

cluster

April 7, 2021

```
[8]: #Using the physc admit database, create clusters of three items in the dataset.
#You may select the items of most interest.
#You might consider things such as living situation with gender and age...

#Identify the clusters, and analyze results.
#Explain briefly what you see, and what it tells you about the data.
#A negative result is acceptable. (There are not clusters of this combination)

load("tedsd_2016_puf.Rdata")
bob <- tedsd_2016_puf
```

```
[13]: head(bob)
```

		DISYR	CASEID	STFIPS	AGE	SERVICES	SUB1	SUB2	SUB3	DETCRIM
		<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>
A tibble: 6 × 78	1	2016	20161314323	2	6	7	2	1	1	-9
	2	2016	20161235303	2	5	7	2	1	1	-9
	3	2016	20161216159	2	4	7	4	10	1	-9
	4	2016	20161185262	2	4	7	10	4	2	-9
	5	2016	20161248228	2	5	7	2	1	1	-9
	6	2016	20161388561	2	11	7	2	4	10	6

```
[10]: cluster_b <-kmeans(bob,3)
cluster_b
```

K-means clustering with 3 clusters of sizes 491367, 475119, 491559

Cluster means:

	DISYR	CASEID	STFIPS	AGE	SERVICES	SUB1	SUB2	SUB3
1	2016	20160746037	31.54127	6.754969	5.131321	4.293351	2.828397	1.322673
2	2016	20161242490	20.65146	6.522029	5.530269	5.046611	3.331770	-2.146115
3	2016	20160248277	29.42140	6.653519	5.304134	4.423544	3.369166	1.948303
	DETCRIM	NOPRIOR	PSOURCE	ARRESTS	RACE	ETHNIC	EDUC	EMPLOY
1	-6.563567	-0.6962820	3.107327	-1.0213995	4.780067	3.512904	2.580208	2.791417
2	-5.447673	-0.1174379	3.526921	-0.5195982	4.747750	3.482378	2.128189	2.386844
3	-6.273475	-0.1626621	3.482262	-0.5452591	4.881432	3.509514	2.631684	2.750093
	METHUSE	PSYPROB	PREG	VET	LIVARAG	PRIMINC	HLTHINS	
1	1.559610	-0.4929208	-5.799295	1.4183329	2.299178	0.2068189	-4.112100	

[illegible]

[2017]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2053]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2089]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2125]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2161]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2197]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2233]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2269]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2305]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2341]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2377]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2413]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2449]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2485]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2521]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2557]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2593]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2629]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2665]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2701]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2737]	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
[2773]	2	2	2	2	2																									

[illegible]

[illegible]

[7201] 2 1 1 1 1 2 1 1 2 2 1 1 1 1 2 1 1 2 2 2 2 1 1 1 2 1 2 1 2 1 2 2 2 1 2 1
 [7237] 1 2 1 1 2 2 1 1 2 2 1 2 2 2 2 1 2 2 1 1 2 1 1 2 1 1 1 2 1 2 1 2 1 1 2 2
 [7273] 2 2 1 1 2 2 1 1 1 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 2 2 1 1 1 1 2 1 1 1
 [7309] 1 2 2 2 1 2 1 2 1 2 2 1 1 1 1 2 1 2 1 2 1 1 2 1 1 2 2 1 2 2 2 1 2 1 1 2
 [7345] 1 1 1 1 1 2 1 1 1 2 2 2 2 1 1 1 1 1 2 1 2 1 1 1 2 2 1 1 2 2 1 2 1 1 1 1
 [7381] 1 2 1 1 1 1 2 1 1 1 2 1 1 2 1 2 2 2 2 2 2 1 2 1 2 2 1 1 1 1 1 1 1 1 2 2
 [7417] 2 1 1 2 1 1 2 2 1 1 1 1 1 1 2 1 2 1 1 2 1 2 2 2 2 2 1 1 1 2 1 1 2 1 1 1
 [7453] 1 1 1 2 1 1 1 1 2 1 2 2 1 2 1 1 2 1 2 1 1 2 1 2 2 1 1 1 1 2 2 1 1 1 1 1
 [7489] 1 1 1 1 2 1 2 1 1 2 2 1 1 2 1 2 2 1 2 1 1 2 1 1 1 1 2 2 2 1 2 2 2 2 2 2
 [7525] 2 1 1 2 2 1 2 1 1 1 1 2 1 2 2 2 2 1 1 2 1 2 1 2 1 1 1 1 2 1 2 1 2 1 1 2
 [7561] 1 1 1 2 1 2 1 2 1 2 2 1 1 2 1 1 1 1 1 1 1 2 1 2 2 2 2 2 1 2 1 1 1 2 2
 [7597] 1 1 1 1 1 1 1 2 1 2 1 1 2 2 2 1 1 1 2 2 1 1 1 2 1 1 2 1 1 2 2 1 2 1 2 1
 [7633] 1 2 2 2 1 2 2 2 1 1 1 2 2 1 2 1 1 2 1 2 1 2 2 1 1 2 2 1 2 2 2 2 1 2 1 2
 [7669] 1 1 2 1 2 1 1 1 1 1 1 2 2 1 2 2 2 1 1 1 1 2 2 2 2 2 1 1 2 2 2 2 1 2 2 1
 [7705] 2 1 2 2 2 1 1 1 1 1 1 1 2 2 1 1 1 2 1 2 2 1 1 2 2 2 2 2 2 1 1 1 1 1 2 1
 [7741] 2 1 1 2 1 2 1 2 1 2 2 2 1 1 2 2 1 2 1 2 2 1 1 2 2 1 2 1 2 1 2 2 2 2 1 2
 [7777] 1 1 1 1 2 1 2 2 2 2 1 2 2 2 2 1 1 1 2 1 1 1 2 1 2 1 2 1 2 2 1 1 1 1 2 2 1
 [7813] 2 2 2 1 1 2 1 2 1 1 2 2 2 1 1 1 2 1 2 2 1 2 1 1 1 1 1 1 2 2 2 1 1 1 2 2 2
 [7849] 1 2 2 2 1 2 2 1 1 2 1 1 1 2 1 2 1 2 1 2 1 1 1 1 1 1 2 2 2 1 2 1 2 2 1 1
 [7885] 2 2 2 2 2 1 1 2 1 1 2 1 1 1 2 2 2 1 2 2 2 2 1 2 1 1 2 1 2 1 1 1 2 1 2 2
 [7921] 2 1 1 1 2 1 1 1 2 1 2 1 2 2 2 2 1 1 2 2 1 2 1 1 1 2 1 2 2 2 1 2 1 1 1 1
 [7957] 2 1 2 1 1 2 2 2 2 1 2 2 1 1 1 1 2 1 2 2 1 1 2 1 1 2 2 1 1 1 2 2 1 2 1 2
 [7993] 1 2 1 2 2 2 2 1 2 2 1 1 1 2 1 1 2 2 2 1 1 1 1 1 2 1 1 2 1 2 2 2 1 1 1 2
 [8029] 1 2 2 2 2 2 1 1 1 1 2 1 1 2 1 1 2 1 2 1 1 1 2 2 2 2 1 1 1 1 1 2 2 1 1 1
 [8065] 2 1 1 1 1 2 1 1 2 1 1 1 2 2 2 2 2 2 1 1 2 1 2 1 2 1 2 2 2 1 1 2 2 1 2 1
 [8101] 2 2 2 2 2 1 2 1 2 1 1 2 1 1 2 2 2 1 1 1 1 1 1 1 1 1 1 1 2 2 1 1 2 2 2 1
 [8137] 2 2 1 2 1 2 2 2 2 1 2 2 1 2 2 1 2 1 2 1 2 1 2 2 1 1 1 2 1 2 2 1 2 1 1 2
 [8173] 1 1 2 1 1 1 1 1 1 2 2 1 2 1 1 2 2 1 1 2 2 2 1 2 2 1 2 2 1 1 1 1 2 1 2 2
 [8209] 2 1 1 1 1 2 2 2 1 1 2 2 2 2 1 1 1 1 2 2 2 1 1 1 2 2 1 2 2 2 2 2 1 1 1 1
 [8245] 2 2 2 1 2 1 2 1 1 1 2 1 1 1 2 1 1 1 2 2 2 2 1 1 2 2 1 1 2 1 1 1 1 1 2 2
 [8281] 2 1 2 2 1 2 2 1 1 1 2 1 1 1 2 2 1 2 2 1 2 2 2 1 1 1 1 1 2 1 2 2 1 2 2 1
 [8317] 1 2 2 2 2 2 1 1 1 2 1 1 1 1 2 1 1 2 2 1 1 1 2 1 1 1 1 1 2 2 1 2 1 2 1 2 1
 [8353] 1 1 1 1 2 2 1 2 1 1 2 1 2 2 2 2 2 1 2 2 2 1 2 2 1 2 2 2 2 2 2 2 1 2 1 2 2
 [8389] 1 1 1 1 1 1 2 2 2 2 1 2 1 1 1 2 2 1 2 2 1 2 2 1 2 1 1 1 2 1 2 2 2 1 1 2
 [8425] 1 2 2 2 2 2 1 1 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 1 2 2 2 1 2 1 1 1 1 1 1 1
 [8461] 1 1 1 1 1 2 2 1 2 2 1 2 1 1 1 2 1 1 2 1 1 2 2 2 1 1 2 2 1 1 1 1 1 2 1 2
 [8497] 1 1 1 2 1 1 1 2 1 1 2 1 1 2 2 2 1 1 1 1 1 1 2 2 2 2 1 2 1 2 2 1 2 1 1 1
 [8533] 2 2 1 2 2 1 1 2 2 1 1 2 1 1 1 2 1 2 2 1 2 1 1 2 2 1 2 1 2 2 2 1 2 2 2 1
 [8569] 2 2 1 2 1 1 1 2 2 1 2 1 1 1 2 1 2 1 1 1 2 1 2 1 1 1 1 1 1 1 1 2 2 2 1 2
 [8605] 2 2 1 2 1 2 2 1 2 2 1 2 2 2 2 1 1 1 2 1 2 1 1 2 2 1 2 1 2 2 2 1 1 1 2 2
 [8641] 1 1 1 1 2 1 1 2 1 1 1 2 2 2 1 2 1 1 2 2 2 1 1 2 1 2 1 1 1 1 1 2 1 1 2 1
 [8677] 2 2 2 2 2 1 1 1 1 1 1 1 1 2 1 1 1 1 1 2 2 2 1 2 1 2 2 2 1 2 1 2 1 2 1 1
 [8713] 2 2 1 1 1 2 2 1 1 2 2 1 1 1 2 1 2 2 1 2 2 2 2 1 1 2 1 1 2 1 1 1 2 1 2 2
 [8749] 1 1 1 1 1 2 2 1 1 2 1 2 1 2 2 2 1 1 1 2 2 1 2 2 2 2 2 2 2 2 1 1 1 2 2 1 1
 [8785] 2 1 1 1 1 1 1 1 2 1 1 2 2 2 1 1 1 2 1 1 1 1 1 1 2 1 2 2 2 2 2 1 1 2 1 2
 [8821] 1 1 1 1 2 2 2 2 1 2 2 2 2 2 2 1 1 1 2 1 1 2 2 2 2 1 2 2 2 1 2 2 1 1 2 2
 [8857] 1 1 2 2 1 1 2 1 2 1 1 1 2 2 2 1 2 2 2 2 2 1 2 1 2 2 1 1 1 2 2 1 2 1 1 2
 [8893] 2 1 1 2 1 1 1 1 1 2 2 2 1 2 1 1 1 1 1 1 1 2 1 1 1 1 1 2 1 2 2 2 2 2 2 2

