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**Lab Report 1**

**Introduction:**

For the lab, we were given a list of users, salt values, and hashed passwords. Our tasks were to find figure out what the passwords are by going through every single possible password that could be created using numbers with a length of 3 – 7.

**Solution:**

For the solution, I ended up creating a method to go through every single possibility possible to create with it being all numbers with a length of 3 – 7. Then I added every single salt value to the end of every single possibility that it can create, and then I hash it and see if it matches up with any of the hash passwords and then it would print out the username and the password for the ones that it was able to find.

**Experimental Result:**

For my test cases I ended up using 203769420, 52, ds, asdf69, and 2037. The reason why I ended up choosing the first four strings was to show that if the string did not fit the criteria needed, which was to be all ints with a length of 3 – 7. Then I ended up doing the final string to show that if you do have the correct criteria, then it should work just fine. I was able to get all of the passwords that were hash through the use of my code.

**Conclusion:**

I was able to get a better understanding about hashes and I was able to get a better grasp on recursive methods. I was also able to get some more knowledge on the basics of java, like how to use for loops, how to print texts, and how to create different methods. This lab was able to help me gain more confident in doing recursive.

**Appendix:**

**import** hashlib  
  
**def** hash\_with\_sha256(str):  
 hash\_object = hashlib.sha256(str.encode(**'utf-8'**))  
 hex\_dig = hash\_object.hexdigest()  
 **return** hex\_dig  
  
**def** main():  
 hex\_dig = hash\_with\_sha256(**‘This is how you hash a string with sha256’**)  
 print(hex\_dig)  
main()

**Academic Honesty:**

I, Ricardo Sillas, certify that this project is entirely my own work. I wrote, debugged, and tested the code being presented, performed the experiment, and wrote the report. I also certify that I did not share my code or report or provide inappropriate assistance to any students in the class.