

| MSSV            | Tên sinh viên        |
|-----------------|----------------------|
| 16520015        | Nguyễn Xuân An       |
| 16521014        | Võ Ngọc Quyến        |
| 17520178        | Bùi Thị Thùy Trang   |
| <b>17520505</b> | <b>Hà Đăng Hoàng</b> |
| 18521471        | Nguyễn Trọng Thuận   |

### Lab 02: Bài tập thực hành – câu 4

Danh sách tất cả các tập phổ biến thỏa yêu cầu:

Minsupp = 0.1

| Kích thước                         | Số lượng |
|------------------------------------|----------|
| Size of set of large itemsets L(1) | 49       |
| Size of set of large itemsets L(2) | 167      |
| Size of set of large itemsets L(3) | 120      |
| Size of set of large itemsets L(4) | 25       |
| Size of set of large itemsets L(5) | 2        |

Size of set of large itemsets L(1): 49

Large Itemsets L(1):

co=y 5465

ca=y 11676

ga=y 5942

ct=y 4391

pr=y 4781

tx=y 8483

la=y 5154

tn=y 4900  
pe=y 5515  
mn=y 3929  
de=y 3630  
hi=y 3804  
me=y 3969  
md=y 5108  
ma=y 4963  
ut=y 6041  
mo=y 4638  
mi=y 4734  
mt=y 4800  
qc=y 4272  
ms=y 4815  
va=y 5638  
al=y 5702  
ar=y 4610  
vt=y 3713  
il=y 5167  
in=y 4440  
ia=y 3652  
az=y 6778  
id=y 5129  
nh=y 3635  
ks=y 3869  
nj=y 4822  
nm=y 6403

nc=y 5926

ny=y 5773

nv=y 5670

wa=y 5654

bc=y 4875

wi=y 4321

wv=y 4062

fl=y 6621

wy=y 4710

on=y 5068

ok=y 4651

oh=y 4772

sc=y 5432

ky=y 4555

or=y 7028

Size of set of large itemsets  $L(2)$ : 167

Large Itemsets  $L(2)$ :

co=y ut=y 4005

co=y nm=y 3932

co=y wy=y 3841

ca=y ut=y 3852

ca=y az=y 3868

ca=y id=y 3564

ca=y nv=y 4701

ca=y wa=y 4086

ca=y or=y 5522  
ga=y tx=y 3612  
ga=y la=y 3989  
ga=y tn=y 3979  
ga=y md=y 3663  
ga=y ms=y 4219  
ga=y va=y 4251  
ga=y al=y 4931  
ga=y ar=y 3566  
ga=y nc=y 4833  
ga=y fl=y 4252  
ga=y sc=y 4821  
ga=y ky=y 3560  
ct=y pe=y 4010  
ct=y md=y 3521  
ct=y ma=y 3999  
ct=y mi=y 3498  
ct=y va=y 3526  
ct=y nj=y 3747  
ct=y ny=y 4132  
ct=y oh=y 3549  
tx=y la=y 4204  
tx=y ms=y 3660  
tx=y al=y 3746  
tx=y ar=y 3668  
tx=y nm=y 3924  
tx=y fl=y 3650

tx=y ok=y 4104

tx=y sc=y 3479

la=y ms=y 4077

la=y al=y 4091

la=y ar=y 3575

la=y nc=y 3701

la=y fl=y 3845

la=y sc=y 3784

tn=y pe=y 3682

tn=y md=y 3747

tn=y mo=y 3529

tn=y va=y 4228

tn=y al=y 3880

tn=y ar=y 3565

tn=y il=y 3695

tn=y nc=y 4207

tn=y oh=y 3563

tn=y sc=y 3695

tn=y ky=y 3986

pe=y md=y 4235

pe=y ma=y 4211

pe=y mi=y 3957

pe=y va=y 4323

pe=y il=y 4077

pe=y in=y 3795

pe=y nj=y 4259

pe=y nc=y 3961

pe=y ny=y 4740  
pe=y wi=y 3610  
pe=y wv=y 3722  
pe=y on=y 3923  
pe=y oh=y 4209  
pe=y ky=y 3651  
me=y ny=y 3613  
md=y ma=y 3642  
md=y va=y 4455  
md=y al=y 3491  
md=y il=y 3737  
md=y in=y 3535  
md=y nj=y 4005  
md=y nc=y 4162  
md=y ny=y 4055  
md=y wv=y 3614  
md=y oh=y 3764  
md=y sc=y 3537  
md=y ky=y 3628  
ma=y mi=y 3636  
ma=y va=y 3652  
ma=y il=y 3556  
ma=y nj=y 3858  
ma=y ny=y 4372  
ma=y on=y 3653  
ma=y oh=y 3654  
ut=y az=y 3858

