Merit is a platform that lets users access, track, and organize their life's achievements, with the hope of streamlining the certification. Their pitch went something like this:

> Imagine you're on a trip with friends, and decide to go scuba diving, but forgot your diving log book. Merit will allow you to keep this record online and would be (already are) certified / verified by the organization that certified you.

In theory, this is a great idea, though in practice they aren't using the blockchain, thus aren't decentralized, and without any intermediaries to validate them.

The combination of social media (specifically LinkedIn) with the way education works these days, a combination of formal education (e.x. GED, high schools, colleges and CompTIA certification) and informal education (e.x. Coursera, udemy and edX) can result in fake or inaccurate information. Furthermore, when looking at just formal education, the process by which verification occurs differs from one organization to another. By utilizing the blockchain, there can be not only ease of verification, but also a standard for validation.

What is the item that changes ownership when verifying one's educational accomplishments? What data needs to be included in each transaction block?

When receiving a diploma or certificate the current transaction is payment (and grades) in exchange for a degree. When using the blockchain, the final outcome is the same; however, unlike today, the blockchain requires a contract between the institution(s) and recipient that's validated on the blockchain.

This change in logic would allow the requirements to be written in (smart) contract, rather than just verbally stated. For cases such as high school, and something that requires a lab, the contract may also include number of hours participating, or whether a person actively logs on to a (Zoom) season, and so on.

The other part of it is when the degree or certification is finally granted, the information on the blockchain would be very similar to the current degree with the following information

- Full Name
- School Name
- Department
- Degree Name (ex. Computer Science, Economics, Liberal Arts, etc.)
- Any specialization associated with it (ex. Computer Science - security systems)
- Degree level (GED, Associates, Certification, Bachelors, Masters, PhD)
- Date of completion

In addition, there's a need to identify the person who received the degree - this can be by including things like date or birth or some other identifier that's associated with the student on the institutions' database.

The advantage of the blockchain for degrees and certifications is the ability to provide more comprehensive information such as a list of completed courses, and a unique number for the degree (block ID number).

Will educational institutions need to be involved in validating degrees and transcripts? How does the validation process work in a distributed, blockchain environment?

The level of involvement depends on the way by which the implementation occurs.

Option A: A company would create a program that allows institutions to create their own blockchain and publish the certificates/degrees there.

Option B: Institutions provide all the information for the student to select to publish it themself. Then if there's a need for verification they're contacted for confirmation.

Option C: There's a company, similar to Experian (credit score), that publishes the information on behalf of the students / institutions. Once a degree or certificate is completed, then the third-party organization takes physical responsibility for the degree, while the miners stake responsibility for the degree on the blockchain.

At the end of the day, no matter which path is taken (I believe there can be other options as well), the ultimate goal is to streamline the validation and verification of degrees and certifications.

What is nice about the blockchain is that since every transaction can occur through, the validation and verification can occur as each step is completed; both manually (i.e. grades) and virtually.

Validation is done through miners who complete complex algorithms, for a small fee, essentially acting as intermediaries to validate that both sides hold up to the expectations of the (smart) contract.

If you’re applying for a job and your prospective employers want to see evidence of your education, how might this work?

The blockchain is "public" to anyone. As such, it is relatively easy to gain access to metadata residing on it. Depending on the path they choose, an employer would either reach out to a third-party (like Experian) and request to review the degrees and certifications **or** would be able to request access to the specific block(s) directly from the potential employee.

Today, this process is not standard, often requiring extra paperwork, potentially wasting (wait) time on something that can be done fairly quickly using a decentralized system.