Q1_

Ans_ the Berlin tram routes

we are to need 7 color

colo1--['M1', 'M2', '16', '18', '37', '61'],

color2- ['M4', 'M17', '50', '62'],

color3- ['M5', '12', '21', '63'],

color4- ['M6', '60'],

color5- ['M8', '67'],

color6- ['M10', '27', '68'],

color7 -['M13'],

Q2-

Ans-frist we choose M1 and it is color to color1, next we check M2 a is intersection of M1 or not if is intersetion of M1 then it will

be differnt color if it not intersection then it will be same color in model M1 and M2 are not intersetion then both are same color is color2,

next chek M4 is intersetion of M1 or m2, if it is interseton then it willbe differnt color,M4 is intersetin of M2 then M4 has diferent color is color2,

next chek M5 is intersetion or not form M1 or M2 or M4 , it is intersetion the it will be new color is color3,next chek M6 is intersetion of M1,M2,M4,M5,

then it will be new color is color4,next M8 is intersetion is privous rod (M1,M2,M4,M5,M6) then it is new color is color5,

M10 has intersetion (M1,M2,M4,M5,M6,M8) then it will be new color, 12 is not intersetion is M5 then it same color are color6,

M13 in intersetion of (M1,M2,M4,M5,M6,M8,12) then it will be chose new color is color7,16 is not intersetion of M1 then the color are color1,

M17 is not intersetion of M4 then the color are color2,

18 is not intersetion of M1,M2,16 then it is same color- the color are color1,

21 is not intersetion of M5,12 then is same color then the color are color3,

27 is not intersetion of M10 then the color are color6,

37 is not intersetion of M1,M2,16,18 then it is same color then the color are color1,

50 is not intersetion of M4,M17 then it is same color  the color are color2,

60 is not intersetion of M6 then it both same color the color are color4,

61 is not intersetion of M1,M2,16,18,37,61 then the color are color1,

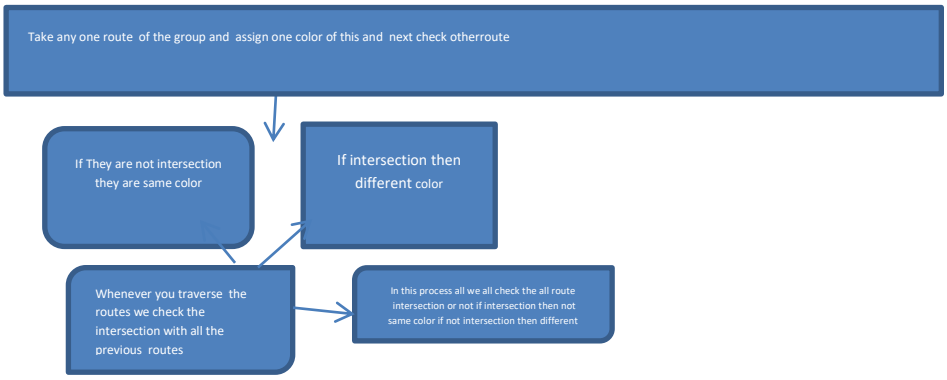
62 is not intersetion of M4,M17,50,62 then the color are color2,

63 is not intersetion of M5,12,21, then they all same color then the color are color3,

67 is not intersetion of M8 then both color are same then the color are color5,

68 is not intersetion of M10,27 they all are same color then the color are color6,

## Flow chart :




Q3-

Ans_ No,let ex-

of if  choose n=4( rod1,rod2,rod3,rod4)

rod1 intersetion of rod2 ,rod2 intersetion of rod3,and rod3 intersetion of rod4.

take rod1 has blue color , rod1 and rod2 intersetion then they are not same color let we take rod2 red color,

rod2 intersetion of rod3 then they are not same same color but rod3 is not intersetion of rod1 then it take blue color,

rod3 and rod4 are intersetion then they are not same color but rod 4 is not intersetion of rod2 then it take color red,

total number of color is 2

is not satifys of n-1