[8929] 1 2 2 1 1 1 2 1 1 2 2 1 2 2 1 1 1 2 1 2 1 2 2 1 2 2 2 2 2 1 1 1 2 1 2 2
 [8965] 1 2 1 1 1 1 1 2 1 2 2 1 2 2 1 1 1 1 1 2 2 2 1 2 2 1 1 1 1 1 2 2 1 1 1 2
 [9001] 1 1 2 2 1 2 2 1 1 2 2 2 1 1 2 2 2 1 1 1 1 1 2 1 2 2 1 1 2 2 2 1 2 2
 [9037] 1 2 1 2 1 1 2 2 1 2 1 1 2 1 2 1 2 1 1 2 2 2 1 1 1 1 2 2 1 2 2 2 1 2 2 1
 [9073] 2 1 1 2 2 1 1 1 1 2 2 1 2 2 1 1 2 2 1 2 1 1 2 1 2 2 1 1 2 1 1 2 1 2 2 1
 [9109] 2 1 1 2 2 2 2 2 1 2 1 1 1 1 1 2 1 1 1 1 1 1 1 1 2 2 1 2 1 1 2 2 2 1 1 2
 [9145] 1 2 1 1 2 2 2 2 2 1 1 1 1 1 1 2 2 1 2 1 2 1 2 1 2 1 2 2 2 2 1 1 1 1 2 2
 [9181] 2 2 2 1 2 2 2 1 2 1 1 2 2 2 1 2 2 1 1 2 1 2 1 1 2 1 2 2 2 1 1 1 2 1 2 2
 [9217] 2 1 1 1 1 1 1 1 2 1 1 1 1 2 2 1 2 2 2 1 2 1 2 2 2 1 2 1 2 1 1 2 1 1 1 2
 [9253] 2 1 2 2 2 2 1 1 2 2 2 1 1 2 2 2 1 2 1 2 1 1 2 2 1 2 1 1 1 1 1 1 2 1 2 1
 [9289] 1 1 1 2 2 1 2 1 1 2 1 2 2 1 1 2 1 2 1 1 2 1 2 1 2 1 2 2 1 1 2 2 2 1 1 1
 [9325] 1 2 1 1 1 1 1 2 1 2 2 1 2 1 1 1 1 1 1 1 2 2 2 2 1 2 2 2 2 2 1 1 2 1 1 2
 [9361] 1 1 2 2 2 2 2 1 2 1 2 1 1 2 1 1 1 2 1 1 1 1 1 1 1 2 1 2 1 2 1 1 2 1 1 2
 [9397] 2 1 2 2 1 1 2 2 2 2 1 1 1 1 2 1 2 1 1 1 1 1 1 2 1 2 1 2 1 1 1 1 2 2 1 2
 [9433] 2 1 1 1 2 1 1 2 2 1 1 1 2 1 1 2 1 2 2 2 1 1 1 2 2 1 1 2 1 1 2 1 1 2 1 2
 [9469] 1 1 2 1 1 2 1 1 1 1 1 2 2 2 2 2 2 1 1 2 1 2 2 2 1 2 1 1 2 2 1 1 1 1 1 1
 [9505] 1 2 2 1 2 1 1 2 1 2 2 1 1 2 2 1 2 1 2 1 2 1 1 2 1 2 2 1 2 1 2 1 2 1 1 2
 [9541] 1 1 1 1 2 2 1 1 2 1 2 2 1 1 2 2 1 2 2 1 2 1 2 2 1 1 2 2 2 1 1 2 2 1 1 1
 [9577] 1 2 2 2 1 2 1 2 1 1 1 1 1 2 2 2 2 1 2 2 1 2 2 1 1 1 2 1 2 1 1 1 2 1 2 2
 [9613] 1 2 2 2 2 1 1 2 1 1 2 1 2 1 2 2 1 1 2 2 2 2 1 2 2 2 1 2 1 1 1 1 2 1 1 1
 [9649] 1 1 2 1 1 2 1 2 2 1 2 2 1 2 1 1 2 1 2 1 2 2 1 2 2 2 1 2 1 1 1 1 1 2 1 2
 [9685] 2 1 1 1 2 2 1 2 1 2 1 1 2 1 2 1 2 2 2 2 2 2 2 1 2 2 2 1 2 2 1 1 1 1 2 2
 [9721] 2 2 1 2 2 2 2 2 1 1 2 1 2 2 1 2 1 1 2 2 1 2 2 2 1 2 1 1 1 1 2 1 1 1 2 1
 [9757] 2 1 1 1 2 1 1 2 1 2 1 2 1 2 2 1 2 1 1 1 2 1 2 1 1 1 2 2 1 2 1 1 2 2 2 2
 [9793] 2 2 1 1 2 1 2 1 2 2 1 1 1 2 1 1 1 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 2 2 2 1 1
 [9829] 2 2 1 2 1 2 2 2 1 1 2 1 1 1 1 2 1 1 2 1 1 1 2 2 1 2 2 1 1 2 2 1 2 1 1 1
 [9865] 2 2 1 1 1 1 1 2 1 2 2 2 2 2 2 1 1 1 1 1 2 2 1 1 2 1 1 2 2 1 2 1 2 1 2 1
 [9901] 1 2 1 2 2 2 1 1 1 2 2 2 1 1 1 2 1 2 1 2 1 1 1 2 1 1 1 1 1 1 1 1 2 2 1 1 1
 [9937] 1 1 2 1 1 1 1 1 2 1 1 2 2 2 1 1 2 1 1 1 1 1 1 2 1 1 2 2 1 2 1 1 2 2 2 1
 [9973] 1 2 1 1 2 1 2 1 2 1 2 2 1 2 1 2 2 1 1 2 1 1 1 1 1 2 1 1 1 1 2 2 2 2 1 1
 [10009] 2 1 1 2 2 1 1 1 1 2 1 1 2 2 1 1 2 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 1 2
 [10045] 2 1 1 1 2 2 1 2 2 2 2 2 2 1 2 1 2 2 1 1 1 1 2 2 2 1 1 2 2 2 2 2 2 1 1 2
 [10081] 1 1 1 2 2 1 2 1 2 2 2 2 1 2 1 1 2 1 2 2 2 2 2 1 1 1 1 2 2 1 1 1 1 1 2 1
 [10117] 2 1 1 2 2 2 1 1 2 1 2 2 2 1 1 2 2 2 1 1 1 2 2 1 1 1 2 1 1 2 2 1 2 1 1 2
 [10153] 2 2 2 2 1 2 2 2 1 2 2 2 2 1 2 1 1 2 2 1 1 1 1 2 2 1 2 1 1 1 1 2 2 2 1
 [10189] 1 2 1 1 1 1 2 1 2 2 2 1 1 2 2 1 2 1 2 2 1 2 2 2 1 2 2 2 2 1 1 2 1 2 1 2
 [10225] 2 1 2 1 2 1 1 2 2 1 1 1 1 2 2 2 2 2 2 2 1 2 2 1 2 1 2 1 1 2 1 2 1 1 2 1 1
 [10261] 1 2 1 2 2 1 1 1 2 2 1 2 1 1 2 1 1 2 1 1 2 1 1 1 1 1 1 1 2 1 1 2 1 1 1 1
 [10297] 2 1 2 1 2 1 2 1 2 1 1 1 1 1 2 2 1 1 2 1 2 1 1 1 1 1 2 2 2 2 1 2 2 1 2 1 1
 [10333] 2 1 1 1 1 1 1 1 2 2 1 1 1 1 2 1 2 1 1 2 2 1 1 2 2 2 1 1 1 1 1 1 2 1 2 2
 [10369] 1 1 1 2 2 1 1 1 1 2 2 2 1 1 2 2 2 1 1 2 1 1 2 1 2 2 2 1 2 1 2 1 2 1 2 2
 [10405] 2 1 1 1 1 2 1 1 2 1 1 2 1 2 1 2 2 1 1 1 1 2 1 2 1 1 1 1 1 1 2 1 1 2 1 1 1
 [10441] 2 1 2 1 2 1 1 1 2 2 2 1 2 1 2 1 2 2 2 1 1 2 1 2 1 1 2 1 1 1 1 2 2 1 1 2
 [10477] 1 1 1 1 1 1 1 1 2 1 2 1 1 1 2 2 1 1 1 2 2 1 2 1 1 2 2 2 2 2 1 2 1 2 1 2
 [10513] 2 1 2 2 1 1 1 1 2 2 1 2 1 1 2 2 1 1 2 1 2 2 2 2 1 2 2 1 1 1 1 1 2 1 1 2
 [10549] 2 1 1 2 1 2 1 2 2 2 2 1 2 2 2 1 2 2 1 1 2 1 1 1 1 1 2 2 1 2 2 1 2 2 1 2
 [10585] 2 1 2 1 1 2 1 1 2 2 2 2 2 2 1 2 2 1 1 1 1 1 2 2 2 1 1 1 2 2 1 1 2 1 2 1
 [10621] 2 1 1 1 2 1 2 2 1 1 1 1 2 2 1 1 2 1 1 2 1 2 1 1 2 1 2 1 1 1 1 1 2 1 1 2

