red processing boxes (DFD).* The assumption is that the Red Cross website has the calendar for appointments stored within its own data store. The red processing boxes have their multiple bullet points/actions listed below.

1. User location
2. User's chosen blood donor center
3. Confirmed appointment with reminder preferences
4. Five closes blood donor centers matching user's location
5. Directions to chosen blood center
6. Appointment reminders based on preferences
7. Blood donor centers fitting user preferences (mobile, blood/platelet, etc)
8. Blood donor center chosen by user (to schedule appointment)
9. Finalized user appointment with reminder preferences
10. Blood donor center location data
11. Appointment schedule for chosen blood donor center
12. Reminders for appointment based on preferences received
13. Top 5 blood donor center locations based on smallest distance between user location received and blood donor center locations
14. Directions to chosen blood donor center
15. User and blood center location
16. Blood center chosen
17. Total blood donations based on user login information
18. Requested blood donation count based on user information
19. Total blood donation count based on user information

**Level 0 DFD. (Includes red boxes as sub-processing; each box is a summary of the smaller processing boxes that would fit between each numbered information line between entity to system)**

**Processing A:** Determines user preferences and calculates total donations, lists distance and directions to nearest blood donor center, and sorts appointment reminders.

**Processing B:** Calculates appointment based on calendar and sorts and sends user preferences to the website (chosen blood donor centers, reminder habits, remembering the website has its own data store).

**Processing C:** Calculates blood donor center distances and directions based on processed user information; lists donation centers based on proximity limitations in place.

**Processing D:** Sorts user specific information to calculate and determine total blood donation count; records and tracks future donations.
Move head to reading position

Read cell on tape (input/output)

Find Rule List that matches current state

Update the position, state, and step

Read the cell to determine if there is a rule...

If yes... Move cell to erase position and erase

If no... Stop run

Part 2. Turing Machine Flow Chart
**Part 3. Enterprise Architecture**

**Question 1.** The five characteristics of infrastructure architecture (the hardware, software, and telecommunications equipment needed to support the infrastructure of an organization’s goals) include flexibility, scalability, reliability, availability, and performance. Flexibility deals with an organization’s ability to adapt to progress; scalability refers to how a system adapts to increased demand; reliability refers to the correctness of information in the system and its ability to work correctly; availability refers to employee, customer, and partner abilities to access the system (IT metrics) and; performance measures how quickly a system performs a certain action or process. Regarding the Tribune Co.’s business, the characteristics would be ordered by importance as: reliability, availability, performance, scalability, and flexibility. With past coding errors forcing the company to waste $1 million with major system delays, it is important to focus on reliability, as the company has already grown in the last two categories through their standardization efforts.

**Question 3.** Backups are an exact copy of a system’s information, aiding in the minimization of time loss and financial damages caused by crashes and failures. Recovery deals with the ability to restore a system back to its proper state before the system failure while returning all information to the backup. As the company has already lost $1 million without an adequate backup system, the company risks losing more revenue when consolidating the billing ad applications, as they would not only lose money through system delays and operational failure, but also potential funds in advertising revenues if the files are lost (readers and investors).

**Question 4.** Scalable and high value enterprise architecture are critical to current operations and future growth due to its ability to increase standardization, speed up new system development and decrease costs, making IT systems more responsive and strategic at lower costs. By increasing scalability to meet higher demand, the system is more likely to succeed without performance malfunctions. Because of this, scalability relates to adaptability, as systems with low scalability usually fall short of managing increased demands effectively.

**Question 5.** With a company as large as the Tribune Co., information security has an important role in stabilizing networks it continues to expand to larger audiences around the country. Hacking, unauthorized accounts, phishing, and other technological issues are faced by companies like the Tribune the more they continue to expand their network. The company also has some privatized or sensitive information, including bank accounts, donor information, advertising/accounting books, etc. In order to ensure the confidentiality of vital business information, the Tribune Co. should implement a safeguard for its data and networks (a strong information security system) that includes a strong security plan in the case of compromised information, as well as better management of anti-virus software, in order to continue consolidating and standardizing their billing packages safely and efficiently.

**Part 4.**

**Question 1.** Cloud computing software, when considering a public sector adoption, has some major disadvantages. Data security, for one, is the primary issues, as there is a lack of prioritization and focus on data security. Cloud software also has a high upfront cost, with upgrades of older hardware and software license renewals being pricey. Overall, the data security is the primary reason this software has not yet been considered by the federal government. Even with these disadvantages, there are a few benefits of this software. A couple benefits include a forward-thinking method of interacting with the public while reducing future costs with improved IT systems. Cloud software can help the government become “more advanced, more reliable, and cheaper to maintain.”
Question 2. IUanyware allows students, faculty, and staff to access software like GIS, Adobe Photoshop, Dreamweaver, and SAS through their web or phone browser without needing to install the programs on their device, providing easy-access client virtualizations. IUanyware has implemented the five characteristics of NIST (on-demand self-service, broad network access, resource pooling, rapid elasticity, and measured service), indicating that the software is indeed an efficient cloud computing service.

Question 3. An argument can be made for smart machines and ICTs in public administration, however the use of intelligent machines depends upon the type of machine or ICT and the social environment where the machine will be placed (current prevalent culture and values). While some believe implementing smart machines can lead to greater government transparency, others believe it can lead to tighter government control and sanctioning of the citizenry. If we were to agree to implement ICTs or smart machines, we would have to translate all of the governmental “language” (laws, policies, etc.) into algorithms for the machines to understand. This sounds small, but actually accounts for a substantial amount of information, in essence the entire data store of government history and current policies, in order to guarantee the machine was given the same tools to make as effective and informed decisions as the governmental workers and judges currently in the field.