Blockchain-based store

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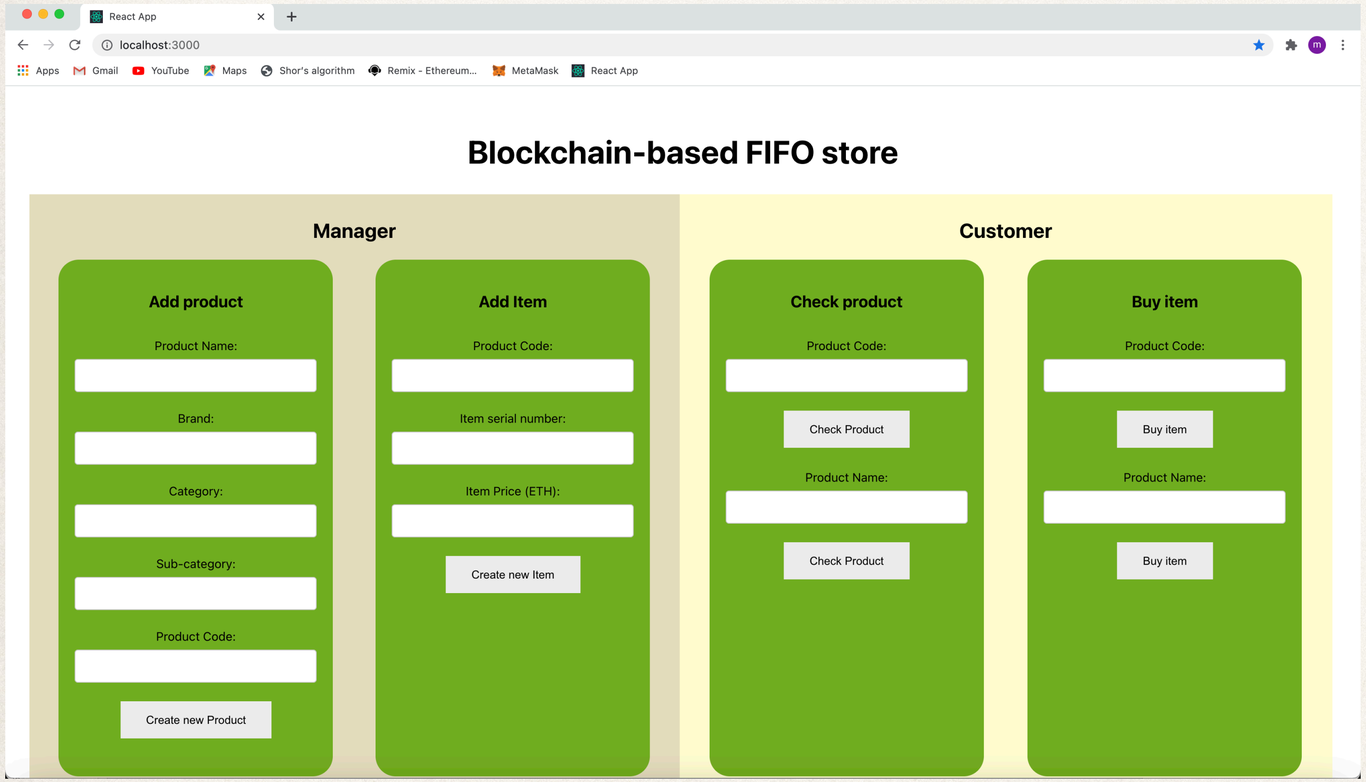
Project objective

Management of a store based on a distributed database

- Webpage based
- Minimisation of Mb stored
- Access based on privileges

GUI



Two sections:

- One with operations reserved to owner
- The other with public operations

This approach enabled a more friendly experience for the user (sometimes “require” replaced with “view” functions)

Data structure

PRODUCTS

< mapping to products>

PRODUCT

Product name:	iPhone 12
Brand:	Apple
Category:	Electronics
Sub-category:	Mobile phones
Code:	34218
Stock:	112 units
Product index:	2
< mapping to items >	

