solution 1
according to map

I used 7 different colours for easily track

white colour is used for ['M1', 'M2', '16', '18', '37', '61']

red colour is used for ['M4', '21', '50', '62']

blue colour is used for ['M5', '60']

green colour is used for ['M6', '12', '63']

black colour is used for ['M8', '67']

orange colour is used for ['M10', 'M17', '68']

yellow colour is used for ['M13', '27']

note :- the csv data given is incorrect according to map so first I correct them then solved

according to csv file

white1 colour is used for ['M1', 'M2', '16', '18', '37', '61']

red1 colour is used for ['M4', 'M17', '50', '62']

blue1 colour is used for ['M5', '12', '21', '63']

green1 colour is used for ['M6', '60']

black1 colour is used for ['M8', '67']

orange1 colour is used for ['M10', '27']

yellow1 colour is used for ['M13', '68']

Solution 2

first I assign first route M1 by a colour then check for second if it is intersected with first then assigned different colour otherwise same colour for second

similarly for 3rd and onward I checked it is intersected with group of route(by choosing different colour I got a group of route that assign with same colour) which is assigned previous if intersected then create a new group of different colour and assigned route and checked for each route if it is intersected with each colour group(group of route that assign with same colour) then create other colour group(group of route that assign with same colour) otherwise put in the that colour group in which no one intersecting with new route and so on

if we got a larger data just repeat the procedure. We got their route assigned colour for that

 in code if got a larger data only require to put the data code solved it.

solution 4

yes, my procedure works also in that condition

solution 5

 counter example for 5 in the figure if n>2 .

 here i used only 2 colour to assign n route

for 2 route we have to choose minimum two colour