For the first round we can see that the muxes are first loading in the initial inputs(x=00, y=01) into Registers X and Y. For every round after (rounds 1 through 11) the muxes are loading inputs(x=10, y=11) into Registers X and Y. We can see the values appear in the registers after 1 clock cycle. We can also see that the appropriate round key for every round is being loaded into the round_key_temp variable according to the table we were given on the lab doc. Round count increments everytime new values are loaded into Reg X, Reg Y and round_key. Once 12 rounds(0 to 11) have completed the encryption is complete and Ciphertext is output to the output variable.

We can see all of the encrypted keys loaded into memory