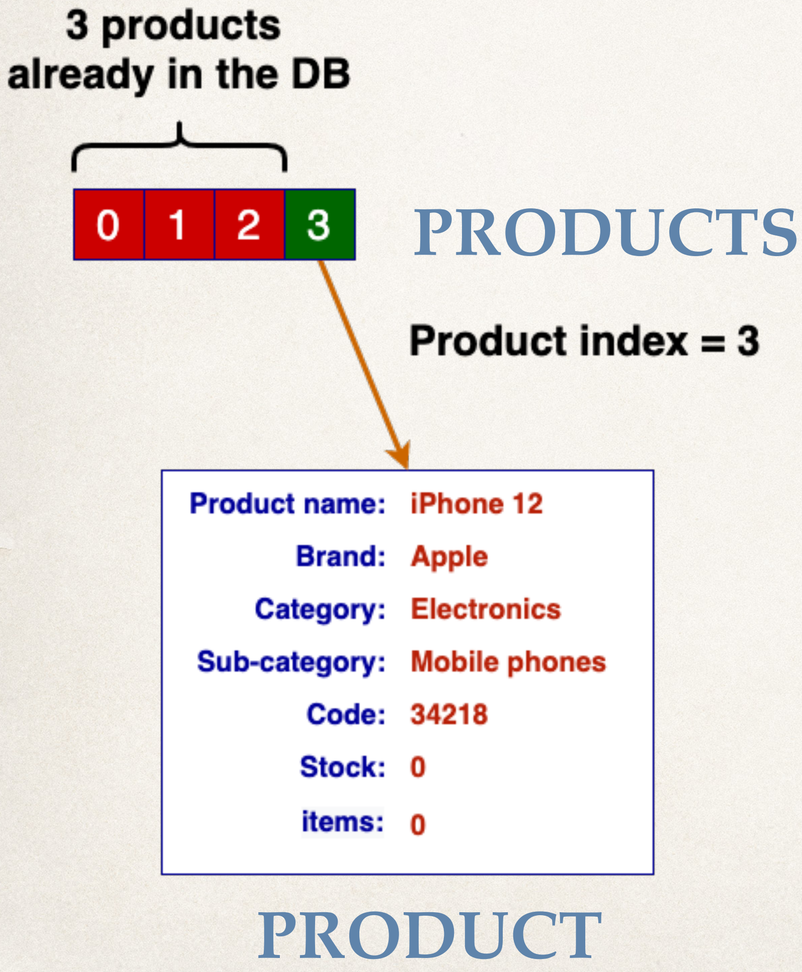
ITEM

Serial number:	2347641245575
Price (ETH):	1.734314
Paid:	1.734314
State:	Paid
Product index:	2
Item index:	4
< address to parent >	

Three entities defined to avoid redundancies

- **PRODUCTS**: mapping of <**PRODUCT**>
- **PRODUCT**: abstraction with general info
- **ITEM**: info relative to a specific instance