ut=y nm=y 3596

ut=y nv=y 4019

ut=y wy=y 3495

mo=y va=y 3511

mo=y ar=y 3664

mo=y il=y 3979

mo=y in=y 3489

mo=y ky=y 3553

mi=y il=y 3789

mi=y in=y 3554

mi=y ny=y 4085

mi=y wi=y 3816

mi=y on=y 4007

mi=y oh=y 3758

mt=y id=y 3906

mt=y wa=y 3535

mt=y wy=y 3819

mt=y or=y 3495

qc=y on=y 3816

ms=y va=y 3566

ms=y al=y 4343

ms=y nc=y 3912

ms=y fl=y 3769

ms=y sc=y 3959

va=y al=y 4047

va=y il=y 3903

va=y in=y 3653

va=y nj=y 4036  
va=y nc=y 4854  
va=y ny=y 4089  
va=y wv=y 3760  
va=y oh=y 3883  
va=y sc=y 4169  
va=y ky=y 3938  
al=y ar=y 3620  
al=y nc=y 4475  
al=y fl=y 4161  
al=y sc=y 4498  
al=y ky=y 3489  
ar=y nc=y 3480  
ar=y ok=y 3561  
vt=y ny=y 3510  
il=y in=y 4134  
il=y nj=y 3651  
il=y nc=y 3612  
il=y ny=y 3985  
il=y wi=y 3644  
il=y on=y 3581  
il=y oh=y 4085  
il=y ky=y 3765  
in=y ny=y 3677  
in=y oh=y 3905  
in=y ky=y 3561  
az=y nm=y 4723



id=y wa=y 3969  
id=y or=y 4199  
nj=y nc=y 3763  
nj=y ny=y 4254  
nj=y oh=y 3711  
nc=y ny=y 3758  
nc=y wv=y 3485  
nc=y fl=y 3696  
nc=y oh=y 3550  
nc=y sc=y 4800  
nc=y ky=y 3768  
ny=y wi=y 3709  
ny=y wv=y 3483  
ny=y on=y 4094  
ny=y oh=y 4100  
nv=y or=y 3500  
wa=y bc=y 3908  
wa=y or=y 4959  
bc=y or=y 3679  
wi=y on=y 3667  
wv=y oh=y 3557  
fl=y sc=y 3911  
on=y oh=y 3565  
oh=y ky=y 3647

Size of set of large itemsets L(3): 120

Large Itemsets L(3):

ca=y wa=y or=y 3963

ga=y la=y ms=y 3668

ga=y la=y al=y 3763

ga=y la=y nc=y 3485

ga=y la=y sc=y 3596

ga=y tn=y va=y 3648

ga=y tn=y al=y 3603

ga=y tn=y nc=y 3724

ga=y tn=y sc=y 3517

ga=y md=y va=y 3556

ga=y md=y nc=y 3551

ga=y ms=y al=y 4049

ga=y ms=y nc=y 3750

ga=y ms=y fl=y 3538

ga=y ms=y sc=y 3827

ga=y va=y al=y 3788

ga=y va=y nc=y 4124

ga=y va=y sc=y 3882

ga=y al=y nc=y 4246

ga=y al=y fl=y 3852

ga=y al=y sc=y 4322

ga=y nc=y fl=y 3512

ga=y nc=y sc=y 4447

ga=y fl=y sc=y 3726

ct=y pe=y ma=y 3784

ct=y pe=y nj=y 3618

ct=y pe=y ny=y 3908  
ct=y ma=y nj=y 3562  
ct=y ma=y ny=y 3879  
ct=y nj=y ny=y 3672  
tx=y la=y ms=y 3487  
la=y ms=y al=y 3767  
la=y ms=y sc=y 3503  
la=y al=y fl=y 3491  
la=y al=y sc=y 3561  
la=y nc=y sc=y 3483  
tn=y pe=y va=y 3522  
tn=y md=y va=y 3657  
tn=y md=y nc=y 3531  
tn=y va=y al=y 3502  
tn=y va=y nc=y 3964  
tn=y va=y sc=y 3480  
tn=y va=y ky=y 3647  
tn=y al=y nc=y 3524  
tn=y nc=y sc=y 3580  
tn=y nc=y ky=y 3555  
pe=y md=y ma=y 3497  
pe=y md=y va=y 3919  
pe=y md=y il=y 3500  
pe=y md=y nj=y 3749  
pe=y md=y nc=y 3626  
pe=y md=y ny=y 3847  
pe=y md=y oh=y 3630

