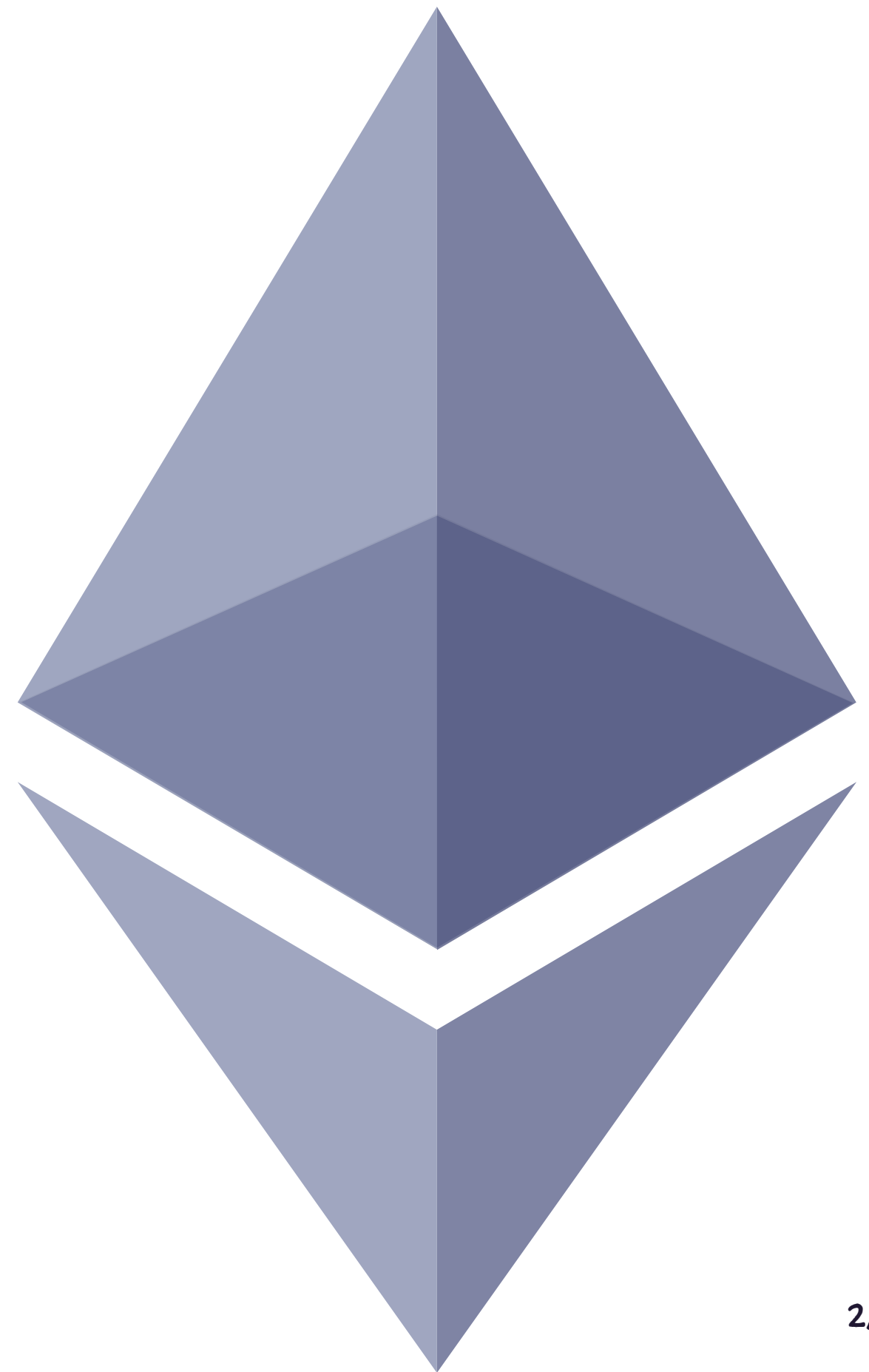


CS4215 Pontevedra



Source To EVM Compiler

- **Ethereum Virtual Machine** is part of the **Ethereum Network** that handles *smart contract* deployment and execution.
- Helps to maintain and update the states of the entire blockchain, containing millions of executable objects, each with its own permanent data store.
- Abstraction of computation and storage.



quasi-Turing complete

- Upper bound of execution processes by available gas.
- **gas** == 💰
- All program executions will halt.



EVM Architecture

*applicable to this project

- Word Size: 256 bits
- Stores all in-memory values on a **STACK***.
- A volatile **MEMORY***.
- A permanent **STORAGE**.

Instruction Set (Bytecodes)

1. Arithmetic and bitwise logic operations
2. Stack, memory and storage access.
3. Control flow operations

Bytecode	Stack Input	Stack Output	Effect
MLOAD	offset	value	reads a uint256 from memory
MSTORE	offset, value		writes a uint256 to memory
JUMPDEST			annotate possible jump destination
JUMP	destination		unconditional jump
JUMPI	destination, condition		jump if true
PC		PC	program counter
SWAPx	a ... b		swap the top of the stack with the x-th last element
RETURN	offset, length		Halt execution and return output data

Demo

Highlights