

ULTIMA V GAME SAVE EDITOR

So this project came with a lot of hidden challenges. I really did not know how to go about this at first and ended up watching a large amount of videos to get started. I first started with learning how to use a hex editor and getting information I needed like, the hex to decimal and little endian values. I later moved from the hex editor the professor recommended to HxD. A popular and commonly used hex editor on windows. This allowed me to get more information and test for values I needed.

After learning the hex editor, I looked up what was the most common game file ext of that generation and found that the data is stored in SAVED.GAM. I also found this by seeing what values were being altered in the hex editor by the program. Then I looked for the corresponding values to the ones in-game. This part was very hard at first but found that the values were usually within 2 offsets apart. So after finding where the values were it was easy to change between each character.

I thought that the coding part was going to be the easiest but it turned out to be the hardest. I wrote a quick script at first, and it edited the strings of hex values at certain offsets. This was good, but I later found out I needed to change other values as well as allow the user to input some values. So I had to move on to making a program with a menu. This seemed easy but came out to a lot of work because I had to write down all these offsets and keep checking the hex editor to see if they were right. I also had to compile and check the whole program every once and awhile, to make sure what I was doing was working. I completed it all and it shows with how many lines I wrote and how much work I put in. This most likely took about 10 hours of writing code, 3 hours of research and 2 hours of finding out how the game works and where the offsets were.

I think overall this program was very fun to write and it is cool to learn how older games were written.

Sources -

https://www.youtube.com/watch?v=EpcK8uk7lcY&ab_channel=GuidedHacking
<https://stackoverflow.com/questions/26509916/python-hex-editing-specific-locations-in-a-file>
https://www.youtube.com/watch?v=eUoFKTww-PY&ab_channel=StephenChapman
https://www.youtube.com/watch?v=haxMIAvbidM&ab_channel=StephenChapman
<https://news.ycombinator.com/item?id=11512058>
[https://en.wikipedia.org/wiki/Ultima_\(series\)](https://en.wikipedia.org/wiki/Ultima_(series))

Screenshots before changes





Screenshots after changes