Main operations: Add product

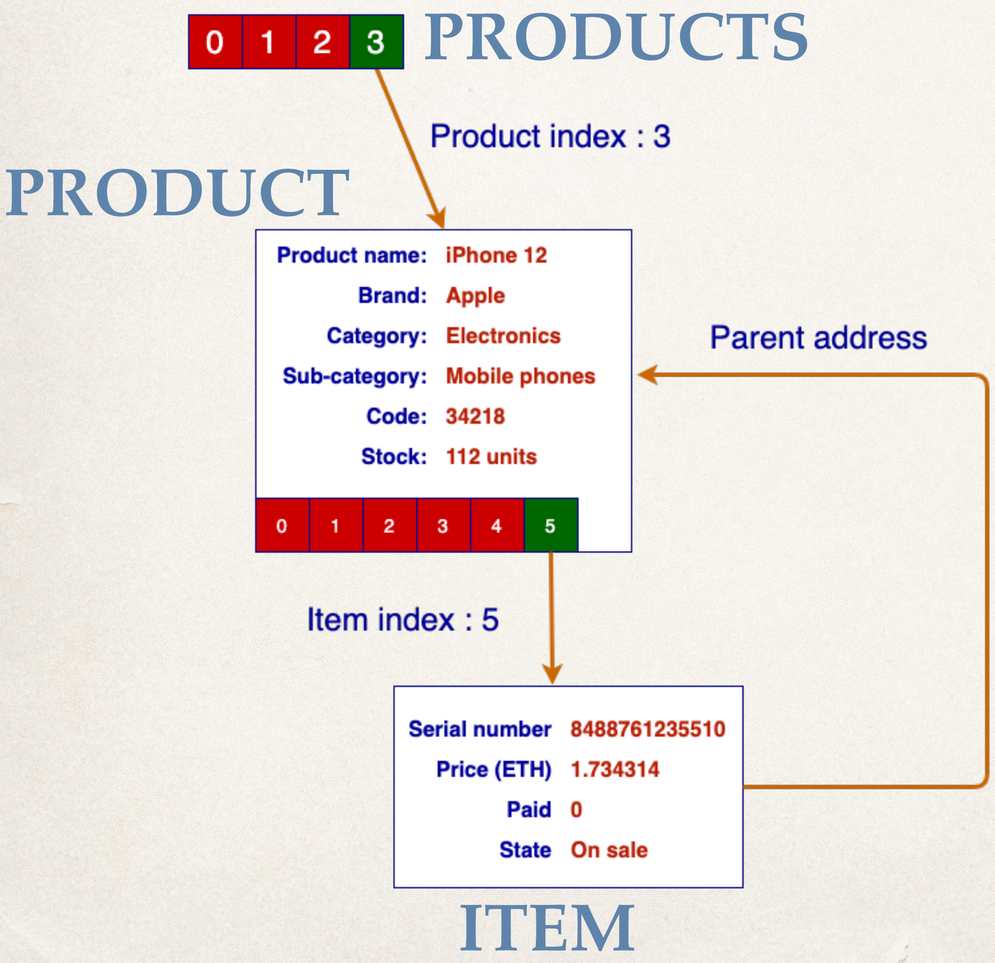


Addition in the first non occupied index in Products mapping

- Requires owner's privileges
- Prior check for product existence (it is not a transaction: it does not consume gas)
- Stock initialised to 0
- Mapping to items left uninitialised

