1. Briefly describe the artifact. What is it? When was it created?
   1. This artifact was created as a part of a project where I had to reverse-engineer a binary file and try to recreate it based on the assembly lines I could retrieve. Based on that file and reading what was within it, I deduced that It was an investment company app with a basic five users, and they could switch between a retirement or investment account. It was created in September of 2024. It was coded with C++ and is very basic for interpreting the program.
2. Justify the inclusion of the artifact in your ePortfolio. Why did you select this item? What specific components of the artifact showcase your skills and abilities in algorithms and data structure? How was the artifact improved?
   1. I justified including this within my portfolio because it was basic in that I could add a decent amount to it to improve it, and it was in another language. I felt I could improve the program's security and expand on it by adding a database and other features, such as a balance per user, and adding some basic functionality to the app other than just tracking the type of service. I felt this showcased my abilities in algorithms and data structures. I enhanced the program to expand capabilities while allowing me to use more advanced methods of querying data and manipulating it as needed. I did things like generate random passwords for new users and used an improved hashing mechanism to allow passwords to be stored more securely. When creating the database, I tried to limit the case of anything malicious being input into the database, as well as having functions that query data in an efficient way for the use-case, such as List users, not just listing every single user under the sun to make it complicated to read or unclear, as well as ApplyMonthlyInterest applying the interest on to every client's balance based on the service type they currently had selected. I also tried to modularize the app's functionality between the user and admin. To improve on that, I’d create more roles based on the function of the actual role they are in, such as having a Database Admin who would maybe have access versus an accountant who could view characteristics of accounts but not apply things like monthly interest.
3. Did you meet the course outcomes you planned to meet with this enhancement in Module One? Do you have any updates to your outcome-coverage plans?
   1. This enhancement showed my ability to implement and design solutions that accomplish specific goals, such as including a database to make this program expandable. It demonstrates the ability to address potential design, logical, or structural flaws related to security as it implements improved password hashing and uses algorithms or data structures to enrich the functionality available for the program to operate.
4. Reflect on the process of enhancing and modifying the artifact. What did you learn as you were creating it and improving it? What challenges did you face?
   1. This artifact taught me the hard way to spend time planning out my plan to create enhancements. I say that because when implementing the database handler, I realized how quickly the file became cluttered with different functions. I then changed how it worked: I implemented some modularization to depend on user groups and tried creating more generic tasks within the database handler file. If I had been more thorough in my planning initially, I could have avoided recreating functions, which would have allowed for more time for me to fine-tune the functions that I did create and make them more efficient, secure, or impactful.