	Práctica de Análisis Predictivo 30%	**2020**
Universidad Pontificia Bolivariana		

Realizado por:
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Base de datos	Medicamentos
Descripción del negocio y de los datos	La rinitis alérgica afecta al 35% de la población en Colombia. Los tratamientos y fármacos son variados por lo que se requiere un estudio para identificar la medicina adecuada para cada persona
Objetivo	Predecir el medicamento adecuado para 11 personas

Tabla de contenido

I. (1.0) PREPARACIÓN DE LOS DATOS

1. Integración de los datos

Los datos ya se encuentran integrados en una 'sabana de datos'

Current relation

Relation: MedicamentosHistorico   Attributes: 8
Instances: 200   Sum of weights: 200

Attributes

All	None	Invert	Pattern

No.	Name
1	ID
2	EDAD
3	SEXO
4	PRESIÓN SANGUÍNEA
5	COLESTEROL
6	SODIO
7	POTASIO
8	MEDICAMENTO

2. Eliminar variables irrelevantes y redundantes

a. ¿Cuáles variables son irrelevantes

Desde el análisis de negocio y de los datos se concluye que la variable 'ID' no es relevante, por lo tanto, se elimina

Current relation

Relation: MedicamentosHistorico-weka.filters.unsupervised.att..   Attributes: 7
Instances: 200   Sum of weights: 200

Attributes

All	None	Invert	Pattern

No.	Name
1	EDAD
2	SEXO
3	PRESIÓN SANGUÍNEA
4	COLESTEROL
5	SODIO
6	POTASIO
7	MEDICAMENTO

b. ¿Cuáles variables son redundantes

No se encuentran variables redundantes a simple vista, esto será comprobado con el paso 6 "Análisis de correlaciones"

3. Descripción estadística de los datos
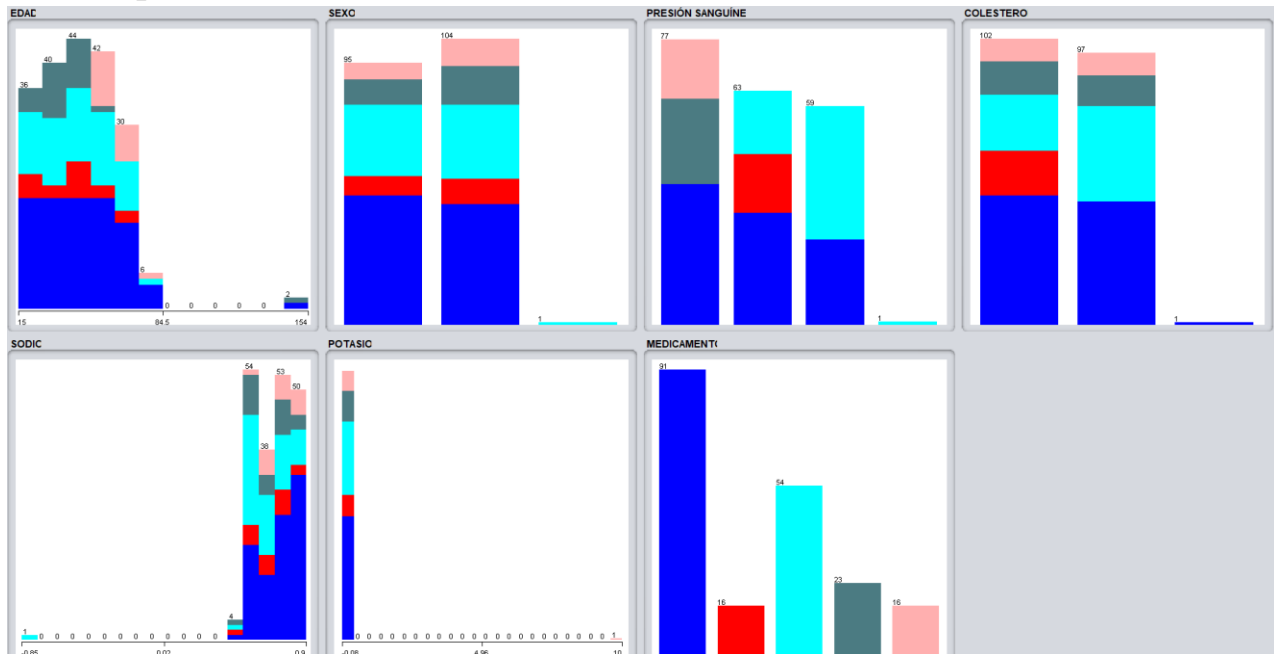
Se encuentran algunas irregularidades en 'EDAD', 'SEXO', 'PRESIÓN SANGUÍNEA', 'COLESTEROL', 'SODIO', 'POTASIO' las cuales se proceden a corregir en el siguiente paso "Limpieza de datos".

4. Limpieza de datos

No se presentan registros duplicados

c. ¿Cuáles son los datos atípicos?

