Solidity Variables

Types:

1. **State variables**
   - Permanently stored in contract storage. Storage is not dynamically allocated
   - Declared at contract level
   - Initialized at declaration, using a constructor or after contract deployment by calling setters
   - Expensive to use, they cost gas

2. **Local variables**
   - Declared at function level
   - If using the memory keyword and are arrays or struct, they are allocated at run time. Memory keyword can’t be used at contract level

Where does EVM save data?

1. **Storage**
   - Persistent and expensive (it costs gas)
   - Like a computer HDD
2. **Memory**
   - Holds temporary values, free to be used (it doesn't cost gas)
   - Like a computer RAM
3. **Stack**
   - Holds function local variables, free to be used

Where does EVM save data?

Conclusion:

1. State variables are saved in storage
2. Function arguments are local and are stored in memory
3. Variables defined inside functions:
   - If they are **struct**, **array (fixed or dynamic)** or **mappings** they **reference storage** by default
   - If they are of any other type (ex: int), they are saved on the stack