zku assignment - week 4

Part 1:

1. A first, more simple way of syncing with the blockchain is to run a full node, i.e. to download the whole blockchain. Another way of syncing to the blockchain is to run a light client, which downloads the data it needs from the blockchain and validates it through the use of merkle roots.
2. Plumo compresses a sequence of blocks using BLS and verifies it through a SNARK. In particular, transactions are aggregated in groups of about four months and validated through a SNARK proof that also checks that this group follows the previous group and the correctness of an entropy value used to prevent attacks.
3. One of the differences is that Harmony uses the FBFT consensus algorithm while Celo uses IBFT. Another difference is the timespan of epochs in which blocks are grouped: an Harmony epoch takes around 4 hours, while a Celo epoch takes around 1 day.

Part 2:

1. Another idea that came to my mind was a platform where employers are able to manage payments to their employees. Unfortunately, looking for other ideas, I saw later that this idea was the same as one of the final projects for a previous cohort, so I decided to discard it.
2. Between my ideas from last week, the second one (the platform for surveys) is probably the weakest of the three: even though the zk benefits here are great, I don't think that the user base would be as large as the other two. For me it's also the most difficult to realize, because I would need to decide what parameters I'd like to make accessible in the forms and find a way to find them reliably and make circuits to prove each one of them. Since I'm also lacking experience in frontend development (I began doing frontend tasks this week), I'll rank this idea lowest of the three.
   The idea that convinces me the most is the zk variation of stratego game, even though user size wouldn't be huge at launch, if the mechanics are thought well enough, it could develop a cool niche of players. I think it's also pretty simple to set up, both on the backend and frontend side.
   Lastly, the idea of the NFT dapp is probably the one which would have the most wide user base, but also the one which requires the most amount of work and, after thinking about it better, I don't think I have the capabilities to complete this idea decently enough (both timewise and skillswise).
3. I think I'm most likely to develop the zk game, because I really like strategy games and it's the project most compatible with my set of skills.

Part 3:

1. The config file allows us to customize webpack by importing new plugins by extending the ones preexisting. In this case, we provide a new plugin if the compilation is done on the client side, and we specify how we should handle a fallback.