Variable	Descripción
EDAD	Se encuentran 2 registros con 2 edades que se salen de cualquier registro humano, estos son '145' y '154' años, por lo tanto, se procede a vaciar estos campos (**null***) 145.0 M HIGH HIGH 0.53406 0.066666 drugA 154.0 M HIGH NORMAL 0.8606... 0.030417 drugY
SEXO	Existen 2 categorías (con posibilidad de una tercera) y aparecen 3, sin embargo, se observa que es un error de digitación y se corrige. Name: SEXO Missing: 0 (0%) Distinct: 3 No. Label Count 1 F 95 2 M 104 3 Mujer 1 Name: SEXO Missing: 0 (0%) Distinct: 2 No. Label Count 1 F 96 2 M 104

PRESIÓN SANGUÍNEA	Existen 3 categorías (HIGH, LOW, NORMAL), sin embargo, aparece una cuarta (Null), se procede eliminando la categoría 'Null' y poniendo dicho valor en vacío(**null***)

Name: PRESIÓN SANGUÍNEA
Missing: 0 (0%) — Distinct: 4

No.	Label	Count
1	HIGH	77
2	LOW	63
3	NORMAL	59
4	Null	1

Name: PRESIÓN SANGUÍNEA
Missing: 1 (1%) — Distinct: 3

No.	Label	Count
1	HIGH	77
2	LOW	63
3	NORMAL	59

COLESTEROL	Existen 2 categorías (HIGH, NORMAL), aparece una tercera denominada 'hig', similar a la categoría 'HIGH', por lo que se asume es un error de digitación, adicional a ello se toma a esa decisión, pues si bien se pusiera en null, el método "ReplaceMissingValues" procedería a remplazar con la moda que para este caso es "HIGH". Adicional se elimina esta categoría (hig).

Name: COLESTEROL
Missing: 0 (0%) — Distinct: 3

No.	Label	Count
1	HIGH	102
2	NORMAL	97
3	hig	1

Name: COLESTEROL
Missing: 0 (0%) — Distinct: 2

No.	Label	Count
1	HIGH	103
2	NORMAL	97

SODIO	Un registro presenta un "SODIO" negativo, lo cual no es posible (valores negativos), por lo tanto, este campo se pone como vacío para este registro (**null***)

No.	1: EDAD Numeric	2: SEXO Nominal	3: PRESIÓN SANGUÍNEA Nominal	4: COLESTEROL Nominal	5: SODIO Numeric	6: POTASIO Numeric	7: MEDICAMENTO
1	69.0	M		NORMAL	-0.848...	0.074111	drugX

POTASIO	Dos registros presentan "POTASIO" negativo, lo cual no es posible (valores negativos), por lo tanto, este campo se pone como vacío para estos registros (**null***).

No.	1: EDAD Numeric	2: SEXO Nominal	3: PRESIÓN SANGUÍNEA Nominal	4: COLESTEROL Nominal	5: SODIO Numeric	6: POTASIO Numeric	7: MEDICAMENTO
1	68.0	F	HIGH	NORMAL	0.77541	-0.0761	drugB
2	58.0	F	LOW	HIGH	0.8868...	-0.023188	drugY

Otro registro presenta un "POTASIO" muy alto (10), lo cual se aleja demasiado de los datos normales (0,099), por lo tanto, este campo se pone como vacío para este registro (**null***).

...	72.0	M	HIGH	NORMAL	0.72142	10.0	drugB

d. ¿Cuáles son los datos nulos?

Solo se Presentan datos Nulos como consecuencia del paso anterior "datos atípicos", marcados con "(null*)", a continuación, se describen.

Variable	Descripción	¿Se Imputa?
EDAD	Se encuentran 2 registros que corresponde al 1%	SI

	Name: EDAD Missing: 2 (1%)	
PRESIÓN SANGUÍNEA	Se encuentran 1 registro que corresponde al 1% Name: PRESIÓN SANGUÍNEA Missing: 1 (1%)	SI
SODIO	Se encuentran 1 registro que corresponde al 1% Name: SODIO Missing: 1 (1%)	SI
POTASIO	Se encuentran 3 registros que corresponde al 2% Name: POTASIO Missing: 3 (2%)	SI

e. Cuál es el valor de la imputación?

Variable	Cantidad Nulos	Valor Imputación
EDAD	2	44,535
PRESIÓN SANGUÍNEA	1	HIGH
SODIO	1	0,696
POTASIO	3	0,05

5. Creación de nuevas variables

Para este ejercicio no existe la necesidad de crear nuevas variables, pues no hay presentes fechas u otras variables derivadas del negocio.

6. Análisis de correlaciones

Matriz de correlaciones

	EDAD	SEXO=M	PRESIÓN SANGUÍNEA=HIGH	PRESIÓN SANGUÍNEA=LOW	PRESIÓN SANGUÍNEA=NORMAL	COLESTEROL=NORMAL	SODIO	POTASIO	
EDAD	1	0.12	-0.07	0.09	-0.02	-0.07	0.09	0.1	EDAD
SEXO=M	0.12	1	-0.01	0.05	-0.04	-0.01	-0.14	0.09	SEXO=M
PRESIÓN SANGUÍNEA=HIGH	-0.07	-0.01	1	-0.54	-0.52	0.11	0.1	-0.08	PRESIÓN SANGUÍNEA=HIGH
PRESIÓN SANGUÍNEA=LOW	0.09	0.05	-0.54	1	-0.44	0.03	0.04	-0.02	PRESIÓN SANGUÍNEA=LOW
PRESIÓN SANGUÍNEA=NORMAL	-0.02	-0.04	-0.52	-0.44	1	-0.15	-0.15	0.11	PRESIÓN SANGUÍNEA=NORMAL
COLESTEROL=NORMAL	-0.07	-0.01	0.11	0.03	-0.15	1	0	0	COLESTEROL=NORMAL
SODIO	0.09	-0.14	0.1	0.04	-0.15	0	1	0.01	SODIO
POTASIO	0.1	0.09	-0.08	-0.02	0.11	0	0.01	1	POTASIO
	EDAD	SEXO=M	PRESIÓN SANGUÍNEA=HIGH	PRESIÓN SANGUÍNEA=LOW	PRESIÓN SANGUÍNEA=NORMAL	COLESTEROL=NORMAL	SODIO	POTASIO	

Correlaciones con la Variable Objetivo

```
Ranked attributes:
 0.5467  6 POTASIO
 0.2091  5 SODIO
 0.1938  3 PRESIÓN SANGUÍNEA
 0.0729  4 COLESTEROL
 0.0674  1 EDAD
 0.0513  2 SEXO
```

f. ¿Cuáles variables tienen una alta correlación?