pe=y ma=y mi=y 3479

pe=y ma=y va=y 3510

pe=y ma=y nj=y 3699

pe=y ma=y ny=y 4057

pe=y ma=y oh=y 3537

pe=y mi=y ny=y 3776

pe=y mi=y on=y 3529

pe=y mi=y oh=y 3536

pe=y va=y il=y 3550

pe=y va=y nj=y 3754

pe=y va=y nc=y 3773

pe=y va=y ny=y 3869

pe=y va=y wv=y 3503

pe=y va=y oh=y 3684

pe=y il=y in=y 3597

pe=y il=y nj=y 3515

pe=y il=y ny=y 3742

pe=y il=y oh=y 3734

pe=y in=y ny=y 3520

pe=y in=y oh=y 3602

pe=y nj=y ny=y 4011

pe=y nj=y oh=y 3624

pe=y nc=y ny=y 3531

pe=y ny=y on=y 3744

pe=y ny=y oh=y 3900

md=y ma=y ny=y 3534

md=y va=y il=y 3505

md=y va=y nj=y 3764  
md=y va=y nc=y 4026  
md=y va=y ny=y 3710  
md=y va=y wv=y 3485  
md=y va=y oh=y 3538  
md=y va=y ky=y 3513  
md=y nj=y nc=y 3528  
md=y nj=y ny=y 3687  
ma=y mi=y ny=y 3540  
ma=y va=y ny=y 3521  
ma=y nj=y ny=y 3760  
ma=y ny=y on=y 3537  
ma=y ny=y oh=y 3553  
mi=y ny=y wi=y 3488  
mi=y ny=y on=y 3663  
mi=y ny=y oh=y 3538  
mi=y wi=y on=y 3492  
ms=y al=y nc=y 3733  
ms=y al=y fl=y 3599  
ms=y al=y sc=y 3805  
ms=y nc=y sc=y 3698  
va=y al=y nc=y 3864  
va=y al=y sc=y 3682  
va=y il=y oh=y 3502  
va=y nj=y nc=y 3612  
va=y nj=y ny=y 3671  
va=y nc=y ny=y 3577

va=y nc=y sc=y 4068  
va=y nc=y ky=y 3614  
va=y ny=y oh=y 3501  
al=y nc=y sc=y 4148  
al=y fl=y sc=y 3638  
il=y in=y ny=y 3489  
il=y in=y oh=y 3724  
il=y ny=y oh=y 3624  
in=y ny=y oh=y 3478  
id=y wa=y or=y 3693  
nj=y ny=y oh=y 3556  
nc=y fl=y sc=y 3522  
wa=y bc=y or=y 3560

Size of set of large itemsets L(4): 25

Large Itemsets L(4):

ga=y la=y ms=y al=y 3549  
ga=y tn=y va=y nc=y 3559  
ga=y md=y va=y nc=y 3484  
ga=y ms=y al=y nc=y 3635  
ga=y ms=y al=y sc=y 3719  
ga=y ms=y nc=y sc=y 3612  
ga=y va=y al=y nc=y 3694  
ga=y va=y al=y sc=y 3579  
ga=y va=y nc=y sc=y 3825  
ga=y al=y nc=y sc=y 4038

ga=y al=y fl=y sc=y 3532  
ct=y pe=y ma=y ny=y 3726  
ct=y pe=y nj=y ny=y 3571  
ct=y ma=y nj=y ny=y 3524  
tn=y md=y va=y nc=y 3489  
pe=y md=y va=y nj=y 3555  
pe=y md=y va=y nc=y 3550  
pe=y md=y va=y ny=y 3581  
pe=y md=y nj=y ny=y 3570  
pe=y ma=y nj=y ny=y 3640  
pe=y va=y nj=y ny=y 3554  
pe=y il=y ny=y oh=y 3497  
pe=y nj=y ny=y oh=y 3502  
ms=y al=y nc=y sc=y 3572  
va=y al=y nc=y sc=y 3608

Size of set of large itemsets L(5): 2

Large Itemsets L(5):

ga=y ms=y al=y nc=y sc=y 3519  
ga=y va=y al=y nc=y sc=y 3529