[10657] 2 1 2 1 2 2 2 1 2 2 1 2 1 2 2 2 1 1 1 2 1 1 2 1 2 1 2 1 2 1 2 1 1 1 2 1
 [10693] 2 1 2 1 1 1 1 2 1 1 1 1 2 1 2 2 2 2 1 2 1 1 2 2 1 1 1 1 1 1 2 2 2 1 2 1
 [10729] 2 1 2 2 2 1 1 2 1 1 2 2 2 2 1 1 1 1 1 2 1 2 1 2 1 1 1 2 1 2 1 2 1 2 1
 [10765] 1 1 2 2 2 2 1 1 1 1 1 1 2 2 1 1 1 1 2 2 2 2 2 1 1 1 2 1 2 2 2 1 2 2 1 2
 [10801] 2 1 2 1 2 2 2 1 2 2 2 1 1 1 1 2 2 2 2 1 1 2 2 2 1 1 1 1 1 2 2 1 2 1 2 2
 [10837] 1 1 2 2 1 2 2 1 2 2 1 1 1 2 2 1 1 1 1 2 1 2 2 1 2 1 2 1 1 2 2 1 2 1 1 1
 [10873] 1 2 2 2 2 1 1 1 1 2 1 1 2 2 1 2 2 2 2 1 2 1 1 2 2 2 2 2 1 1 1 2 2 1 1 1
 [10909] 2 1 2 2 2 2 1 1 1 1 1 1 1 1 1 2 1 1 1 2 1 2 2 1 2 2 1 2 1 1 2 2 1 2 1 2
 [10945] 1 2 1 2 2 1 2 1 2 1 1 1 2 1 2 1 2 2 1 1 1 2 1 2 1 2 2 2 1 1 2 1 1 1 1 1
 [10981] 1 1 2 2 2 1 2 2 1 1 1 1 1 1 1 2 2 2 2 1 1 2 1 1 1 1 2 1 1 1 1 1 2 1 1 2
 [11017] 2 2 2 1 1 2 2 2 1 2 1 2 2 1 2 2 1 1 1 1 1 2 2 2 1 2 2 1 2 2 1 1 1 2 1 2
 [11053] 1 2 1 1 1 2 1 1 2 1 2 1 2 2 2 1 1 1 2 1 2 1 2 1 2 2 1 1 2 2 1 1 2 2 2 1
 [11089] 2 1 1 2 2 1 2 1 1 2 1 2 2 1 1 1 2 2 1 1 1 2 1 2 1 1 1 1 2 2 1 1 2 1 2 1
 [11125] 1 2 2 1 2 1 2 2 2 2 1 2 2 2 2 1 1 2 2 2 2 1 2 2 2 2 1 2 2 2 2 1 2 1 1 2
 [11161] 2 1 2 1 1 1 1 2 1 1 2 1 2 2 1 1 1 1 2 1 2 2 2 1 1 1 2 1 2 1 1 2 1 1 1 2
 [11197] 1 1 1 1 1 1 1 1 2 2 1 1 2 2 1 2 1 1 2 2 2 2 2 1 1 1 2 1 2 1 1 2 1 1 2 2
 [11233] 1 2 1 2 1 1 1 2 2 1 1 1 1 2 2 1 2 2 2 2 1 2 1 2 1 2 1 2 1 2 2 1 2 1 2 2
 [11269] 2 1 2 2 2 2 1 2 1 1 2 1 2 2 2 1 2 2 2 1 1 2 1 1 2 2 1 2 1 1 2 1 2 1 2 1
 [11305] 1 1 1 2 2 2 2 1 1 2 1 1 2 1 2 1 1 2 1 2 2 2 1 2 1 2 1 1 1 1 2 2 1 2 1 1
 [11341] 2 1 1 2 1 1 1 1 1 1 2 1 1 1 1 1 2 1 1 2 2 2 1 1 1 2 2 2 1 2 2 1 2 1 1 2
 [11377] 1 1 1 1 1 1 1 1 1 1 1 2 1 2 2 1 1 1 2 1 1 1 1 1 1 2 1 1 2 1 2 2 2 2 2 1
 [11413] 1 2 2 1 2 2 2 2 2 2 2 1 2 1 2 2 2 1 1 1 1 1 1 2 2 1 1 1 1 2 2 2 1 1 2 1
 [11449] 1 1 1 2 2 1 1 1 2 2 1 1 1 2 2 2 1 2 1 2 2 1 1 1 1 2 2 1 2 1 1 1 1 1 2 1
 [11485] 1 1 2 1 1 1 1 2 1 2 1 1 2 2 1 1 1 1 1 1 1 1 1 2 1 1 1 1 1 1 2 1 2 1 1 1
 [11521] 2 1 2 1 1 1 2 2 1 2 1 1 2 1 1 2 1 1 2 1 1 1 2 1 2 1 2 1 1 1 1 2 1 1 2 2
 [11557] 1 1 1 1 1 2 2 1 1 2 2 2 1 1 1 2 2 1 2 1 1 1 2 1 1 1 2 1 2 1 1 2 2 2 2 2
 [11593] 1 2 1 2 2 2 1 1 2 1 2 1 1 2 1 1 2 1 2 2 1 2 1 1 1 2 1 1 1 2 1 1 2 1 2 2
 [11629] 2 1 2 1 1 2 1 2 2 1 1 2 1 1 2 1 1 2 1 1 1 1 1 1 2 1 1 1 2 1 1 2 2 2 2 1
 [11665] 2 2 2 2 1 2 2 2 2 1 2 1 2 2 2 1 2 1 2 1 2 2 2 2 1 1 2 2 2 2 2 2 2 2 2 1
 [11701] 1 2 2 2 1 1 1 1 1 2 1 1 2 2 2 1 2 2 1 2 2 1 2 2 1 1 1 1 1 1 1 2 1 1 2 1 1
 [11737] 1 1 2 2 1 2 2 2 1 1 2 1 2 2 1 1 1 2 1 1 2 1 1 1 1 1 2 1 1 1 1 2 1 1 2 1
 [11773] 2 2 1 2 1 2 2 1 1 1 2 1 2 1 1 2 1 1 2 2 2 2 1 1 1 1 2 2 2 1 1 2 1 2 2 2
 [11809] 1 2 2 1 2 1 2 2 1 1 1 2 1 1 1 1 1 1 2 2 2 2 1 2 1 1 1 2 1 2 2 2 1 2 2 2
 [11845] 1 1 1 2 1 2 2 2 2 2 1 1 1 2 2 2 2 2 2 2 2 2 2 1 1 1 1 1 2 1 1 1 1 1 2 2
 [11881] 1 1 1 2 2 2 2 1 2 1 1 2 1 1 2 1 1 2 1 1 2 2 2 1 2 1 1 2 1 2 2 1 1 1 2 2
 [11917] 2 1 1 2 2 1 1 1 1 1 1 2 1 1 1 2 1 1 2 2 1 1 1 1 2 1 2 2 1 1 1 1 2 2 1
 [11953] 1 2 2 2 2 2 2 1 1 2 2 1 2 1 1 2 1 2 2 1 2 1 1 1 1 2 2 1 1 1 2 2 1 1 1
 [11989] 1 2 1 2 2 2 2 2 1 1 1 2 2 2 2 1 1 1 1 1 2 1 2 2 2 1 1 1 2 2 2 1 2 1 2
 [12025] 1 1 2 2 2 2 2 1 1 2 1 2 2 1 1 2 1 1 1 2 1 1 1 2 2 2 1 1 2 1 1 2 2 1 1 1
 [12061] 1 1 1 1 2 1 1 1 1 2 2 2 2 1 1 1 1 1 1 1 1 1 1 2 2 2 1 1 1 1 2 2 1 2 1
 [12097] 2 2 1 2 2 1 2 1 2 2 2 1 2 1 2 2 1 1 2 1 2 1 1 1 2 2 2 2 2 1 2 1 2 2 1 2
 [12133] 2 2 1 1 2 1 2 1 2 2 1 1 1 1 2 2 1 2 2 2 2 2 2 1 2 1 1 2 1 2 2 1 2 2 2 1
 [12169] 2 2 2 2 2 1 1 1 2 1 1 2 1 1 1 1 1 1 2 2 1 2 2 2 2 2 2 2 1 1 2 2 1 2 1 2
 [12205] 1 2 1 2 1 2 1 2 2 1 2 1 2 2 1 1 1 1 2 2 2 2 2 1 2 2 2 1 2 2 2 2 2 1 2 2
 [12241] 1 1 1 1 1 1 2 1 2 2 1 1 1 1 2 2 2 2 2 1 2 2 2 1 2 2 1 2 2 1 2 2 2 1 1 2
 [12277] 1 1 1 2 2 1 1 1 2 2 1 1 1 1 1 2 2 1 2 2 1 2 1 2 1 2 2 2 1 2 1 2 1 2 1 2
 [12313] 2 2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 2 2 2 2 1 1 2 2 2 2 2 1 2 2 2 1 1 2 2 2
 [12349] 1 2 2 1 1 2 2 1 2 1 2 1 1 2 1 1 1 1 2 2 1 2 1 1 1 1 1 1 1 1 1 2 1 1 1 2 1 1

[12385] 2 1 2 2 2 1 2 1 1 1 2 2 1 2 1 2 1 2 1 2 1 1 1 1 1 1 1 2 1 2 1 1 2 2
 [12421] 2 1 1 2 1 2 2 2 1 1 2 1 2 1 2 2 1 1 2 2 1 1 2 2 2 1 1 2 1 1 2 2
 [12457] 2 2 1 1 2 1 2 1 2 2 1 1 1 2 1 1 1 1 2 2 2 1 1 1 1 1 1 2 1 1 2 2
 [12493] 1 1 2 2 1 1 2 1 2 1 2 1 1 2 2 1 2 1 1 1 1 2 1 1 2 2 2 1 2 1 2 2 2 2
 [12529] 2 1 1 2 1 2 1 2 1 1 2 2 2 2 2 1 2 2 1 2 2 2 1 1 1 1 2 2 1 2 1 2 2 1 1 2
 [12565] 1 2 2 1 1 2 1 1 2 1 2 2 2 1 1 2 1 1 2 2 1 2 1 2 1 2 1 1 1 2 2 1 2 2 2 2
 [12601] 2 2 1 1 1 1 1 2 1 2 2 1 2 2 2 1 1 2 1 2 1 2 2 1 2 2 1 1 1 1 1 2 2 1 2 1
 [12637] 2 2 1 1 2 1 2 1 2 2 2 2 2 1 2 2 1 2 2 2 1 2 1 2 2 1 2 2 1 1 1 2 1 2 2 1
 [12673] 2 2 2 1 2 2 1 1 1 2 1 2 1 2 1 1 1 1 2 1 2 2 2 1 1 1 2 2 2 2 1 2 2 1 2 2
 [12709] 1 2 1 1 2 1 2 1 2 1 1 2 2 2 1 2 1 1 2 1 2 2 1 1 1 1 1 1 2 1 1 1 1 2 1 1 2
 [12745] 1 2 1 2 2 2 2 1 2 1 2 1 1 1 1 1 2 2 1 1 2 2 1 1 1 1 1 1 1 1 1 2 2 1 2 2 2
 [12781] 2 1 1 2 1 2 1 2 1 1 2 1 2 1 2 2 1 2 2 1 1 1 2 2 2 2 2 1 1 2 1 1 2 1 2 2
 [12817] 1 1 2 1 2 1 2 1 1 1 2 1 2 1 2 2 2 1 2 2 1 1 1 2 1 1 2 2 1 1 2 1 1 1 1 1
 [12853] 1 2 1 2 1 1 1 2 1 2 1 1 1 1 1 2 1 2 1 1 1 2 2 2 1 2 2 2 1 2 1 1 1 1 1 1
 [12889] 2 1 2 2 2 1 2 2 1 1 2 1 2 2 2 2 1 2 1 2 2 1 1 1 2 2 2 1 2 1 2 2 1 1 1 2
 [12925] 2 2 2 2 2 2 1 2 1 1 1 2 2 1 1 2 1 2 2 1 1 1 2 1 2 2 2 1 1 1 1 2 2 2 1 1
 [12961] 2 2 1 1 1 1 1 2 1 2 2 1 2 1 1 2 2 2 2 2 2 2 2 1 1 1 2 2 1 1 2 2 2 2 1 1
 [12997] 2 1 1 2 1 1 2 1 1 1 1 1 2 2 2 2 2 1 2 1 2 1 1 1 1 1 2 1 2 2 1 2 2 1 2 1 1
 [13033] 1 1 2 1 1 1 1 1 2 1 1 2 1 2 1 2 1 1 1 2 2 1 2 2 1 2 2 1 2 2 2 1 1 1 2 2
 [13069] 1 1 1 2 1 1 1 1 1 2 1 1 1 1 2 1 1 1 1 2 2 1 2 1 2 2 1 1 2 2 1 1 2 2 2 1
 [13105] 2 1 1 1 1 2 2 2 1 2 1 1 1 1 2 2 1 2 1 2 1 1 2 1 2 2 1 2 1 1 2 1 1 2 2 1
 [13141] 2 1 2 1 2 1 1 1 1 1 2 1 1 1 1 2 1 2 2 1 2 1 2 2 2 1 2 1 2 2 1 1 1 2 2 2
 [13177] 2 1 2 1 2 2 2 2 2 1 2 2 2 1 1 1 1 2 1 2 1 1 2 2 2 1 1 2 2 1 2 2 1 1 1 1
 [13213] 2 2 2 1 2 1 2 1 1 1 2 2 2 2 2 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 2 1
 [13249] 1 1 2 1 1 2 1 2 2 2 1 2 1 1 2 2 1 1 2 1 2 2 2 1 2 2 1 1 1 1 1 2 1 1 2 1
 [13285] 2 2 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 2 1 2 1 2 2 2 1 2 1 1 1 1 1 2 1 1 2 1
 [13321] 1 2 2 2 1 2 2 2 2 1 1 1 1 1 2 1 2 1 2 2 1 2 2 2 1 1 1 2 1 1 2 2 1 2 1 1
 [13357] 2 1 2 2 1 1 1 2 2 2 2 2 1 1 2 2 1 1 1 1 1 1 2 2 2 1 2 1 2 2 2 1 2 2 2 1
 [13393] 1 1 2 2 2 1 1 1 1 2 1 1 1 2 2 2 1 1 1 2 1 2 1 1 1 1 2 1 1 2 1 2 1 1 2 1
 [13429] 1 2 2 2 1 1 2 1 1 1 1 2 1 1 1 2 1 1 2 2 1 1 2 1 2 2 2 2 2 1 2 1 1 2 1 2
 [13465] 2 1 2 1 1 1 2 2 1 2 2 2 1 1 2 1 1 2 1 2 1 1 2 1 1 1 2 2 1 1 2 2 1 1 1 1
 [13501] 2 2 2 1 1 1 1 1 2 2 2 2 2 2 2 2 1 1 1 1 1 2 1 1 1 2 2 2 2 2 1 1 1 1 1 1
 [13537] 2 2 2 2 1 2 2 1 2 1 1 1 1 2 1 2 1 1 1 1 1 1 1 2 1 1 2 2 2 1 2 1 2 2 1 2
 [13573] 1 1 2 2 2 2 1 1 1 2 1 2 1 2 1 1 2 2 1 1 2 2 2 2 2 1 2 2 1 2 1 1 1 2 1 1
 [13609] 2 2 1 2 2 1 2 1 2 2 2 1 1 1 2 2 2 2 2 2 1 1 1 2 1 1 2 2 1 1 2 2 1 1 1 1
 [13645] 2 2 1 2 1 2 2 1 2 2 2 2 1 2 1 2 2 1 1 1 1 2 1 1 1 1 2 2 1 1 2 1 1 1 2 2
 [13681] 2 2 2 2 1 1 1 1 2 2 2 1 1 1 2 2 2 1 2 2 2 2 2 1 2 1 1 1 1 2 2 1 1 1 1 2
 [13717] 1 1 2 2 1 2 1 1 2 2 2 1 2 1 1 2 1 2 1 1 1 1 1 1 1 1 1 2 1 1 2 1 1 1 1 2
 [13753] 2 1 2 1 1 1 1 1 1 1 2 1 1 2 1 1 2 2 2 1 1 1 1 1 2 2 2 1 1 1 1 2 2 1 2 2
 [13789] 1 2 1 1 1 2 2 1 1 2 2 1 2 1 2 1 2 2 1 2 1 2 2 2 1 1 1 2 1 1 1 1 2 1 2 1
 [13825] 1 2 1 2 1 2 2 1 1 1 1 2 2 1 2 1 2 1 2 1 2 1 2 1 1 2 1 2 1 1 1 2 1 2 2 2
 [13861] 2 2 1 2 2 1 2 2 1 1 2 1 1 1 1 1 1 1 2 1 1 2 2 2 2 2 1 1 1 1 2 1 1 2 1 1
 [13897] 1 2 2 1 2 1 2 2 2 1 1 2 2 1 2 2 2 1 1 1 1 1 2 1 2 2 2 1 2 1 2 1 1 2 1 2
 [13933] 2 2 1 1 1 1 1 2 1 1 1 2 2 1 1 2 1 1 1 2 2 1 1 2 1 2 2 2 2 1 2 1 1 1 2 1
 [13969] 2 1 2 2 2 2 2 1 1 1 1 1 1 2 2 2 2 2 1 2 1 1 2 1 2 1 2 2 2 2 1 2 1 1 1 2
 [14005] 2 1 1 2 2 1 1 2 1 2 1 2 2 1 2 1 2 1 1 2 1 2 2 2 1 2 2 1 1 1 1 1 1 1 2 2
 [14041] 1 1 2 1 2 2 2 1 1 2 1 2 1 2 2 1 1 1 2 2 1 1 2 1 2 2 1 1 2 2 2 1 2 2 1 1
 [14077] 2 2 1 1 2 2 1 2 2 1 1 1 2 1 1 1 2 2 1 2 1 2 2 1 1 2 1 2 2 2 2 2 1 1 2 2