Las variables que presentan una alta correlación son

- 'PRESIÓN SANGUÍNEA=HIGH' con 'PRESIÓN SANGUÍNEA=LOW' presentan una correlación de 0,54
- 'PRESIÓN SANGUÍNEA=HIGH' con 'PRESIÓN SANGUÍNEA=NORMAL' presentan una correlación de 0,52
- 'PRESIÓN SANGUÍNEA=NORMAL' con 'PRESIÓN SANGUÍNEA=LOW' presentan una correlación de 0,44

Sin embargo, ninguna presenta una correlación que haga pensar que hay presencia de variables redundantes.

g. ¿Cuál variable tiene la correlación más alta con la variable objetivo?

La variable que presenta mayor correlación con la variable objetivo es 'POTASIO' equivalente a 0,5467.

h. ¿Cuál variable tiene la correlación más baja con la variable objetivo?

La variable que presenta menor correlación con la variable objetivo es 'SEXO' equivalente a 0,0513.

Después de este análisis se concluye que **no hay presencia de variables redundantes** debido a que la matriz de correlaciones así lo evidencia. Adicionalmente se observa que si bien algunas variables poseen muy baja correlación con la variable objetivo (SEXO, EDAD, COLESTEROL), estas **no serán eliminadas** debido a que se tienen muy pocas variables y prescindir de alguna de ellas podría conllevar a eliminar información valiosa.

7. Reducción de variables

Con una configuración de máximo 3 variables en cada ecuación se obtuvieron las siguientes:

```
proportion      cumulative
 0.20081         0.20081     0.52 MEDICAMENTO=drugX-0.437MEDICAMENTO=drugY-0.408PRESIÓN SANGUÍNEA=HIGH...
 0.16978         0.37059     0.458PRESIÓN SANGUÍNEA=HIGH+0.441MEDICAMENTO=drugA-0.417MEDICAMENTO=drugY...
 0.14452         0.51511     -0.551MEDICAMENTO=drugC-0.512PRESIÓN SANGUÍNEA=LOW+0.472PRESIÓN SANGUÍNEA=NORMAL...
 0.11285         0.62796     -0.617EDAD-0.545MEDICAMENTO=drugB+0.444MEDICAMENTO=drugA...
 0.09383         0.72179     -0.809COLESTEROL=NORMAL+0.329PRESIÓN SANGUÍNEA=NORMAL-0.318PRESIÓN SANGUÍNEA=LOW...
 0.0846          0.80639     -0.767SEXO=M+0.56 SODIO+0.214POTASIO...
 0.06513         0.87152     0.657SODIO+0.481SEXO=M-0.36MEDICAMENTO=drugB...
 0.05359         0.92511     0.656EDAD+0.428MEDICAMENTO=drugA-0.378SEXO=M...
 0.03574         0.96085     0.544MEDICAMENTO=drugC+0.52 COLESTEROL=NORMAL-0.323PRESIÓN SANGUÍNEA=LOW...
```

i. Según el método PCA, ¿cuántos componentes se deben seleccionar para hacer una reducción de variables?

Se deben seleccionar mínimo 6 componentes debido a que se debe cubrir como mínimo el 75% de la varianza de los datos originales, y con estos 6 componentes se cubre el 80% de la varianza.

8. Balanceo de datos

El estado Pre-Balanceo es:
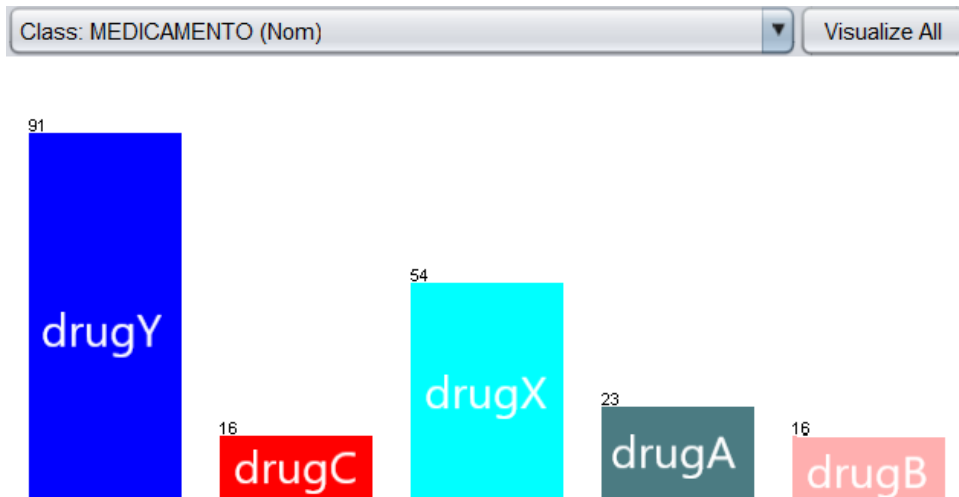
j. Cuánto es el porcentaje en el balanceo?

