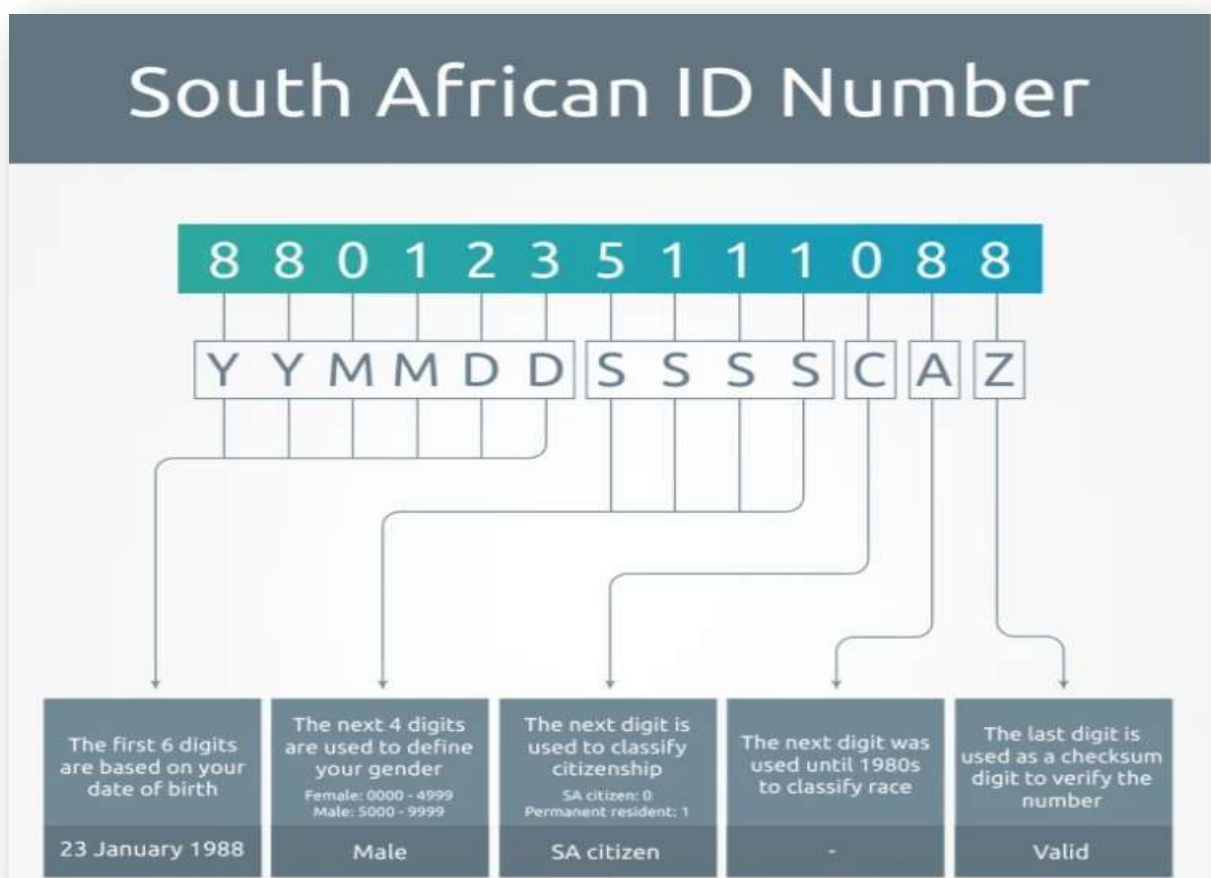## Task #3

Sipho is a Software Developer at the Department of Home Affairs (DHA). He is working under the supervision of Ms Baloyi, a senior developer at DHA. As his first task, Ms Baloyi gives Sipho an opportunity of participating in the Identification Document (ID) Verification Project (ID-VP).

The task given to Sipho is to develop a web application that will determine whether a given ID is valid or not. The criteria for a valid ID is based on the ID number. Below is a figure describing the SA ID using a fictitious ID number:

So the SA ID has the following features:

- It is 13 digits long.
- The first six digits represent the date of birth (YYMMDD).
- The next four digits represent the gender of a person. Females are allocated the the range 0000 – 4999, and males 5000 - 9999).
- The next digit denotes citizenship status. The digit 0 denotes one was born a South African citizen, and 2 says the person is a permanent resident.
- The 12th digit is no longer used.
- The 13th is used to verify an ID using Luhn's algorithm.

Luhn's algorithm work as follows:

Every digit in an even position is doubled. The first digit is in postion 1, and the last digit is in position 13. So working with our fictitious ID we will have

8	8	0	1	2	3	5	1	1	1	0	8	8
	16		**2**		**6**		**2**		**2**		**16**	

If the double outcome is more than 9, modulo division is performed to get the remainder.

8	8	0	1	2	3	5	1	1	1	0	8	8
	7		**2**		**6**		**2**		**2**		**7**	

The digits in odd postions are added up to the new digits in even positions.

Sum = 8 + **7 +** 0 **+ 2 +** 2 **+ 6 +** 5 **+ 2 +** 1 **+ 2 +** 0 **+ 7 +** 8

     = 50

A modulo division of 10 is perfromed on the sum. If the remainder is 0, the ID ais valid, otherwise it is invalid.

50 % 10 = 0

<u>To do</u>

Sipho is required to create a web application that will work as follows:

- Allow a user to enter their ID number.
- Determine whether the ID is valid or not.
- Generate a summary report that will show the following:
  - ➤ Display the ID number
  - ➤ Date of birth of the user.
  - ➤ Gender of the user.
  - ➤ Citizenship status
  - ➤ Verification outcome (valid or not valid)
  - ➤ Home Affairs query email (querries@dha.gov.za) and toll free number (087 7777 000). This must either be a context or config initialization

Assuming that you are Sipho, create such an application for DHA.