[14113] 1 2 1 1 1 1 1 1 2 2 2 1 2 2 1 2 2 2 2 1 1 1 2 1 1 2 2 2 2 1 1 1 1 1 1
 [14149] 1 2 2 1 1 1 2 2 1 2 1 1 1 1 2 2 2 2 2 2 1 1 1 2 2 2 1 1 1 2 2 1 1 1 1
 [14185] 2 1 2 1 1 1 2 2 1 2 1 2 2 2 1 2 1 1 1 1 2 1 1 1 1 2 2 2 2 1 2 1 2 2
 [14221] 1 2 2 1 2 1 1 1 2 2 1 2 1 2 2 1 2 1 1 2 1 1 2 1 2 1 1 2 2 2 2 2 1 2
 [14257] 1 1 2 1 1 2 2 2 1 2 1 1 1 1 1 2 2 2 2 2 2 2 2 1 2 1 2 1 1 1 2 1 1 1 1
 [14293] 1 1 2 2 1 2 2 2 1 1 1 1 2 1 1 1 1 2 2 1 2 1 2 2 1 1 1 1 1 2 1 2 2 2 1
 [14329] 2 2 2 1 1 1 1 1 2 1 1 1 2 1 1 1 2 2 1 1 2 1 1 2 2 1 1 2 2 1 2 2 1 2 1 2
 [14365] 1 1 2 1 2 2 2 1 2 1 1 1 2 1 2 1 2 1 2 1 2 1 1 1 1 2 2 2 1 2 2 1 1 2 2 1
 [14401] 2 2 2 1 2 2 1 1 1 1 1 2 1 2 1 2 2 2 1 1 1 2 1 1 2 2 2 2 2 1 2 2 1 2 2 2
 [14437] 2 2 1 1 2 2 2 1 2 1 2 2 2 1 2 1 1 2 1 2 2 2 1 2 2 2 1 1 1 2 2 2 1 2 1 2
 [14473] 1 1 1 1 2 1 1 1 2 1 1 2 1 1 1 2 1 2 2 1 2 2 2 1 1 2 2 2 1 1 1 1 1 1 1 1
 [14509] 2 1 1 2 2 1 1 1 1 2 1 1 2 2 2 1 1 1 1 2 1 1 2 1 1 1 1 1 1 2 2 1 1 2 1 1
 [14545] 2 2 2 2 2 2 1 1 2 1 2 1 2 1 1 1 1 2 2 1 2 1 2 2 2 1 1 2 1 1 1 1 2 1 2 2
 [14581] 2 1 2 2 2 2 1 1 1 1 2 1 2 2 1 1 2 2 1 1 1 2 1 1 1 2 1 2 2 2 1 1 2 1 2
 [14617] 1 1 1 2 2 1 1 1 2 1 1 2 2 2 1 1 2 2 1 2 1 2 1 2 2 2 1 2 2 1 1 1 1 2 1 1
 [14653] 2 1 2 2 1 2 2 1 1 2 2 1 2 2 1 1 1 2 1 1 2 2 1 1 2 2 2 2 2 2 1 2 2 2 1 1
 [14689] 2 1 2 1 1 1 1 2 1 1 1 1 1 2 1 1 2 2 1 1 2 1 2 1 2 1 2 2 2 2 1 2 1 2 1 1
 [14725] 2 1 1 1 2 1 1 2 2 2 1 2 1 1 2 1 1 1 2 1 2 2 1 1 2 1 2 1 1 1 1 2 1 1 1 2
 [14761] 2 1 2 1 1 1 1 2 2 1 2 1 1 1 1 1 2 2 2 1 2 2 1 1 1 1 1 1 1 1 1 2 1 2 1 1 2
 [14797] 1 2 2 2 1 2 1 1 1 2 1 2 1 1 2 2 1 2 1 2 2 2 1 1 2 1 1 1 1 2 2 1 2 2 2 2
 [14833] 1 1 1 2 2 1 1 1 1 2 1 2 2 2 2 2 2 1 1 2 2 2 2 2 2 1 2 1 2 1 2 1 2 2 2 1 1
 [14869] 1 2 1 2 1 2 2 2 1 1 1 2 2 1 1 2 1 2 1 1 2 2 2 1 2 2 1 2 1 2 1 1 1 2 1 2
 [14905] 2 2 1 2 1 2 1 1 2 2 1 1 1 1 2 2 1 2 2 2 2 2 2 2 1 2 1 1 2 2 2 1 1 1 2 1
 [14941] 2 2 1 1 2 2 1 1 2 1 1 2 2 2 2 2 1 1 1 1 2 1 2 1 1 2 1 2 1 2 1 1 1 1 2 2
 [14977] 2 1 2 2 1 1 1 1 2 2 1 1 1 1 1 1 2 1 1 1 2 1 2 1 1 2 2 1 2 1 1 1 2 1 2 1
 [15013] 1 1 1 1 1 2 1 1 2 1 1 1 2 1 2 2 1 2 2 2 1 2 2 1 2 2 1 2 2 1 2 1 2 2 1
 [15049] 1 2 2 2 2 1 2 2 2 1 1 1 2 1 1 1 1 2 2 2 1 1 2 2 2 1 1 2 1 2 2 2 2 2 2 1
 [15085] 2 2 2 1 2 1 1 2 1 2 1 2 2 2 1 1 2 2 2 1 1 2 2 2 2 1 1 1 1 1 2 2 2 1 2 1
 [15121] 1 2 1 2 2 1 1 1 1 1 1 2 1 2 1 2 2 2 2 2 2 1 2 1 2 2 1 2 2 1 1 1 1 2 2 2
 [15157] 2 1 1 1 1 1 1 1 1 2 1 1 2 1 2 2 1 1 2 1 1 1 1 1 2 1 1 1 2 2 1 1 1 2 2 2
 [15193] 2 2 2 2 2 1 2 1 1 2 2 1 1 1 1 1 1 2 2 1 2 1 2 1 2 2 2 1 1 1 1 2 2 1 1 1
 [15229] 1 1 2 2 1 2 2 1 1 1 2 2 1 2 2 1 1 1 2 1 2 1 2 2 1 1 2 1 2 1 1 1 1 1 2 1
 [15265] 1 1 1 1 1 1 2 1 2 1 2 1 1 2 2 1 1 1 2 2 2 2 1 1 2 2 1 2 1 1 1 1 1 1 2 2
 [15301] 1 2 2 1 2 2 2 1 2 1 2 2 1 2 1 1 2 2 2 2 1 1 2 2 2 1 2 2 1 2 2 1 2 2 2 2
 [15337] 1 2 2 2 2 1 1 2 2 2 1 1 2 2 1 2 2 2 2 2 1 2 2 1 1 2 2 1 1 2 2 1 2 1 1 1
 [15373] 1 1 1 2 2 1 2 2 2 2 1 2 2 2 1 1 1 2 1 2 1 1 1 2 2 2 2 1 1 1 2 1 2 1 2 2
 [15409] 1 2 1 1 1 1 1 2 2 1 1 1 1 1 2 2 2 1 1 2 2 1 2 1 2 1 1 1 1 1 1 2 1 2 1 2
 [15445] 1 1 2 1 1 1 2 1 2 2 2 2 2 1 2 1 1 1 2 1 1 2 2 2 2 2 2 1 1 2 1 1 1 1 2 2
 [15481] 2 2 1 1 2 2 2 1 2 1 1 1 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 2 1 2 1 1 2 1 1 2
 [15517] 1 1 1 1 2 1 2 2 2 2 2 1 1 1 1 1 2 1 1 1 1 1 2 2 2 2 1 1 1 1 1 2 2 2 2 1 2
 [15553] 1 2 1 1 2 1 2 2 1 1 2 1 2 2 2 1 1 1 1 1 2 2 2 2 1 2 1 2 1 1 2 2 2 1 2 1
 [15589] 2 1 2 2 2 2 2 2 1 2 1 1 1 1 2 1 2 2 1 1 1 2 2 2 1 2 2 2 1 2 1 1 1 1 1 2
 [15625] 1 1 2 1 2 1 2 2 2 2 2 1 1 2 1 1 1 2 2 1 1 2 2 2 1 1 1 1 2 1 1 1 2 2 1 1
 [15661] 1 1 2 1 1 2 2 2 1 2 1 1 1 2 1 1 1 2 2 1 1 2 1 2 2 1 1 1 2 1 2 2 2 2 2 2
 [15697] 1 2 2 1 2 2 1 1 1 2 1 1 2 2 1 1 2 1 1 1 2 2 2 2 2 2 2 1 2 2 1 1 1 2 2 2
 [15733] 2 1 1 2 1 2 2 1 2 1 1 1 2 1 2 2 1 1 2 2 1 1 1 2 1 2 2 1 2 1 1 2 2 1 2 1
 [15769] 2 2 1 2 1 2 1 1 2 1 2 2 2 1 2 2 2 1 1 2 2 1 2 2 1 1 2 1 2 1 1 1 1 2 2 2
 [15805] 1 2 2 1 2 1 2 1 1 1 2 2 1 1 1 2 1 2 1 1 1 2 1 1 2 1 1 1 2 1 1 2 2 1 1 2