% de Balanceo	Categoría Referencia	Categoría	Aumento
50%	drugY	drugC	184,37 %
		drugX	N/A
		drugA	97,82 %
		drugB	184,37 %

75%	drugY	drugC	326,56 %	
		drugX	26,38 %	
		drugA	196,73 %	
		drugB	326,56 %	
100%	drugY	drugC	468,75 %	
		drugX	68,51 %	
		drugA	295,65 %	
		drugB	468,75 %	

Para el desarrollo del ejercicio se toma la decisión de realizar un balanceo al 100%, pues si bien para algunas categorías el % de aumento es alto, este no es mayor a 500% en ninguna de las categorías.

9. Transformación de tipo de datos según el método

Teniendo en consideración de la clasificación natural de las variables es la siguiente:

- EDAD → variable Numérica
- SEXO → variable Categórica
- PRESIÓN SANGUÍNEA → variable Categórica
- COLESTEROL → variable Categórica

- SODIO → variable Numérica
- POTASIO → variable Numérica
- MEDICAMENTO (variable objetivo) → variable Categórica

Según el método las transformaciones necesarias, serian:

Método	Variables que transformar a categóricas	Variables que transformar a numéricas
Arboles de decisión	EDAD, SODIO, POTASIO	N/A
Redes Neuronales	N/A	SEXO, PRESIÓN SANGUÍNEA, COLESTEROL
SVM	N/A	SEXO, PRESIÓN SANGUÍNEA, COLESTEROL
Regresión Logística	N/A	SEXO, PRESIÓN SANGUÍNEA, COLESTEROL
Bayesianos	EDAD, SODIO, POTASIO	N/A
KNN	N/A	SEXO, PRESIÓN SANGUÍNEA, COLESTEROL

II. (2.0) MODELAMIENTO

Arboles de decisión

Se configura un árbol binario, con un 'minNumObj' de 4, habilitada la poda y demás configuraciones como se muestra a continuación.

batchSize	100
binarySplits	True
collapseTree	True
confidenceFactor	0.25
debug	False
doNotCheckCapabilities	False
doNotMakeSplitPointActualValue	False
minNumObj	4
numDecimalPlaces	2
numFolds	3
reducedErrorPruning	False
saveInstanceData	False
seed	1
subtreeRaising	True
unpruned	False
useLaplace	False
useMDLcorrection	True

a. Según el árbol de decisión, ¿cuál es la variable más relevante para hacer la predicción?

Se evidencia por medio de la vista grafica del árbol que la variable más relevante es '**PRESIÓN SANGUÍNEA**' para el desarrollo de la predicción.
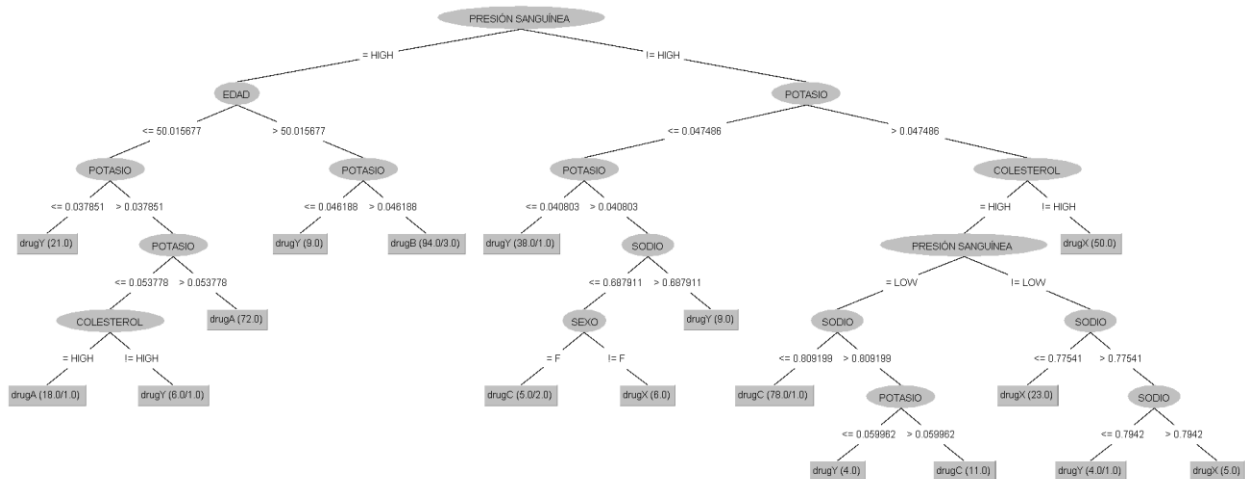
Redes Neuronales

Se realiza una configuración de MLP con una capa oculta que tiene 5 neuronas (a), con una tasa de aprendizaje de 0,9 , momentum de 0,35 , 700 iteraciones para que no sufra sobre entrenamiento y demás configuraciones a continuación:

b. Según la red neuronal, ¿cuántas capas y cuántas neuronas tiene?

