Problem Name : graph coloring of Saudi Arabia map provinces

Problem : the map of Saudi Arabia is consist of different 13 provinces territories , the map shall be colored with different 3 colors(white, yellow, blue) , so the adjacent provinces on the map have different color

Pic example : Map

Description automatically generated

VARIBLES : {AL-RIYAD , MAKKAH , ESTERN REGION , AL-BAHA,TABUK,AL-MADINAH,NJRAN,JIZAN,ASIR,AL-QASIM,HAIL,AL-JAWF,NORTHREN BORDERS}

DOMAINS : AL-RIYAD =MAKKAH = ESTERN REGION = AL-BAHA= TABUK=ALMADINAH=NJRAN=JIZAN=ASIR=AL-QASIM=HAIL=AL-JAWF=NORTHREN BORDERS={WHITE,YELLOW,GREEN}

CONSTRINTS : no adjunct Provence on the map can have the same color

Relationship :

1- Riyadh != AL-QASIM

2- Riyadh != AL-MADINAH

3- Riyadh != MAKKAH

4- Riyadh !=ASIR

5- Riyadh !=NAJRAN

6- Riyadh !=ESTRN REGION

7- Riyadh != HAIL

8- NAJRAN !=ASIR

9- NAJRAN != ESTREN REGION

10- ESTREN REGION != NORTHEN BORDERS

11- ASIR != JIZAN

12-ASIR != ALBAHA

13-ASIR != MAKKAH

14-MAKKAH != AL-MADINAH

15-MAKKAH != ALBAHA

16-AL-QASIM !=HAIL

17-AL-QASIM !=AL-MADINAH

18-HAIL !=AL-MADINAH

19-HAIL != TABUK

20 HAIL != AL-JAWF

21-HAIL !=NORTHEN BORDERS

22-AL-MADINAH !=TABUK

23-YABUK != AL-JAWF

24-AL-JAWF != NORTHEN BORDERS