[15841] 1 1 2 2 1 1 1 2 2 1 2 2 2 1 1 1 2 1 1 2 2 2 2 1 1 1 2 1 2 1 1 1 2 2 1 1
 [15877] 1 2 1 2 2 2 2 2 2 2 1 2 1 1 1 2 1 2 2 1 1 2 2 1 2 1 1 1 1 1 2 1 2 1 2
 [15913] 2 2 2 1 2 2 2 2 1 2 1 1 1 2 1 1 1 2 1 2 1 2 1 2 2 2 2 1 1 2 2 2 2 2
 [15949] 1 1 1 1 2 1 1 2 2 2 1 2 1 1 1 1 2 2 1 1 1 1 2 2 2 1 2 1 1 1 2 2 1 2 2 2
 [15985] 1 2 2 1 1 1 2 2 1 2 1 1 1 2 1 2 1 1 2 2 2 2 2 2 2 2 2 1 2 1 1 2 1 1 2 2
 [16021] 2 2 2 2 1 1 1 2 2 2 1 1 2 1 2 1 2 2 2 2 1 1 2 2 2 1 2 2 1 2 1 1 2 1 2 1
 [16057] 1 2 1 1 2 1 1 1 2 2 1 2 2 2 2 2 1 1 2 2 1 2 2 2 1 1 2 2 2 1 2 1 2 2 2 1
 [16093] 2 2 1 1 1 2 2 2 2 1 1 1 1 2 2 1 1 2 2 1 2 1 1 1 2 2 2 2 2 2 1 1 1 1 1 2
 [16129] 2 1 2 2 1 2 2 1 2 1 1 2 2 2 2 2 1 1 1 2 1 1 2 2 2 1 1 2 1 1 1 2 2 2 2 2
 [16165] 2 1 2 1 1 1 2 1 2 1 1 2 2 2 2 1 2 1 2 2 1 1 1 1 1 1 2 2 2 2 1 2 1 2 1 2
 [16201] 1 2 1 2 2 1 1 1 1 1 2 2 1 2 1 2 1 1 2 2 1 2 1 2 2 1 2 1 1 2 2 1 1 2 2
 [16237] 2 1 1 2 1 1 1 2 2 2 1 1 1 2 2 2 1 1 1 1 1 1 2 1 1 2 1 1 1 1 2 1 1 1 1 1
 [16273] 1 2 1 1 1 1 1 2 1 2 1 1 1 1 2 1 1 2 2 2 1 1 1 2 2 1 1 2 2 1 2 1 1 2 2 2
 [16309] 2 1 2 2 1 2 2 1 2 2 1 1 1 1 1 2 1 1 1 1 1 1 1 1 2 2 1 1 1 1 1 1 1 1 2 1
 [16345] 1 1 1 1 1 2 2 1 2 2 1 1 1 1 2 2 1 2 2 1 1 2 1 1 2 1 1 1 1 1 2 1 1 2 1 2
 [16381] 1 1 1 1 1 1 1 1 2 2 2 1 1 2 1 2 1 2 1 2 1 2 2 1 2 1 1 2 2 1 2 2 1 1 1 1
 [16417] 1 1 2 2 1 2 2 1 1 1 1 2 2 1 1 2 1 1 1 1 2 2 1 2 1 1 2 1 2 1 2 1 1 1 2 1
 [16453] 2 2 1 1 2 2 2 2 1 2 2 1 1 1 2 1 2 2 2 1 1 2 2 2 1 1 1 1 2 1 1 2 2 2 2 2
 [16489] 2 2 2 1 2 2 2 2 1 1 2 1 1 2 2 1 2 1 1 2 1 2 1 2 2 1 1 1 2 2 1 1 1 2 2 1
 [16525] 1 1 2 2 1 1 1 2 1 1 2 1 2 1 1 1 1 1 1 1 2 1 2 1 1 2 2 1 2 1 1 1 2 1 2 2
 [16561] 1 1 2 1 2 2 1 1 2 1 1 2 1 1 1 1 1 2 1 2 1 2 1 1 2 1 2 1 1 2 1 1 1 2 1 1
 [16597] 2 1 1 2 1 2 1 1 1 1 2 1 1 1 1 2 2 2 2 1 2 1 2 2 1 2 2 1 2 2 1 1 1 1 1 1
 [16633] 1 2 1 1 1 1 1 2 1 1 2 1 1 2 1 2 1 1 1 1 2 1 2 2 2 1 1 2 2 1 1 2 2 1 1 1
 [16669] 1 2 2 2 2 2 1 1 1 2 2 2 2 1 2 2 2 1 1 2 2 2 1 2 2 1 2 2 1 2 2 2 1 1 2 1
 [16705] 1 2 1 2 1 1 2 2 2 2 1 2 2 2 2 1 2 1 2 1 2 2 2 2 1 1 2 2 2 1 1 2 1 1 2 1
 [16741] 1 2 2 2 1 2 1 1 1 2 1 1 1 2 1 1 2 2 1 1 2 1 1 1 2 1 1 1 1 2 2 1 1 2 2 2
 [16777] 1 1 2 2 2 1 1 2 1 2 2 2 1 2 1 1 1 2 1 1 1 1 2 1 2 1 2 1 1 1 2 2 1 2 1 2
 [16813] 1 1 2 2 2 2 2 2 2 2 2 1 2 2 2 1 2 1 2 2 1 2 2 1 1 2 2 1 1 1 2 1 1 1 1 2
 [16849] 1 1 1 1 2 2 1 2 2 1 2 1 1 1 2 1 1 2 1 1 1 1 1 1 2 2 1 2 2 1 2 1 2 2 2 1
 [16885] 1 1 1 1 1 1 2 2 1 2 2 1 2 1 2 1 1 2 2 1 1 2 2 2 2 2 1 2 1 1 1 1 1 1 1 2
 [16921] 1 2 2 2 1 2 2 1 1 1 2 2 1 2 1 1 2 1 1 2 1 2 2 1 2 1 1 1 2 2 1 1 2 1 1 1
 [16957] 2 1 1 1 2 2 2 2 1 2 1 2 2 1 1 1 2 1 2 1 1 2 2 1 1 2 1 2 2 1 1 2 1 1 2 2
 [16993] 1 2 1 2 1 1 1 2 2 1 1 2 2 2 1 2 2 2 1 2 2 1 1 1 1 2 1 2 2 1 1 2 2 2 2 2
 [17029] 2 1 2 1 2 2 1 1 2 1 1 2 1 1 2 2 1 2 2 1 2 2 1 2 2 1 1 2 1 1 2 2 2 1 1 2
 [17065] 1 2 2 1 2 2 1 2 2 2 1 2 1 1 2 2 1 2 2 1 1 2 2 2 1 1 1 2 2 1 1 1 2 1 2 2
 [17101] 1 2 2 2 2 2 2 1 1 1 2 1 2 2 1 1 1 2 2 1 1 2 1 1 1 2 1 1 1 2 2 1 2 2 1 2
 [17137] 2 1 2 1 2 2 1 1 2 1 2 2 1 1 2 2 1 2 1 2 1 1 1 2 2 2 1 1 1 2 2 2 1 2 2 1
 [17173] 1 2 2 1 1 2 2 2 1 2 2 1 1 1 1 2 2 2 1 2 1 2 1 1 1 2 2 1 2 2 2 1 1 2 2 1
 [17209] 2 2 1 1 1 2 2 2 2 1 1 1 2 1 2 1 1 2 1 1 1 2 2 2 1 1 1 1 1 1 2 1 1 1 1 2
 [17245] 2 1 2 1 2 2 2 1 2 2 2 1 1 2 1 2 2 2 1 2 1 2 1 2 2 1 2 1 1 1 2 1 1 2 1 2
 [17281] 2 2 1 1 2 2 2 2 1 2 2 1 1 1 2 1 2 1 2 1 1 2 1 2 1 2 2 1 1 2 1 2 2 2 1 2
 [17317] 1 2 1 1 2 1 2 2 1 2 2 1 1 2 1 1 1 1 2 1 2 1 1 1 1 2 2 2 1 1 2 1 2 2 1 1
 [17353] 2 2 1 1 1 2 2 1 1 1 2 2 1 1 2 2 1 1 1 2 2 1 2 1 2 1 1 1 2 2 1 1 1 2 2 1
 [17389] 2 2 1 2 2 1 2 2 1 1 1 2 2 2 2 1 1 2 1 1 1 2 2 1 1 2 2 1 1 1 2 1 1 2 1 1
 [17425] 1 2 2 2 2 1 2 1 2 1 2 2 1 1 2 2 1 2 2 2 1 2 1 1 1 2 2 1 1 2 2 1 1 2 1 1
 [17461] 1 2 1 1 1 1 2 2 2 2 2 1 1 1 2 2 1 1 2 1 2 2 2 2 2 2 1 2 1 1 1 1 2 2 1 1
 [17497] 2 2 2 1 2 1 1 2 2 2 1 2 2 1 1 2 2 2 2 1 1 1 1 2 1 1 2 2 2 2 1 1 1 2 1 1
 [17533] 1 2 2 2 1 1 2 1 2 2 1 1 2 1 2 2 2 2 2 1 1 1 1 2 2 1 1 1 2 2 1 2 1 1 1 2