La red neuronal configurada cuenta con una capa oculta y en esta 5 neuronas, como se observa a continuación
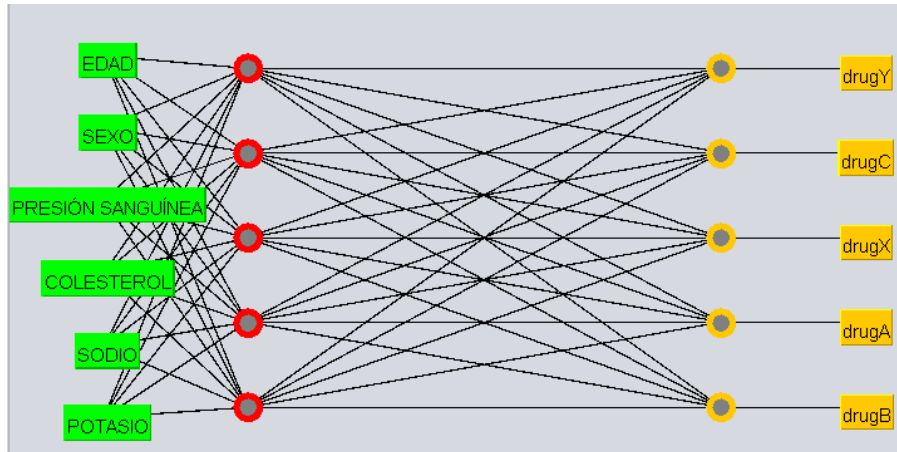
SVM

- **Normalized Poly**: Se obtuvieron las siguientes ecuaciones de los hiperplanos que separan a dos clases

Clases	Ecuación

| drugY, drugC | ```
-       1      * <0.728814 0 0 1 0 0 0.979469 0.222568 > * X]
-       0.1807 * <0.762712 1 0 0 1 0 0.699786 0.52217 > * X]
-       0.4576 * <0.576271 0 0 0 1 0 0.731188 0.476793 > * X]
+       1      * <0.494275 1 0 1 0 0 0.644259 0.640139 > * X]
-       1      * <1 0 0 1 0 0 0.73886 0.298313 > * X]
+       0.4793 * <0.121495 1 0 1 0 0 0.173822 0.516236 > * X]
-       1      * <0.779661 0 0 1 0 0 0.149348 0.18365 > * X]
-       1      * <0.644068 1 0 1 0 0 0.299161 0.115735 > * X]
+       1      * <0.186441 0 0 1 0 0 0.196604 0.347974 > * X]
+       1      * <0.542373 1 0 1 0 0 0.604061 0.609812 > * X]
-       1      * <0.508475 1 0 1 0 0 0.639917 0.367333 > * X]
-       1      * <0.728814 0 0 1 0 0 0.976784 0.502527 > * X]
+       0.5399 * <0.850615 0 0 1 0 0 0.774498 0.872999 > * X]
-       1      * <0.474576 1 0 1 0 0 0.319177 0.346752 > * X]
-       0.145  * <0.864407 1 1 0 0 0 0.883285 0.534853 > * X]
-       0.4313 * <0.440678 0 0 1 0 1 0.630826 0.334571 > * X]
+       1      * <0.448347 1 0 1 0 0 0.628141 0.640494 > * X]
+       1      * <0.898305 1 0 1 0 0 0.572153 0.846535 > * X]
-       0.04   * <0.135593 1 0 0 1 0 0.109087 0.204548 > * X]
-       0.4157 * <0.305085 0 0 1 0 0 0.904849 0.0939 > * X]
+       1      * <0.561773 1 0 1 0 0 0.497783 0.712406 > * X]
-       1      * <0.915254 1 0 1 0 0 0.895619 0.588947 > * X]
+       1      * <0.566131 1 0 1 0 0 0.409555 0.652076 > * X]
-       1      * <0.372881 1 0 1 0 1 0.584437 0.396898 > * X]
+       1      * <0.135355 1 0 1 0 0 0.099164 0.464699 > * X]
-       1      * <0.389831 1 0 1 0 0 0.886238 0.443296 > * X]
-       1      * <0.220339 0 0 1 0 0 0.269683 0.177977 > * X]
-       1      * <0.694915 1 0 1 0 0 0.789352 0.570575 > * X]
-       1      * <0.559322 0 0 1 0 0 0.945399 0.638038 > * X]
+       1      * <0.554514 1 0 1 0 0 0.597821 0.622883 > * X]
-       1      * <0.966102 1 0 1 0 0 0.11917 0.226517 > * X]
+       1      * <0.542373 0 0 1 0 0 0.954858 0.758451 > * X]
+       1      * <0.843817 0 0 1 0 0 0.864482 0.863815 > * X]
+       1      * <0.726803 0 0 1 0 0 0.833506 0.752386 > * X]
+       1      * <0.207592 0 0 1 0 0 0.370486 0.417112 > * X]
+       1      * <0.710341 0 0 1 0 0 0.846154 0.7035 > * X]
+       1      * <0.576271 1 0 1 0 0 0.39166 0.705401 > * X]
-       0.3489 * <0.322034 1 1 0 0 0 0.980014 0.459525 > * X]
-       1      * <0.457627 1 0 1 0 0 0.646467 0.297125 > * X]
+       1      * <0.737469 0 0 1 0 0 0.689815 0.692763 > * X]
-       0.884

