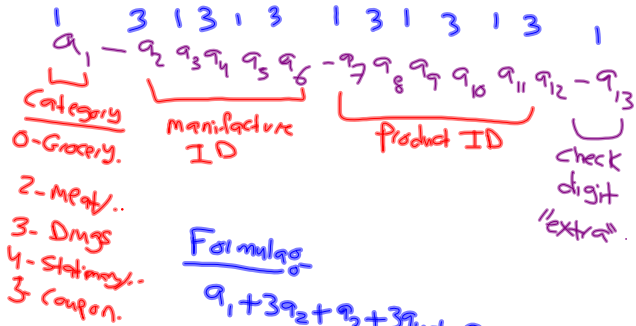


Chapter 11: Check digit

1- UPC:

Universal Product Code.



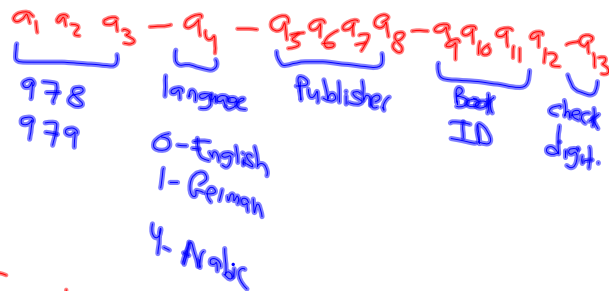
Formula:

$$a_1 + 3a_2 + a_3 + 3a_4 + a_5 + 3a_6 + a_7 + 3a_8 + a_9 + 3a_{10} + a_{11} + 3a_{12} + a_{13} = 0 \pmod{10}$$

2- ISBN:

International Standard Book Number

ISBN-13:



Formula:

$$a_1 + 3a_2 + a_3 + 3a_4 + \dots = 0 \pmod{10}$$

Example:

$$978-0-471940005$$

$$\begin{aligned}
 &9x_1 + 7x_3 + 8x_1 + 0x_3 + 4x_1 + 7x_3 + 9x_1 + 4x_3 + \\
 &0x_1 + 0x_3 + 1x_0 + 3x_0 + 5x_1 \\
 &= 100 \pmod{10} = 0 \checkmark
 \end{aligned}$$

Example:

Find the check digit of the book

$$978-1-4641-0156-a_{13}?$$

$$a_{13} = 4$$

Paradoxes (IN perfect)

Barber paradox

In a village, there is only one barber. There is a law states that everyone who doesn't know ~~to~~ how to shave must go to the barber. Everyone should be shaved clean.

p: "Today is a sunny day".

q: "I am a false statement".

Next: 2015/2016

TC2MAY15: Statistics