[17569] 1 2 2 2 1 2 2 1 1 2 1 2 1 2 1 2 1 1 1 2 2 2 2 2 1 2 1 1 2 2 1 2 2 1
 [17605] 1 2 2 1 2 2 2 2 2 1 1 1 2 2 2 1 2 1 1 2 2 1 1 1 2 2 2 1 2 1 1 1 1 1
 [17641] 2 1 2 1 2 1 1 1 1 2 1 1 2 2 2 1 2 1 2 1 2 1 2 2 1 1 2 1 1 1 2 1 2 1 1
 [17677] 2 2 1 2 2 1 1 1 1 2 1 2 2 2 1 2 2 1 2 2 2 2 1 1 1 2 1 2 2 2 1 1 2 2 2 1
 [17713] 2 1 2 2 2 1 1 2 2 2 2 1 1 1 2 1 1 1 2 1 1 1 2 1 2 2 1 1 1 1 1 1 2 2 1
 [17749] 2 2 2 2 2 1 2 2 2 2 2 2 2 2 2 2 1 2 2 1 2 1 1 1 1 1 1 1 2 2 1 2 2 1 2 1
 [17785] 2 1 1 2 2 2 2 1 1 1 2 2 1 1 1 2 2 1 1 2 1 1 1 1 1 1 1 1 2 1 1 1 1 2 1 2
 [17821] 2 1 2 2 1 1 2 2 1 1 2 1 1 2 2 1 1 1 1 1 1 1 2 2 1 1 1 1 2 1 1 1 2 2 1
 [17857] 2 1 1 2 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 1 2 1 2 1 1 1 1 1 2 1 1 2 2 2 2 2
 [17893] 2 2 1 1 1 1 1 1 2 1 2 2 2 2 2 2 2 1 1 2 2 1 1 1 2 2 2 1 1 1 2 2 1 2 2 2 1
 [17929] 1 2 1 2 2 1 1 2 1 2 1 1 2 1 1 1 1 2 2 1 1 2 2 2 1 2 1 1 2 1 1 2 1 1 2
 [17965] 2 2 2 1 2 2 2 2 2 2 2 2 2 1 1 1 1 1 2 2 2 1 1 2 1 1 2 2 1 1 1 2 1 2 2 1 1
 [18001] 1 2 2 1 1 2 2 2 1 1 1 1 2 2 2 2 1 2 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1
 [18037] 2 1 2 1 1 1 2 1 2 1 1 1 1 2 1 1 2 2 1 1 1 2 1 2 1 2 1 1 2 2 1 1 2 1 1 2
 [18073] 1 2 2 2 2 2 1 1 1 2 2 1 1 2 1 2 2 1 1 2 2 1 1 1 2 1 1 2 2 1 1 1 1 2 2 2
 [18109] 1 1 1 2 1 1 1 2 1 2 1 1 2 2 2 1 1 2 1 1 1 1 1 2 2 2 1 1 2 2 1 1 2 2 1 2
 [18145] 1 1 1 1 1 2 1 2 2 1 2 1 1 1 1 2 1 2 1 1 1 1 1 2 2 2 2 2 2 2 1 2 2 2 1 1
 [18181] 1 2 2 1 1 1 1 1 2 1 2 2 2 1 1 2 2 2 2 1 2 2 2 2 1 1 1 2 1 2 2 1 1 2 2 1
 [18217] 2 1 1 1 2 2 2 1 2 1 1 2 1 1 1 2 1 1 1 2 2 2 2 2 1 2 2 2 2 2 1 2 1 1 1 1
 [18253] 2 2 1 1 1 1 1 1 1 1 1 2 1 2 1 1 1 1 2 1 2 2 2 2 1 2 2 2 1 2 2 2 1 1 1 2
 [18289] 2 1 1 2 2 2 1 1 2 1 2 2 2 1 1 1 1 2 2 2 1 1 2 1 1 2 2 1 1 1 2 1 2 2 2 2
 [18325] 1 2 1 2 1 1 2 2 2 1 2 1 1 2 2 2 2 2 1 1 1 2 1 2 1 1 2 1 1 1 1 2 1 1 1 2
 [18361] 1 1 2 1 1 2 2 1 2 1 1 2 1 1 2 1 1 2 2 2 1 1 2 2 1 2 1 1 1 1 2 2 1 1 2 1
 [18397] 2 1 2 1 2 1 1 2 2 1 2 2 2 1 1 2 2 2 2 1 1 1 1 2 2 1 1 1 2 1 2 2 1 1 1 2
 [18433] 2 2 2 2 2 1 2 1 2 2 2 1 2 2 1 2 1 2 2 2 2 2 1 1 1 1 2 1 1 1 1 2 1 1 1 1
 [18469] 1 1 1 1 2 2 2 1 2 1 1 2 2 2 1 2 1 2 2 1 2 1 1 2 1 1 2 2 2 1 1 2 1 1 2 1
 [18505] 1 1 2 2 1 1 2 1 2 2 2 2 2 1 1 1 1 1 2 2 1 1 1 2 2 1 2 2 1 2 2 2 2 1 2
 [18541] 2 1 2 1 1 2 2 2 1 2 1 2 2 2 1 1 1 2 1 1 2 1 2 1 1 1 2 1 1 2 1 1 2 1 2 2
 [18577] 2 1 2 1 2 1 2 1 2 1 2 1 1 2 1 1 1 2 1 2 2 1 1 2 1 2 1 2 2 1 2 1 1 1 2 2
 [18613] 1 2 1 1 1 2 2 1 2 2 2 2 2 1 2 2 1 1 2 2 1 2 1 1 1 2 2 1 2 2 1 1 2 2 2 1
 [18649] 1 1 1 2 2 2 2 2 1 1 1 1 2 2 2 1 1 1 2 2 2 1 2 1 2 2 1 1 2 1 1 2 2 2 2 1
 [18685] 2 1 1 1 1 2 2 1 2 1 1 1 1 1 1 1 2 1 1 1 1 1 1 1 2 2 1 1 1 1 2 1 2 2 2
 [18721] 2 2 2 2 1 1 2 2 1 2 1 1 2 2 2 2 1 1 1 1 1 2 2 2 1 2 1 1 2 1 2 2 2 2 1 1
 [18757] 2 2 2 2 2 1 2 1 2 1 2 2 2 1 2 1 2 2 2 1 2 2 1 2 2 1 1 2 2 2 2 1 2 1 2 1
 [18793] 1 2 1 2 2 1 1 1 2 2 1 2 1 1 2 1 1 1 2 1 1 1 2 2 1 2 1 2 1 1 2 1 1 1 2 1
 [18829] 2 2 1 1 1 2 2 1 1 1 1 2 1 2 1 2 2 1 2 1 1 1 1 1 2 1 1 1 2 2 2 1 2 2 2 1
 [18865] 1 1 2 2 2 1 1 1 2 1 2 2 2 2 1 2 1 1 1 1 2 2 2 2 1 2 1 2 2 2 2 2 2 2 1 1
 [18901] 1 1 2 1 2 1 2 2 2 2 2 1 2 1 1 1 1 2 1 1 2 1 1 2 2 2 2 1 2 1 1 1 1 2 1 2
 [18937] 2 1 1 2 2 2 2 2 1 1 1 2 2 1 2 2 2 2 2 2 2 2 1 2 2 1 1 2 1 2 1 1 2 2 1 1
 [18973] 2 2 2 2 1 1 1 1 1 1 2 2 1 1 2 1 2 1 2 2 2 2 1 1 1 1 2 2 1 1 1 1 1 1 2 2
 [19009] 2 1 1 2 2 2 2 1 1 1 1 1 2 1 2 1 1 1 1 1 1 1 1 1 2 1 1 1 2 1 2 1 1 1 1 2
 [19045] 2 2 2 1 1 2 1 1 2 1 1 1 1 2 1 1 2 1 1 2 2 2 2 1 1 1 1 2 2 2 2 1 2 1 2 1
 [19081] 2 1 2 2 2 1 1 2 2 2 2 2 1 1 1 1 2 1 1 2 2 1 1 1 1 2 1 2 2 1 1 1 2 1 1 1
 [19117] 2 1 2 2 2 2 2 2 2 2 2 2 1 1 2 2 1 2 2 2 2 1 2 1 2 1 1 2 1 1 2 1 1 2 1 2
 [19153] 2 1 1 1 1 2 2 2 2 1 2 1 1 2 1 2 2 2 1 1 2 1 2 2 1 2 2 1 2 1 1 2 2 1 2 2
 [19189] 1 2 1 1 2 2 1 2 2 2 2 2 2 1 2 1 2 2 2 1 2 1 1 2 2 1 2 2 1 2 2 1 1 1 2 2
 [19225] 2 1 1 1 1 2 2 1 1 2 1 2 2 1 1 1 1 2 2 2 1 2 2 2 1 1 1 1 2 1 1 2 1 1 1 1
 [19261] 2 2 1 2 2 1 1 1 2 1 1 2 1 1 1 1 1 2 2 1 1 1 1 2 2 1 1 2 2 1 2 2 2 1 1 2

