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Formal Languages and Computability

DFA - Password Generator

Internet security and privacy is of vital importance in the technological age. As a Computer Science student with a minor in cybersecurity, I would like to develop a program that takes input from the user and from that creates a password that uses strong guidelines. Users would have the ability to choose either if they want to input a password that would be made stronger or a phrase that would then be turned into a password. For randomly generated passwords, a hint will be given to help users remember it. For example, if the program outputs "jKx4NY>"tZY)Xk=>" another line would read "jack KOREAN xbox 4 NUT YELP > " tokyo ZIP YELP) xbox korean = >."

In order to provide flexibility in the system, the user would also be able to check which preferences they want in order to meet their needs. For example, some people may not be able to remember where certain special characters go in their password. To counter this I feel that if a user were able to select which special characters appeared in their calculated password they would be provided with a better more personalized service. While the service may offer the ability to reduce strength, I believe it is better to implement this into the system in order to serve a wider array of potential users. If a user submits a phrase that is easily guessable such as "password", "123", or "password123" the program will give them a randomly generated password that does not take into account their input. The program would also then output a message stating

why the given user input was not taken into account when determining the new password.