Fun with Birthdates

Srinivasa Ramanujan was undoubtedly one of the greatest Mathematicians this world ever witnessed. Though he passed away at a very young age, the genius has left behind with the world among several innovations a fun mathematical game.

22	12	18	87
88	17	09	25
10	24	89	16
19	86	23	11

22	12	18	87
88	17	09	25
10	24	89	16
19	86	23	11

22	12	18	87
88	17	09	25
10	24	89	16
19	86	23	11

22	12	18	87
88	17	09	25
10	24	89	16
19	86	23	11

22	12	18	87
88	17	09	25
10	24	89	16
19	86	23	11

22	12	18	87
88	17	09	25
10	24	89	16
19	86	23	11

Ramanujan's Magic Square is an interesting mathematical square where in Ramanujan arranged his birthday (22nd December 1887) in the alongside form. At a glance, there seems to be nothing peculiar about it. But giving it a deep observation, you would observe that every column, row, diagonal, the 4 corners, and the adjacent 2 by 2 squares sum to 139 which are marked in the same colour with the exception of the alongside light blue and dark blue coloured squares.

22	12	18	87
88	17	09	25
10	24	89	16
19	86	23	11

What the great Mathematician missed; I have overcome. If 'dd/mm/ccyy' is the date, then my superior algorithm to obtain super magic square is given below.

dd	*mm*	*cc*	*yy*
aa	*cc + yy - aa*	*-mm - yy + aa + 2 * bb*	*dd + 2 * mm + yy - aa - 2 * bb*
$\frac{dd + mm - cc + yy}{2}$	$\frac{dd + mm + cc - yy}{2}$	$\frac{-dd + mm + cc + yy}{2}$	$\frac{dd - mm + cc + yy}{2}$
mm + cc + yy - aa - bb	*-mm + aa + bb*	*dd + mm + yy - aa - bb*	*-yy + aa + bb*

Using this algorithm, you can obtain a ***Ramanujan Lakshmana Super Magic Square*** for any birthdate. An example of the date 7th December 2019 is given below:

07	12	20	19
14	25	01	18
09	10	22	17
28	11	15	04

07	12	20	19
14	25	01	18
09	10	22	17
28	11	15	04

07	12	20	19
14	25	01	18
09	10	22	17
28	11	15	04

07	12	20	19
14	25	01	18
09	10	22	17
28	11	15	04

07	12	20	19
14	25	01	18
09	10	22	17
28	11	15	04

07	12	20	19
14	25	01	18
09	10	22	17
28	11	15	04

07	12	20	19
14	25	01	18
09	10	22	17
28	11	15	04

Here all columns, rows, diagonals, the 4 corners, adjacent squares sum to 58. You can notice even the light blue and dark blue coloured cells also sum to 58. This square is a super magic square.

But for a super magic square, it is necessary to have ***yy* < *63*,** and ***dd* + *mm* + *cc* + *yy*** must be an ***even number***. Otherwise, it would be a normal magic square similar to Ramanujan's as shown given below.

dd	*mm*	*cc*	*yy*
aa	*cc + yy - aa*	*-mm - yy + aa + 2 * bb*	*dd + 2 * mm + yy - aa - 2 * bb*
bb	*dd + mm - bb*	*mm + yy - bb*	*-mm + cc + bb*
mm + cc + yy - aa - bb	*-mm + aa + bb*	*dd + mm + yy - aa - bb*	*-yy + aa + bb*

I have hosted an interactive application at https://lksmangai.github.io/AngularBirthDate where you can find magic square of anyone's birth date.

My LinkedIn profile is available at https://www.linkedin.com/in/lakshmanarajsankaralingam/
For further information, please mail me at lksmangai@yahoo.com or WhatsApp 9225518035.