Number of support vectors: 40
``` |

drugY, drugX	

```
         1      * <0.640572 1 0 0 1 0 0.162767 0.49618 > * X]
  +      1      * <0.268087 0 0 1 0 0 0.525421 0.759926 > * X]
  +      1      * <0.856467 0 0 0 1 1 0.645401 0.635978 > * X]
  -      1      * <0.440678 1 1 0 0 1 0.39968 0.391862 > * X]
  +      1      * <0.135593 1 0 0 1 0 0.235994 0.475103 > * X]
  +      1      * <0.135593 1 0 0 1 1 0.718263 0.601295 > * X]
  -      1      * <0.220339 0 0 0 1 0 0.910881 0.397015 > * X]
  -      1      * <0.372881 1 0 1 0 1 0.584437 0.396898 > * X]
  -   0.0656 * <0.220339 0 0 1 0 0 0.269683 0.177977 > * X]
  +      1      * <0.355932 1 0 1 0 1 0.069416 0.437807 > * X]
  -      1      * <0.610169 0 0 1 0 1 0.951431 0.302781 > * X]
  +   0.1864 * <0.084746 0 0 1 0 1 0.785209 0.826222 > * X]
  -      1      * <0.440678 0 0 1 0 1 0.630826 0.334571 > * X]
  -      1      * <0.932203 0 0 0 1 0 0.568988 0.257404 > * X]
  +      1      * <0.118644 1 0 0 1 0 0.091327 0.415772 > * X]
  +      1      * <0.359884 1 0 1 0 1 0.269573 0.452286 > * X]
  -      1      * <0.711864 1 0 1 0 1 0.092393 0.134508 > * X]
  +      1      * <0.711864 0 0 0 1 0 0.242317 0.36658 > * X]
  +      1      * <0.847458 0 0 1 0 1 0.656884 0.58883 > * X]
  +      1      * <0.915254 1 1 0 0 1 0.495503 0.905013 > * X]
  -      1      * <0.559322 0 0 1 0 0 0.945399 0.638038 > * X]
  -   0.7544 * <0.728814 0 0 1 0 0 0.976784 0.502527 > * X]
  -      1      * <0.762712 1 0 0 1 0 0.699786 0.52217 > * X]
  -   0.9659 * <1 1 1 0 0 1 0.805356 0.552739 > * X]
  -      1      * <0.40678 0 0 0 1 1 0.780594 0.451026 > * X]
  -      1      * <0.881356 0 0 0 1 0 0.72011 0.491818 > * X]
  -      1      * <0.40678 1 0 0 1 0 0.276334 0.303668 > * X]
  -   0.8571 * <0.694915 1 0 1 0 0 0.789352 0.570575 > * X]
  +      1      * <0.2039 0 0 0 1 0 0.740929 0.666114 > * X]
  +      1      * <0.59322 0 0 0 1 0 0.827537 0.755346 > * X]
  -   0.5557 * <0.016949 0 1 0 0 1 0.842836 0.5642 > * X]
  +      1      * <0.745763 0 0 0 1 0 0.965723 0.728525 > * X]
  +      1      * <0.644068 1 0 0 1 0 0.365678 0.428505 > * X]
  +   0.7919 * <0.220339 0 0 0 1 0 0.618325 0.632818 > * X]
  +      1      * <0.372881 1 0 1 0 1 0.600545 0.79034 > * X]
  -      1      * <0.474576 1 0 1 0 1 0.065506 0.119499 > * X]
  -      1      * <0.474576 1 0 1 0 0 0.319177 0.346752 > * X]
  +      1      * <0.40678 1 0 1 0 1 0.264732 0.391226 > * X]
  -      1      * <0.983051 0 0 0 1 0 0.839921 0.389837 > * X]
  +      1      * <0.576271 1 0 1 0 1 0.026028 0.293093 > * X]
  +      1      * <0.59322 0 0 0 1 1 0.257008 0.484138 > * X]
  -      1      * <0.169492 1 0 0 1 0 0.695989 0.347706 > * X]
  -      1      * <0.576271 0 0 0 1 0 0.731188 0.476793 > * X]
  -      1      * <0.40678 0 0 1 0 1 0.376186 0.143493 > * X]
  +      1      * <0.966102 0 0 1 0 1 0.65279 0.531874 > * X]
  -      1      * <0.59322 1 0 0 1 1 0.625547 0.457417 > * X]
  -      1      * <0.79661 1 0 0 1 0 0.645901 0.427149 > * X]
  -      1      * <0.322034 1 0 0 1 0 0.258629 0.113961 > * X]
  +      1      * <0.576271 0 0 1 0 1 0.194274 0.359227 > * X]
  -      1      * <0.389831 0 0 1 0 1 0.249021 0.000335 > * X]
  -      1      * <0.881356 1 0 1 0 1 0.809496 0.328531 > * X]
  +      1      * <0.576271 1 0 1 0 1 0.317565 0.615835 > * X]
  -      1      * <0.135593 1 0 0 1 0 0.109087 0.204548 > * X]
  +      1      * <0.322034 0 0 1 0 1 0.821884 0.733845 > * X]
  +      1      * <0.593486 0 0 0 1 0 0.410758 0.49411 > * X]
  -      1      * <0.355932 0 0 0 1 0 0.159258 0.227487 > * X]
  +      1      * <0.59322 0 0 0 1 0 0.747883 0.593549 > * X]
  -      1      * <0.59322 0 0 0 1 1 0.604822 0.383998 > * X]
  +      1      * <0.474576 1 0 0 1 1 0.097722 0.366145 > * X]
  -      1      * <0.440678 0 0 0 1 1 0.869003 0.281682 > * X]
  +      1      * <1 1 0 1 0 1 0.726579 0.769033 > * X]
  -   0.9406 * <0.711864 0 0 0 1 1 0.13084 0.021668 > * X]
  +      1      * <0.591118 0 0 1 0 1 0.29121 0.577485 > * X]
  -   0.1621 * <0.661017 1 0 0 1 0 0.01219 0.007663 > * X]
  +      1      * <0.881356 1 0 0 1 1 0.875813 0.965248 > * X]
  +   0.3231 * <0.614961 0 0 0 1 0 0.438609 0.575092 > * X]
  +      1      * <0.610169 0 0 1 0 0 0.450828 0.500084 > * X]
  +      1      * <0.372881 0 0 1 0 1 0.767861 0.785714 > * X]
  -      1      * <0.830508 0 0 1 0 1 0.136435 0.025215 > * X]
  -      1      * <0.186441 1 0 1 0 1 0.733783 0.297711 > * X]
  +      1      * <0.627119 1 0 0 1 0 0.125733 0.59497 > * X]
  -   0.8841