[19297] 1 1 1 1 2 1 1 2 2 2 2 1 1 2 1 2 1 1 1 2 2 2 1 2 1 2 1 1 1 1 2 2 2 1 2
 [19333] 2 2 1 2 2 2 1 2 1 1 2 1 2 1 2 2 2 1 1 2 1 2 1 1 2 1 2 2 1 2 1 1 1 1
 [19369] 2 1 2 2 1 2 1 2 2 1 2 1 2 2 2 1 2 2 1 2 1 1 1 1 2 1 1 2 1 1 1 1 2
 [19405] 1 1 1 2 1 2 1 1 1 1 1 2 2 2 1 1 1 1 2 1 1 2 1 2 2 1 2 2 1 1 2 1 2 2 2 2
 [19441] 1 2 1 1 1 2 1 1 2 1 2 2 1 1 2 1 1 2 1 2 2 1 1 1 2 1 2 1 2 2 1 1 2 2 2 2
 [19477] 1 1 2 2 1 2 1 1 1 1 2 2 2 1 1 2 2 1 2 1 1 1 1 1 2 2 1 1 2 1 1 1 1 2 1 1
 [19513] 2 1 1 2 2 1 1 2 1 2 2 1 2 1 2 1 1 2 1 1 1 2 2 2 1 2 2 1 2 2 1 2 1 1 1 1
 [19549] 2 1 2 1 1 2 1 1 2 2 1 2 2 2 1 2 1 2 2 2 1 1 1 1 2 2 2 2 1 2 2 1 2 2 2 1
 [19585] 2 1 2 1 1 1 1 1 2 2 1 1 1 1 2 2 1 2 1 2 1 2 2 1 1 1 2 2 1 1 1 2 1 1 1 2
 [19621] 2 2 2 1 1 2 1 1 1 2 2 2 2 2 2 1 1 1 1 2 1 1 2 2 1 1 1 2 2 1 1 1 1 1 1 1
 [19657] 1 1 2 1 2 2 1 2 1 1 2 1 1 2 2 1 2 1 2 1 1 2 2 2 1 2 1 2 1 1 2 2 1 1 2 1
 [19693] 1 2 1 2 2 1 1 1 2 1 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 1 1 1 2 2 1 1 2 1 2 1
 [19729] 1 1 2 2 2 1 1 1 1 1 1 1 1 1 2 1 1 2 1 1 2 2 1 2 1 1 1 2 1 1 2 1 2 2 1 1
 [19765] 1 2 2 1 2 1 1 1 2 1 1 2 2 2 1 1 1 1 2 2 1 1 2 1 2 2 1 2 1 1 2 1 2 2 2 2
 [19801] 2 1 1 1 1 2 1 2 1 2 1 1 2 2 1 2 2 2 1 1 1 1 2 1 1 1 2 1 2 2 1 1 2 2 1 2
 [19837] 1 2 2 2 1 1 1 2 2 1 2 2 2 2 1 1 1 2 2 2 2 2 1 1 2 2 2 1 2 1 2 2 1 1 2 2
 [19873] 1 2 2 2 1 1 1 1 2 2 2 1 2 1 2 2 1 1 2 2 2 2 2 1 1 1 2 2 2 2 2 1 1 1 1 1
 [19909] 1 1 2 2 1 1 1 2 1 2 1 1 1 1 1 2 2 2 1 1 2 1 1 2 1 1 1 2 1 1 2 1 2 1 1 1
 [19945] 1 1 1 2 1 1 1 1 1 1 1 2 2 1 1 1 2 2 1 2 1 1 1 1 1 2 2 1 1 1 1 2 1 2 2 1
 [19981] 2 1 1 1 2 1 2 1 1 1 1 1 2 2 1 1 1 1 1 2 1 2 1 2 2 2 2 1 1 1 1 1 1 1 2 1
 [20017] 2 1 2 2 2 1 1 1 1 2 2 2 2 1 1 2 2 1 2 1 1 1 2 2 2 1 1 2 2 1 1 1 2 2 1 1
 [20053] 2 2 1 2 1 1 2 2 2 1 2 2 1 1 2 1 1 2 1 2 1 2 1 2 1 2 2 1 1 1 1 2 1 2 2 2
 [20089] 2 2 1 2 2 2 2 2 1 2 1 2 1 2 2 1 2 1 2 1 1 2 2 1 1 2 2 2 2 1 1 1 1 1 1
 [20125] 1 1 2 2 1 2 2 2 1 1 1 2 2 2 1 2 1 2 2 1 1 2 1 1 2 2 2 1 2 2 1 2 2 1 1 2
 [20161] 1 1 1 2 2 1 1 1 2 2 2 2 2 1 2 2 2 1 2 1 2 1 1 1 2 2 2 2 2 2 1 1 1 2 1 2
 [20197] 1 2 2 2 2 2 2 2 1 2 1 1 1 2 1 1 1 2 1 2 1 2 2 2 1 1 2 1 1 2 1 2 1 1 2 1
 [20233] 1 1 1 1 2 1 1 2 1 2 1 2 2 1 2 1 1 1 1 2 2 1 1 1 1 2 1 1 1 1 2 2 1 2 2 1
 [20269] 2 1 2 2 2 2 2 2 1 1 1 1 1 1 1 2 1 1 2 1 1 2 1 2 2 1 2 1 2 1 2 1 2 1 1 2
 [20305] 1 2 1 1 1 2 1 1 2 2 1 1 1 1 1 2 2 1 2 1 1 2 2 1 1 2 2 2 2 1 2 1 2 2 1 1
 [20341] 2 2 1 1 2 2 2 1 2 2 1 1 1 2 2 1 2 1 2 1 1 1 1 2 2 1 2 2 2 2 2 1 1 1 2 1
 [20377] 2 1 1 1 1 2 1 1 2 2 2 1 1 1 2 2 1 1 2 2 2 1 1 2 1 2 2 1 2 1 2 1 1 2 2 1
 [20413] 1 2 1 2 2 1 1 1 1 1 2 1 2 1 2 2 2 1 2 1 2 2 2 1 1 1 2 1 1 1 2 2 2 1 1 1
 [20449] 2 2 2 2 2 2 1 2 1 2 2 2 2 1 1 2 1 1 2 1 1 1 2 1 1 1 2 2 2 2 2 2 1 1 2
 [20485] 2 2 1 2 1 1 2 1 1 1 1 2 2 1 1 2 2 1 2 1 1 2 2 2 1 1 2 1 2 2 2 2 2 2 2 2
 [20521] 1 1 2 2 1 1 2 1 1 1 1 1 2 1 2 1 2 1 2 1 1 2 2 2 1 1 1 2 1 1 1 1 1 2 2 1
 [20557] 2 1 2 2 2 1 1 1 2 2 1 2 2 2 2 2 2 1 2 1 2 2 1 2 1 2 2 1 1 2 1 1 1 1 2 1
 [20593] 1 2 1 2 2 1 1 1 1 1 2 1 2 1 2 1 1 1 1 1 1 1 2 2 1 1 2 2 1 2 1 2 2 1 1 2
 [20629] 2 1 1 1 1 1 1 1 2 2 2 1 2 2 1 2 2 2 2 1 1 2 1 1 1 1 2 1 2 1 2 2 1 1 1 2
 [20665] 1 2 1 2 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 1 2 1 1 1 1 1 1 1 1
 [20701] 2 1 1 1 1 1 1 2 2 1 2 1 2 1 1 2 2 1 1 2 2 1 1 2 2 2 2 2 1 2 2 1 2 2 2 1
 [20737] 1 2 1 1 1 1 2 1 2 1 2 2 1 1 2 2 2 2 2 2 2 1 1 2 1 1 2 1 2 1 2 1 1 1 1 2
 [20773] 1 1 2 1 2 2 1 1 2 2 1 1 2 1 2 1 2 2 1 1 2 2 2 2 1 1 2 2 1 1 1 2 2 1 1 1
 [20809] 1 2 2 1 1 2 1 1 1 2 1 1 1 2 1 2 2 2 1 2 1 2 1 2 1 1 1 1 1 1 1 2 1 1 2 1
 [20845] 2 2 1 1 1 2 2 2 1 1 2 1 2 2 2 1 2 1 1 2 2 2 1 2 1 1 2 1 1 1 1 1 1 1 1 1
 [20881] 1 2 2 1 1 1 2 1 1 2 2 2 2 1 1 2 2 1 1 1 1 2 2 1 1 1 1 2 1 1 1 1 1 1 1 2
 [20917] 2 1 1 2 1 2 1 2 1 2 2 1 1 1 2 2 1 1 1 2 1 1 2 1 1 2 1 1 2 1 1 1 1 2 2 2
 [20953] 1 2 2 1 1 2 2 1 1 1 1 2 1 1 2 1 2 1 1 1 2 2 2 1 2 1 1 1 2 2 2 2 1 1 2 1
 [20989] 2 2 2 1 1 1 1 2 2 1 2 2 1 1 1 2 2 2 1 2 2 1 2 2 1 1 1 2 2 2 1 1 2 2 2 1

[21025] 2 1 2 1 2 1 1 2 1 2 2 2 2 1 2 2 2 2 1 1 2 1 2 1 1 2 1 1 2 2 1 2 2 2 2 2
 [21061] 1 2 2 1 1 2 1 1 2 2 2 1 2 1 1 2 1 1 2 2 1 2 2 2 1 1 1 1 2 1 1 2 1 1 2 1
 [21097] 1 2 1 2 1 2 2 2 1 2 1 1 1 2 2 2 1 1 1 2 1 1 2 1 2 1 2 2 2 1 1 2 1 1 2 1
 [21133] 1 1 2 1 1 2 1 1 1 2 1 1 2 2 1 2 1 2 1 2 1 1 1 2 1 2 1 2 1 2 1 1 1 1
 [21169] 1 2 1 1 2 2 1 1 2 1 2 2 2 2 2 1 2 2 1 2 1 1 2 2 1 1 2 1 1 1 1 1 2 1 2 2
 [21205] 1 1 2 2 2 1 2 2 2 1 1 1 2 2 2 2 1 1 1 2 2 2 2 2 1 2 1 2 1 1 1 2 1 1 2 2
 [21241] 1 1 2 2 1 2 2 2 2 2 1 2 1 1 1 1 2 2 1 1 1 2 1 1 2 2 1 1 2 2 2 2 2 1 2 2
 [21277] 1 2 1 2 1 1 2 1 2 1 1 2 1 2 1 2 1 2 2 1 2 2 2 1 2 2 2 1 2 1 2 2 2 2 2
 [21313] 1 2 2 2 2 2 2 1 1 1 2 2 1 1 1 1 1 2 1 2 2 1 2 1 1 2 1 2 2 2 1 1 1 1 1 1
 [21349] 1 2 2 2 2 2 1 1 2 2 2 2 2 1 2 1 1 2 2 1 1 2 1 2 2 2 1 1 2 2 1 1 2 1 2 2
 [21385] 2 2 2 2 2 1 2 2 2 2 1 1 2 1 2 2 1 2 1 2 1 1 2 2 1 1 2 1 1 1 2 2 2 2 1 2
 [21421] 2 2 2 2 1 2 2 1 1 2 1 2 2 2 2 2 2 2 2 2 1 1 1 2 2 2 1 1 2 1 2 1 1 2 1 2
 [21457] 2 1 1 1 1 1 1 2 1 1 2 1 2 2 2 1 2 1 1 2 1 1 2 2 2 2 2 2 2 1 1 1 1 2 2 1 1
 [21493] 1 2 2 2 1 1 1 1 1 2 2 2 1 2 1 1 2 2 2 2 2 1 1 2 2 1 2 2 1 1 1 1 2 1 2 2
 [21529] 2 2 1 2 2 2 1 1 1 2 2 1 1 2 1 2 1 1 1 2 2 2 2 2 2 2 2 2 1 2 1 2 2 2 1 2 1
 [21565] 2 2 2 2 1 2 2 1 1 1 1 1 1 2 1 2 1 2 1 1 1 2 2 1 1 2 1 2 1 1 1 1 2 2 2 1
 [21601] 1 1 1 2 1 1 2 1 1 1 1 2 1 2 1 1 2 1 2 1 2 1 1 2 2 1 1 2 2 2 2 2 1 2 1 1
 [21637] 1 2 1 2 2 2 1 1 1 2 1 1 1 1 2 1 1 2 2 1 1 2 2 1 1 2 2 1 1 1 2 1 2 2 1 1 2 2
 [21673] 1 1 2 2 1 1 2 2 2 1 1 1 1 2 2 2 2 1 1 2 1 2 1 2 1 2 2 1 1 2 2 2 1 2 1 2
 [21709] 1 2 1 2 1 2 2 1 2 1 1 2 2 1 1 1 2 1 2 1 1 1 1 1 1 2 2 1 1 1 1 1 1 1 2 2
 [21745] 1 2 1 1 2 1 1 2 2 1 2 1 2 1 1 2 2 2 1 2 1 1 2 2 2 1 2 1 1 1 1 2 1 1 1 1
 [21781] 2 1 1 1 2 1 1 1 1 1 1 2 1 2 2 1 2 1 2 2 2 1 1 2 2 2 1 2 1 2 1 1 2 1 1 1
 [21817] 2 2 1 1 2 1 1 1 2 2 1 1 2 2 2 2 1 2 2 1 2 1 2 2 2 2 2 1 1 2 2 2 2 1 2 1
 [21853] 2 2 2 1 2 2 1 2 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 2 1 1 1 1 1 1 1 1 2 1 1
 [21889] 2 1 1 2 2 1 1 1 2 1 2 1 1 2 1 1 2 1 2 1 1 1 2 1 2 2 2 2 2 2 2 1 2 2 2 1
 [21925] 1 2 1 2 1 2 1 1 2 1 1 2 2 1 1 2 2 2 1 2 2 1 2 2 1 2 2 2 1 2 2 1 1 2 1 1
 [21961] 2 1 1 1 1 2 2 1 2 2 2 2 1 1 2 1 1 2 2 2 2 2 2 1 1 1 2 2 2 2 1 2 1 1 1 2
 [21997] 1 1 2 1 1 1 1 2 2 1 2 1 1 1 2 2 2 1 1 2 2 1 1 2 1 2 1 2 1 2 2 2 2 2 1 1
 [22033] 2 1 1 1 2 1 1 1 2 2 1 1 2 2 1 2 1 2 1 2 1 1 1 1 2 2 1 2 1 1 1 1 2 2 2 2
 [22069] 1 1 2 1 1 1 2 2 2 2 1 1 2 2 1 2 1 1 2 1 2 2 2 2 2 1 2 2 2 1 2 2 1 1 1 1
 [22105] 2 1 2 2 2 2 2 1 2 1 1 2 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 2 1 2 1 1 2 2 2
 [22141] 1 1 2 1 2 1 1 2 2 1 1 2 1 1 1 1 2 1 1 2 1 2 1 1 2 1 1 2 2 2 1 1 1 1 2 2
 [22177] 1 2 2 2 1 2 2 1 1 2 1 2 2 2 2 2 1 2 2 2 2 2 2 1 1 2 1 1 1 2 2 1 1 1 1 2
 [22213] 2 1 2 2 2 2 2 1 1 2 2 2 2 1 1 2 2 1 2 1 2 2 1 1 1 1 1 1 2 1 1 1 2 2 2 2
 [22249] 2 1 2 2 1 1 1 2 2 2 2 1 2 2 2 2 1 1 2 2 2 1 2 1 2 1 2 1 1 2 2 1 2 1 2 2
 [22285] 2 1 2 2 2 2 2 1 1 1 1 2 1 1 1 2 1 2 2 1 1 1 2 2 1 2 1 1 1 1 2 1 2 2 2 2
 [22321] 1 2 2 1 1 1 2 2 1 2 2 2 2 2 2 2 2 1 1 1 1 2 2 2 1 1 2 2 1 1 2 1 2 1 2 2
 [22357] 1 2 2 1 2 2 1 2 1 1 2 1 1 2 1 2 1 2 1 2 2 1 2 1 2 1 1 1 2 2 1 2 2 1 1 1
 [22393] 1 1 2 2 2 1 2 2 1 1 2 1 2 2 1 1 2 2 2 1 2 1 1 2 1 1 2 2 1 2 2 1 1 2 2 2
 [22429] 2 1 1 1 1 1 2 1 2 2 1 1 1 1 2 1 1 2 2 1 1 1 2 2 2 2 1 2 1 1 2 2 1 1 1 2
 [22465] 2 2 2 1 1 2 1 1 2 2 1 2 2 1 2 2 2 2 1 1 2 2 1 2 1 1 2 2 1 2 1 1 2 2 1 2
 [22501] 1 2 1 1 1 1 1 1 2 1 2 1 1 2 1 2 1 2 1 1 1 2 2 2 2 1 1 1 2 1 1 2 1 2 1 2
 [22537] 1 2 2 2 1 1 1 1 1 1 2 2 2 2 1 2 1 2 1 2 2 2 2 1 2 1 2 2 2 2 2 2 2 2 2 2
 [22573] 2
 [22609] 2
 [22645] 2
 [22681] 2
 [22717] 2

