

## Technologies to get familiar with

Below you will find technologies that will be useful to us in the final challenges, so you might want to get familiar with these ones prior to the Nokia Student Network Hackathon Finals.

### Programming Environments

Python3  
Javascript/HTML

### Infrastructure

[MQTT](#) - a machine-machine messaging system based around a publish/subscribe system

- [Mosquitto](#) - an MQTT broker available for many systems, easily installable in Linux (NB: allow anonymous logins and enable WebSockets)
- [paho-MQTT](#) - a set of libraries for python (and also JavaScript)
- [WebSockets](#) <-- there are javascript libraries based on paho-MQTT. Inside a webpage ,you need to use WebSockets

### Data Processing

- the data sets are supplied as CSV/Text files - basic processing of these files is required eg: [Python's CSV libraries](#) are quite good
- numeric processing, if required, can be handled by [NumPy](#) or similar.
- this also includes any machine learning/statistical algorithms

### Blockchain

- [Ethereum's smart contracts](#) and the [web3 libraries](#) ( Javascript, Python, etc ) are relatively good
- the Ganache Ethereum chain simulator is a very good thing to know. **DO NOT** use the Ethereum Mainnet - **this costs money**
- [IPFS](#) is a distributed file system that has clients and libraries for Linux, Windows, etc, and in most major languages

### Security

- basic knowledge of public-private key systems and how to encrypt/decrypt.
- hashing libraries, eg: [Python's hashlib](#) and how to create sha256 digests

[REST](#) - **R**epresentational **s**tate **t**ransfer which is used for machine-to-machine communication over HTTP/HTTPS protocols.

- [Postman](#) test tool for REST API
- [Curl](#) - Command line “browser” for scripts