Number of support vectors: 71
```

drugY, drugA	

```
         1      * <0.508199 1 1 0 0 0 0.233816 0.380848 > * X]
  +       1        * <0.239032 1 1 0 0 1 0.348419 0.584513 > * X]
  +       1        * <0.186441 0 1 0 0 1 0.711716 0.728056 > * X]
  +       1        * <0.458905 1 1 0 0 0 0.572185 0.498801 > * X]
  -       1        * <0.152542 0 1 0 0 1 0.375049 0.25302 > * X]
  -       1        * <1 1 1 0 0 1 0.805356 0.552739 > * X]
  -     0.0521 * <0.322034 0 1 0 0 1 0.423368 0.246963 > * X]
  +       1        * <0.457627 1 1 0 0 1 0.90372 0.789429 > * X]
  +       1        * <0.288136 1 1 0 0 1 0.534188 0.61826 > * X]
  -     0.6331 * <0.59322 1 0 0 1 1 0.625547 0.457417 > * X]
  +       1        * <0.078372 0 1 0 0 0 0.865221 0.615792 > * X]
  -       1        * <0.135593 0 1 0 0 0 0.738509 0.188 > * X]
  -       1        * <0.728814 1 1 0 0 0 0.679287 0.342586 > * X]
  +       1        * <0.468226 1 1 0 0 0 0.63048 0.563932 > * X]
  -       1        * <0 0 1 0 0 1 0.497321 0.36233 > * X]
  -       1        * <0.728814 0 1 0 0 0 0.153289 0.148312 > * X]
  +       1        * <0.194321 1 1 0 0 1 0.566581 0.587597 > * X]
  -     0.0856 * <0.694915 1 0 1 0 0 0.789352 0.570575 > * X]
  +       1        * <0.508475 0 1 0 0 0 0.120368 0.378091 > * X]
  -       1        * <0.610169 1 1 0 0 0 0.85459 0.431834 > * X]
  -       1        * <0.983051 0 1 0 0 0 0.777621 0.401834 > * X]
  -       1        * <0.457627 0 1 0 0 0 0.083506 0.089114 > * X]
  -       1        * <0.271186 1 1 0 0 1 0.975205 0.533748 > * X]
  -       1        * <0.271186 1 1 0 0 0 0.608171 0.073252 > * X]
  +     0.4419 * <0.515421 1 1 0 0 0 0.144772 0.413734 > * X]
  -       1        * <0.016949 0 1 0 0 1 0.842836 0.5642 > * X]
  -     0.0626 * <0.135593 1 0 0 1 0 0.109087 0.204548 > * X]
  +       1        * <0.283538 1 1 0 0 1 0.193516 0.540045 > * X]
  -       1        * <0.016949 1 1 0 0 1 0.153705 0.158853 > * X]
  +     0.4888 * <0.56616 1 1 0 0 1 0.648782 0.800363 > * X]
  +       1        * <0.159216 0 1 0 0 0 0.484092 0.379515 > * X]
  +       1        * <0.271186 1 1 0 0 1 0.618032 0.686647 > * X]
  +     0.4796 * <0.067797 0 1 0 0 0 0.042446 0.314727 > * X]
  -       1        * <0.355932 0 1 0 0 1 0.189168 0.286149 > * X]
  +       1        * <0.288136 0 1 0 0 1 0.566338 0.842636 > * X]
  +       1        * <0.372881 0 1 0 0 0 0.149037 0.379664 > * X]
  +       1        * <0.271186 1 1 0 0 1 0.580416 0.646003 > * X]
  +       1        * <0.389831 0 1 0 0 1 0.590252 0.749105 > * X]
  +       1        * <0.241926 1 1 0 0 1 0.487667 0.628934 > * X]
  -       1        * <0.864407 1 1 0 0 0 0.883285 0.534853 > * X]
  -       1        * <0.322034 1 1 0 0 0 0.980014 0.459525 > * X]
  -       1        * <0.830508 1 1 0 0 1 0.605589 0.25645 > * X]
  -     0.7707 * <0.084746 1 1 0 0 1 0.666599 0.023709 > * X]
  -       1        * <0.186441 0 1 0 0 1 0.817466 0.384366 > * X]
  +       1        * <0.475875 1 1 0 0 0 0.232135 0.403247 > * X]
  -       1        * <0.423729 1 1 0 0 0 0.14389 0 > * X]
  -     0.6277 * <0.372881 1 0 1 0 1 0.584437 0.396898 > * X]
  -       1        * <0 1 1 0 0 1 0.209254 0.231955 > * X]
  +     0.6776 * <0.338983 0 1 0 0 0 0.933814 0.793729 > * X]
  +     0.1439 * <0.276278 1 1 0 0 1 0.462919 0.634001 > * X]
  -       1        * <0.440678 1 1 0 0 1 0.39968 0.391862 > * X]
  +       1        * <0.474576 1 1 0 0 0 0.394562 0.451042 > * X]
  +       1        * <0.271186 1 1 0 0 1 0.572822 0.663987 > * X]
  -     1.0986

