

# Credit Cards

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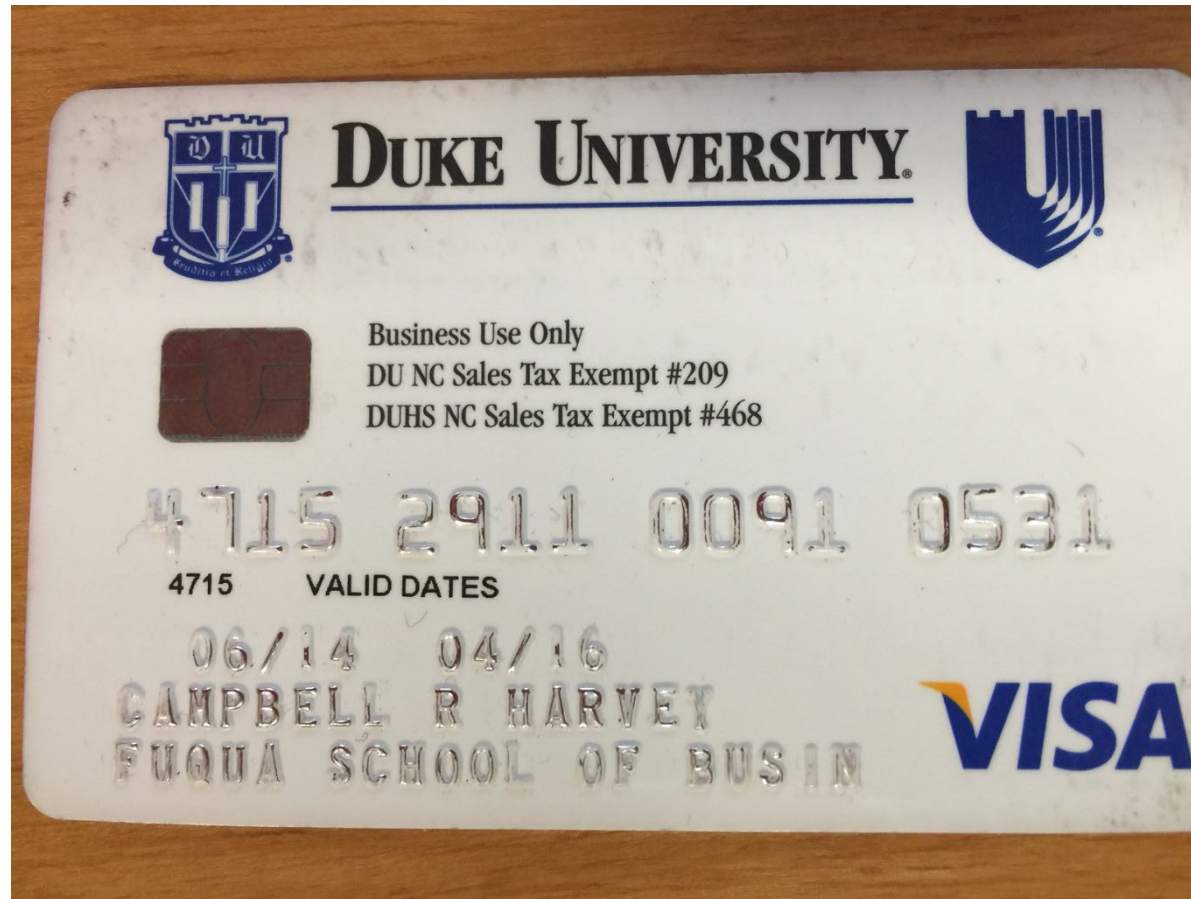


# Checksum

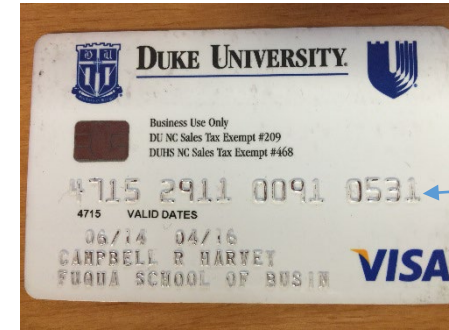
Last digit on credit card deterministic – based on Luhn formula

- Checksum makes sure there is not error in transmission of the number

# Checksum



# Checksum



(1) Account Number	4	7	1	5	2	9	1	1	0	0	9	1	0	5	3	x
(2) Double every other (from right)	8	7	2	5	4	9	2	1	0	0	18	1	0	5	6	x
(3) If > 9, sum digits, i.e. 16=1+6=7	8	7	2	5	4	9	2	1	0	0	9	1	0	5	6	x

Sum row (3) =

59

Check digit (x) =

1 (9xsum) mod 10

# Checksum

## Method

- Write down credit card number replacing the last number with “x”
- Working from right, double every second number
- If any number  $> 9$ , then sum the digits, i.e.  $16 = 1 + 6 = 7$
- Multiply the sum of the 15 numbers by 9
- Mod 10 the sum
- You have last number

# Differences

Cryptocurrency is money. VISA is a transfer mechanism.

- VISA can be used to spend dollars, euros, - and potentially even cryptocurrencies
- VISA is not money. It is a way to transfer money (and not a very secure way). Cryptocurrency is money.
- Receiving party for VISA cannot confirm the reception of a payment for 90 days (i.e. may get funds earlier but it is reversible)
- Cryptocurrency transactions can be confirmed within one hour.
- VISA transactions fees 2-3%. Cryptocurrency transaction fees far smaller

# Differences

Cryptocurrencies are money. VISA is a token.

- Cryptocurrency txs are uncensorable, VISA txs are censorable
- Cryptocurrency balances are unseizable, VISA balances are seizable
- Cryptocurrency monetary base (such as bitcoin) is disinflationary, VISA fiat monetary base is inflationary
- Cryptocurrency “works” in all countries, VISA fiat is sub-regional
- Cryptocurrency is a P2P open source network, VISA is a private corporation
- Cryptocurrency inert cold storage is in your sole control, VISA balance is in their sole control



# Differences

## VISA does have some advantages

- Able to handle very large throughput of transactions which is not currently possible with cryptocurrencies
- Provides credit (you don't need to have the funds to buy something). It is possible that you could get third party credit with cryptocurrency too, such as a VISA card based on bitcoin or ethereum. However, for an on-chain transaction, you must have the coin to spend.