Adult Age Analysis

At the age myself of about seven or eight, I somehow acquired the juvenile equivalent of dynamite – a mysterious set of cards that enabled me to discover the ages of grown-ups !

Given that my parents' ages were absolutely off-limits (for no very good reason except that my mother in particular thought that such information might somehow be improper, or be revealed to the neighbours), even talking about such matters was discouraged.

There were six cards, each printed with a set of 32 numbers (single or double digit). All you had to do was to approach an unsuspecting adult and enquire sweetly which of the cards bore their age, make a mental note of their replies, and then run off giggling. The grown-up's age could be instantly calculated from the total of the numbers in the top left-hand corners of the indicated cards. Seemples !

32 33 34 35	16 17 18 19	08 09 10 11
36 37 38 39	20 21 22 23	12 13 14 15
40 41 42 43	24 25 26 27	24 25 26 27
44 45 46 47	28 29 30 31	28 29 30 31
48 49 50 51	48 49 50 51	40 41 42 43
52 53 54 55	52 53 54 55	44 45 46 47
56 57 58 59	56 57 58 59	56 57 58 59
60 61 62 63	60 61 62 63	60 61 62 63
04 05 06 07	02 03 06 07	01 03 05 07
12 13 14 15	10 11 14 15	09 11 13 15
20 21 22 23	18 19 22 23	17 19 21 23
28 29 30 31	26 27 30 31	25 27 29 31
36 37 38 39	34 35 38 39	33 35 37 39
44 45 46 47	42 43 46 47	41 43 45 47
52 53 54 55	50 51 54 55	49 51 53 55
60 61 62 63	58 59 62 63	57 59 61 63

Suppose for example that the victim's age (poor old codger) was 59, as known only by him. He would therefore have indicated the 32, 16, 08, 02 and 01 cards. So I knew in a flash that his age was 32 + 16 + 8 + 2 + 1 = 59 !

This all depended, of course, on the magical happenstance that all the integer numbers in the world can be replicated as a sum of the appropriate powers of two – 1, 2, 4, 8, 16, 32, 64, … – as exemplified in the tables below.

Well, it's not so magical – as first championed by poor old Leibnitz (sic), the binary number system, based on the number two, is at work. The victim's age may well be 59_{10} (ie 5x10 + 9x1) in denary, but in this context it's 111011_2 (ie 1x32 + 1x16 + 1x8 + 0x4 + 1x2 + 1x1).

#	1	2	4	8	16	32
1	x					
2		x				
3	x	x				
4			x			
5	x		x			
6		x	x			
7	x	x	x			
8				x		
9	x			x		
10		x		x		
11	x	x		x		
12			x	x		
13	x		x	x		
14		x	x	x		
15	x	x	x	x		
16					x	
17	x				x	
18		x			x	
19	x	x			x	
20			x		x	
21	x		x		x	
22		x	x		x	
23	x	x	x		x	
24				x	x	
25	x			x	x	
26		x		x	x	
27	x	x		x	x	
28			x	x	x	
29	x		x	x	x	
30		x	x	x	x	
31	x	x	x	x	x	

This tabulation is adequate for adults up to the age of 31, but if people older than that (up to the age of 63) are to be targeted, the table below will also be necessary. And you could extend the procedure to cope with nonagenarians (up to 95) or even centenarians (up to 127) by the use of a third table !

#	1	2	4	8	16	32
32						x
33	x					x
34		x				x
35	x	x				x
36			x			x
37	x		x			x
38		x	x			x
39	x	x	x			x
40				x		x
41	x			x		x
42		x		x		x
43	x	x		x		x
44			x	x		x
45	x		x	x		x
46		x	x	x		x
47	x	x	x	x		x
48					x	x
49	x				x	x
50		x			x	x
51	x	x			x	x
52			x		x	x
53	x		x		x	x
54		x	x		x	x
55	x	x	x		x	x
56				x	x	x
57	x			x	x	x
58		x		x	x	x
59	x	x		x	x	x
60			x	x	x	x
61	x		x	x	x	x
62		x	x	x	x	x
63	x	x	x	x	x	x

The cards themselves are relatively simple to create and populate. Having acquired six of a suitable size, be sure to inscribe 01 in the top left-hand corner of the first card, 02 in the same position of the second card, and so on.

Then copy, in turn, each #$number_{10}$ in the left-most column onto every card that is indicated by the column headings along the top row of the table(s) and the x's shown in the boxes for that number.

Thus, for example,

- the number 01 will only need to appear on card **1** (and it's already there, top LHS)
- the number 02 will only need to appear on card **2** (and it's already there, top LHS)
- the number 03 will need to be copied onto both cards **1** and **2**

etc

Reference(s)

http://burningmath.blogspot.com/2013/09/magic-age-cards-age-prediction-trick.html