Demo: add product

Main operations: Add items

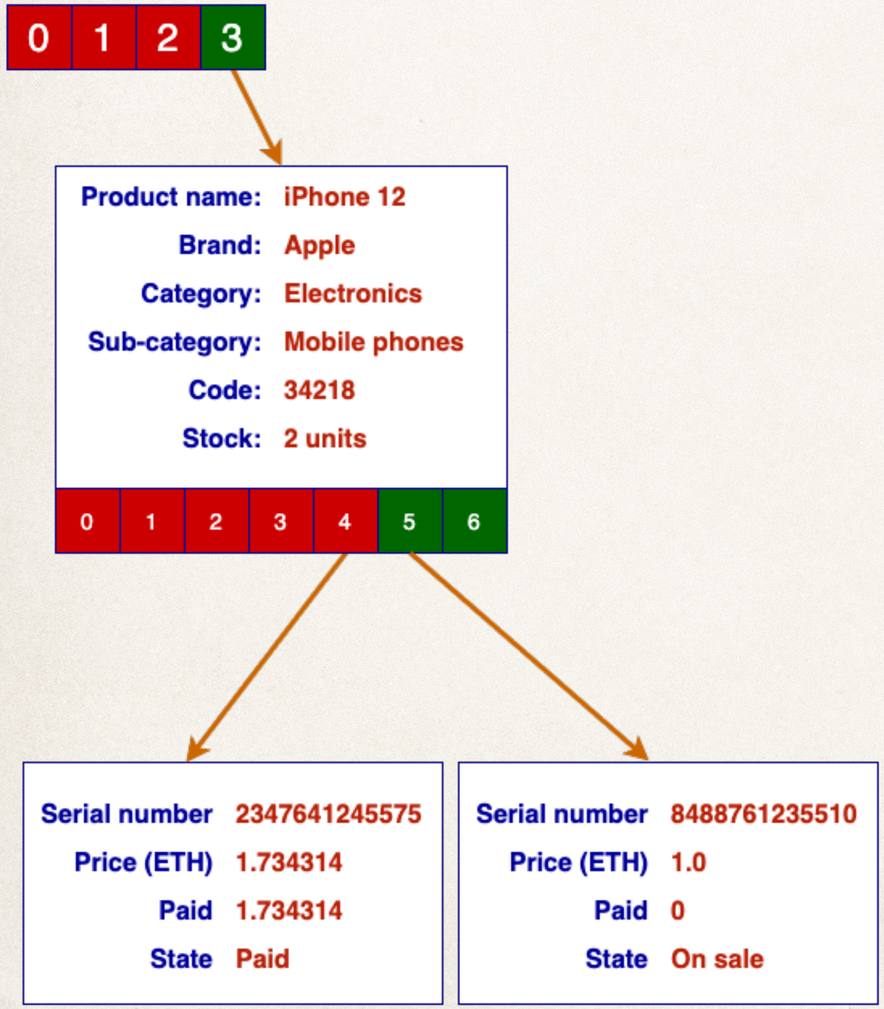


Addition in the first non occupied index in Items mapping of a given product

- Requires owner's privileges
- Prior check for serial number existence
- Consumes gas only if item is added (item existence check does not consume gas)
- State set to "On sale"
- Pointer to parent stored for easier access to parent info

Demo: Add item

Main operations: Buy item



Returns the address and the price to be paid of the first “On sale” item according to FIFO policy

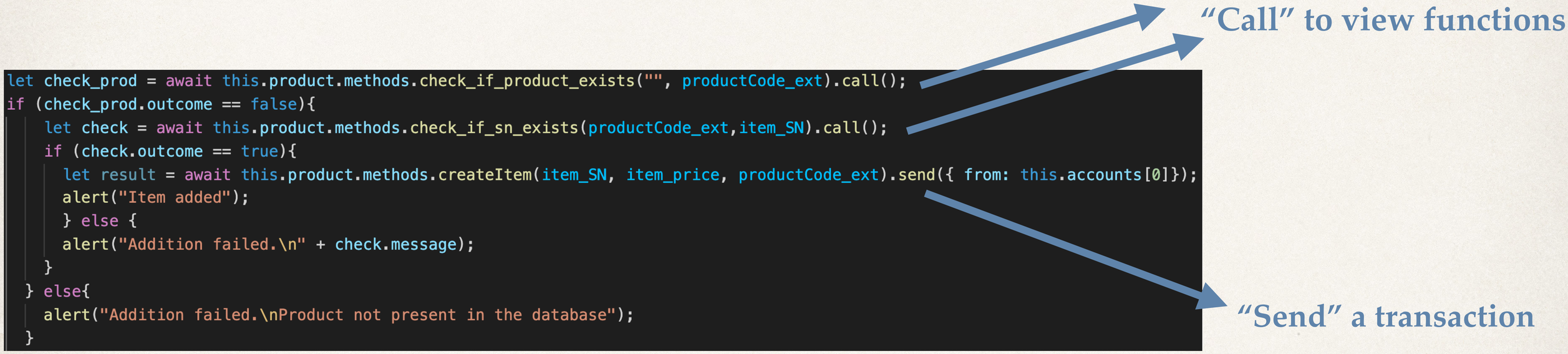
- Runnable by both owner and customers
- Prior check for item existence (no gas consumption)
- Requires the correct amount of ETH
- Once the transaction is received information both at product and item level is updated

Demo: buy items

Demo: transactions rejected for a wrong amount of money

Demo: not authorised attempt to add products/items

A remark on gas consumption



Transactions ("**send**" functions) are sent **only after** preliminary checks through calls to "**view**" functions:
Gas consumption incurred only when strictly needed (i.e. when blockchain needs to be altered)

In such a way, wasting of gas happens in a limited number of cases, mainly on client side (e.g.: wrong amount of ETH sent, attempt to perform a not authorised operations etc.)


"That's all Folks!"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CLICK TO PLAY

Demo: log in and launch