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

41

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

```

[98785] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[98821] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[98857] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[98893] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[98929] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[98965] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99001] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99037] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99073] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99109] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99145] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99181] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99217] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99253] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99289] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99325] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99361] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99397] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99433] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99469] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99505] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99541] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99577] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99613] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99649] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99685] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99721] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99757] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99793] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99829] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99865] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99901] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99937] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[99973] 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
[ reached getOption("max.print") -- omitted 1358046 entries ]

```

```

Within cluster sum of squares by cluster:
[1] 1.025647e+16 1.035439e+16 1.026533e+16
(between_SS / total_SS = 88.6 %)

```

Available components:

```

[1] "cluster"      "centers"      "totss"        "withinss"     "tot.withinss"
[6] "betweenss"    "size"         "iter"         "ifault"

```

```
[11]: head(cluster_b)
```

```

$cluster 1. 2 2. 2 3. 2 4. 2 5. 2 6. 2 7. 2 8. 2 9. 2 10. 2 11. 2 12. 2 13. 2 14. 2 15. 2 16. 2 17. 2 18. 2
19. 2 20. 2 21. 2 22. 2 23. 2 24. 2 25. 2 26. 2 27. 2 28. 2 29. 2 30. 2 31. 2 32. 2 33. 2 34. 2 35. 2
36. 2 37. 2 38. 2 39. 2 40. 2 41. 2 42. 2 43. 2 44. 2 45. 2 46. 2 47. 2 48. 2 49. 2 50. 2 51. 2 52. 2
53. 2 54. 2 55. 2 56. 2 57. 2 58. 2 59. 2 60. 2 61. 2 62. 2 63. 2 64. 2 65. 2 66. 2 67. 2 68. 2 69. 2
70. 2 71. 2 72. 2 73. 2 74. 2 75. 2 76. 2 77. 2 78. 2 79. 2 80. 2 81. 2 82. 2 83. 2 84. 2 85. 2 86. 2
87. 2 88. 2 89. 2 90. 2 91. 2 92. 2 93. 2 94. 2 95. 2 96. 2 97. 2 98. 2 99. 2 100. 2 101. 2 102. 2
103. 2 104. 2 105. 2 106. 2 107. 2 108. 2 109. 2 110. 2 111. 2 112. 2 113. 2 114. 2 115. 2 116. 2
117. 2 118. 2 119. 2 120. 2 121. 2 122. 2 123. 2 124. 2 125. 2 126. 2 127. 2 128. 2 129. 2 130. 2
131. 2 132. 2 133. 2 134. 2 135. 2 136. 2 137. 2 138. 2 139. 2 140. 2 141. 2 142. 2 143. 2 144. 2
145. 2 146. 2 147. 2 148. 2 149. 2 150. 2 151. 2 152. 2 153. 2 154. 2 155. 2 156. 2 157. 2 158. 2
159. 2 160. 2 161. 2 162. 2 163. 2 164. 2 165. 2 166. 2 167. 2 168. 2 169. 2 170. 2 171. 2 172. 2
173. 2 174. 2 175. 2 176. 2 177. 2 178. 2 179. 2 180. 2 181. 2 182. 2 183. 2 184. 2 185. 2 186. 2
187. 2 188. 2 189. 2 190. 2 191. 2 192. 2 193. 2 194. 2 195. 2 196. 2 197. 2 198. 2 199. 2 200. 2
201. 202. 2 203. 2 204. 2 205. 2 206. 2 207. 2 208. 2 209. 2 210. 2 211. 2 212. 2 213. 2 214. 2
215. 2 216. 2 217. 2 218. 2 219. 2 220. 2 221. 2 222. 2 223. 2 224. 2 225. 2 226. 2 227. 2 228. 2
229. 2 230. 2 231. 2 232. 2 233. 2 234. 2 235. 2 236. 2 237. 2 238. 2 239. 2 240. 2 241. 2 242. 2
243. 2 244. 2 245. 2 246. 2 247. 2 248. 2 249. 2 250. 2 251. 2 252. 2 253. 2 254. 2 255. 2 256. 2
257. 2 258. 2 259. 2 260. 2 261. 2 262. 2 263. 2 264. 2 265. 2 266. 2 267. 2 268. 2 269. 2 270. 2
271. 2 272. 2 273. 2 274. 2 275. 2 276. 2 277. 2 278. 2 279. 2 280. 2 281. 2 282. 2 283. 2 284. 2
285. 2 286. 2 287. 2 288. 2 289. 2 290. 2 291. 2 292. 2 293. 2 294. 2 295. 2 296. 2 297. 2 298. 2
299. 2 300. 2 301. 2 302. 2 303. 2 304. 2 305. 2 306. 2 307. 2 308. 2 309. 2 310. 2 311. 2 312. 2
313. 2 314. 2 315. 2 316. 2 317. 2 318. 2 319. 2 320. 2 321. 2 322. 2 323. 2 324. 2 325. 2 326. 2
327. 2 328. 2 329. 2 330. 2 331. 2 332. 2 333. 2 334. 2 335. 2 336. 2 337. 2 338. 2 339. 2 340. 2
341. 2 342. 2 343. 2 344. 2 345. 2 346. 2 347. 2 348. 2 349. 2 350. 2 351. 2 352. 2 353. 2 354. 2
355. 2 356. 2 357. 2 358. 2 359. 2 360. 2 361. 2 362. 2 363. 2 364. 2 365. 2 366. 2 367. 2 368. 2
369. 2 370. 2 371. 2 372. 2 373. 2 374. 2 375. 2 376. 2 377. 2 378. 2 379. 2 380. 2 381. 2 382. 2
383. 2 384. 2 385. 2 386. 2 387. 2 388. 2 389. 2 390. 2 391. 2 392. 2 393. 2 394. 2 395. 2 396. 2
397. 2 398. 2 399. 2 400. 2 401. 2

```

	DISYR	CASEID	STFIPS	AGE	SERVICES	SUB1	
\$centers A matrix: 3 × 78 of type dbl	1	2016	20160746037	31.54127	6.754969	5.131321	4.293351
	2	2016	20161242490	20.65146	6.522029	5.530269	5.046611
	3	2016	20160248277	29.42140	6.653519	5.304134	4.423544

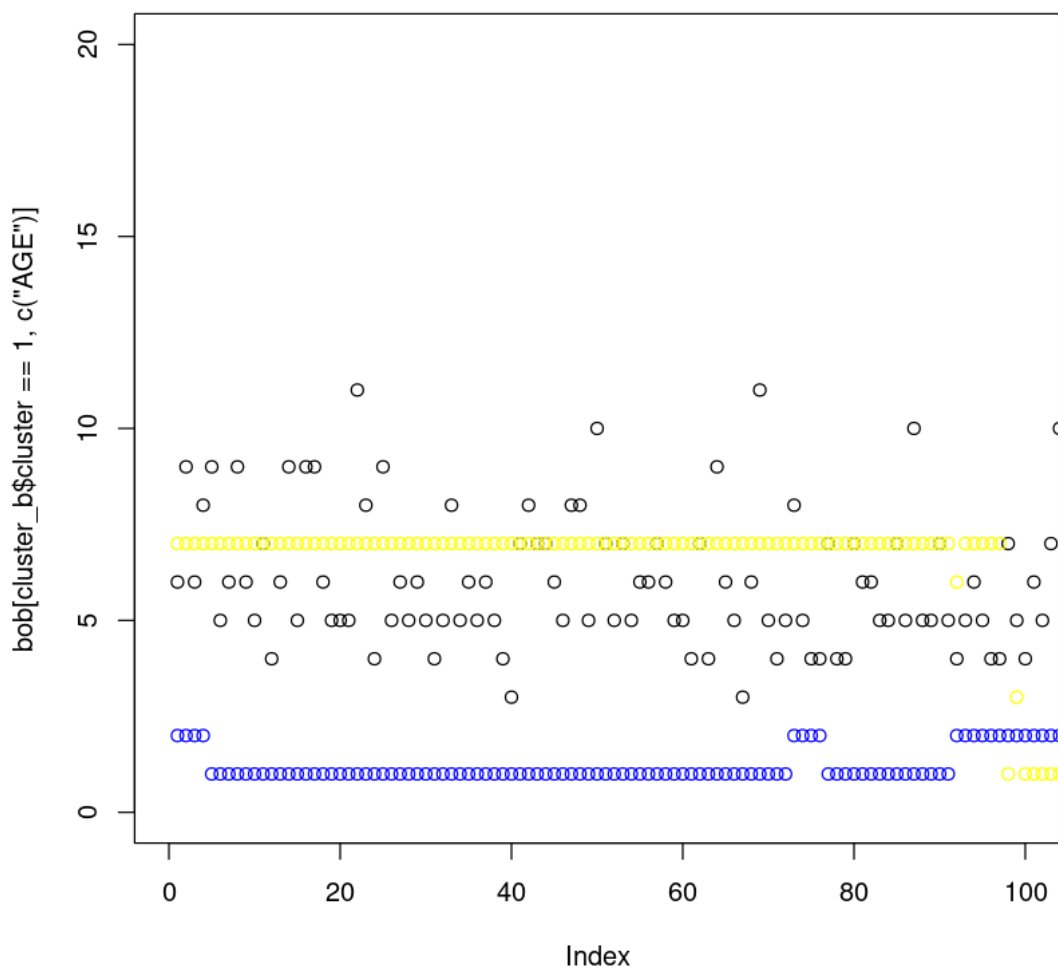
```
$totss 269718615227234080
```

```
$withinss 1. 10256467058316574 2. 10354394708591106 3. 10265331875132114
```

```
$tot.withinss 30876193642039792
```

```
$betweenss 238842421585194304
```

```
[67]: plot(bob[cluster_b$cluster==1,c('AGE')],xlim=c(0,100),ylim=c(0,20))
points(bob[cluster_b$cluster==2,c('GENDER')],col="blue")
points(bob[cluster_b$cluster==3,c('SERVICES')],col="yellow")
```



```
[ ]: #This data set is analyzing the age of the workers in correlation with their
      ↳ gender and what services they provide.
      #According to the chart, most of the individuals are on the younger age range.
      ↳ Assuming that 1 = male. A majority of the
      #individuals are male within this clustered data. As for services, rendered. a
      ↳ majority of them are linked to a single
      #service while there are a few outliers.
```