Number of support vectors: 53
```

drugY, drugB	
| | ```
        0.6933 * <0.762712 0 1 0 0 0 0.758898 0.671937 > * X]
 +        1      * <0.966102 1 1 0 0 1 0.558874 0.502527 > * X]
 -        1      * <0.762712 1 0 0 1 0 0.699786 0.52217 > * X]
 +        1      * <0.932203 1 1 0 0 0 0.400208 0.453954 > * X]
 +    0.2721 * <0.926091 1 1 0 0 0 0.409325 0.485527 > * X]
 +    0.0072 * <0.882213 1 1 0 0 1 0.347298 0.619667 > * X]
 -        1      * <0.915254 1 0 1 0 0 0.895619 0.588947 > * X]
 +        1      * <0.622698 0 1 0 0 1 0.826505 0.724931 > * X]
 -        1      * <0.016949 0 1 0 0 1 0.842836 0.5642 > * X]
 +        1      * <0.745763 1 1 0 0 0 0.79868 0.6452 > * X]
 +        1      * <0.728814 0 1 0 0 1 0.931465 0.686025 > * X]
 +        1      * <0.857877 1 1 0 0 1 0.3488 0.609129 > * X]
 +        1      * <0.958323 1 1 0 0 0 0.50491 0.461567 > * X]
 -        1      * <0.779661 0 1 0 0 0 0.331132 0.07961 > * X]
 -        1      * <0.440678 1 1 0 0 1 0.39968 0.391862 > * X]
 -        1      * <0.372881 0 1 0 0 1 0.745523 0.241291 > * X]
 +        1      * <0.898305 0 1 0 0 1 0.695251 0.502527 > * X]
 +        1      * <0.75622 1 1 0 0 0 0.78565 0.643928 > * X]
 -        1      * <0.728814 1 1 0 0 0 0.679287 0.342586 > * X]
 -        1      * <0.271186 1 1 0 0 1 0.975205 0.533748 > * X]
 +    0.0213 * <0.913945 1 1 0 0 0 0.420644 0.490961 > * X]
 +        1      * <0.847458 1 1 0 0 1 0.341971 0.602701 > * X]
 -        1      * <0.728814 0 1 0 0 0 0.153289 0.148312 > * X]
 -    0.2005 * <0.59322 0 0 0 1 1 0.604822 0.383998 > * X]
 +        1      * <0.7459 1 1 0 0 0 0.787492 0.644718 > * X]
 +        1      * <0.736927 0 1 0 0 1 0.914048 0.684727 > * X]
 +    0.1883 * <0.861442 1 1 0 0 1 0.342797 0.623951 > * X]
 -        1      * <0.186441 0 1 0 0 1 0.817466 0.384366 > * X]
 +        1      * <0.762062 1 1 0 0 0 0.787658 0.640803 > * X]
 -        1      * <0.694915 0 1 0 0 0 0.633496 0.159773 > * X]
 +        1      * <0.617403 0 1 0 0 1 0.787382 0.706853 > * X]
 -        1      * <0.423729 1 1 0 0 0 0.14389 0 > * X]
 -        1      * <1 1 1 0 0 1 0.805356 0.552739 > * X]
 +    0.0048 * <0.896975 1 1 0 0 1 0.34466 0.616431 > * X]
 -        1      * <0.864407 1 1 0 0 0 0.883285 0.534853 > * X]
 -        1      * <0.322034 1 1 0 0 0 0.980014 0.459525 > * X]
 +        1      * <0.644068 0 1 0 0 1 0.65837 0.683783 > * X]
 -    0.2848 * <0.694915 1 0 1 0 0 0.789352 0.570575 > * X]
 -    0.0139 * <0.881356 0 0 0 1 0 0.72011 0.491818 > * X]
 +        1      * <0.673328 0 1 0 0 1 0.516679 0.659811 > * X]
 -        1      * <0.983051 0 1 0 0 0 0.777621 0.401834 > * X]
 -        1      * <0.847458 1 1 0 0 1 0.92029 0.078305 > * X]
 +    0.4459 * <0.610169 1 1 0 0 1 0.839376 0.892983 > * X]
 -        1      * <0.830508 1 1 0 0 1 0.605589 0.25645 > * X]
 -        1      * <0.322034 0 1 0 0 1 0.423368 0.246963 > * X]
 -        1      * <0.610169 1 1 0 0 0 0.85459 0.431834 > * X]
 +    0.974  * <0.762712 1 1 0 0 0 0.765736 0.645623 > * X]
 +        1      * <0.762712 1 1 0 0 0 0.771639 0.63245 > * X]
 +    0.423  * <0.762712 1 1 0 0 0 0.761656 0.637233 > * X]
 +        1      * <0.932764 1 1 0 0 0 0.463511 0.476745 > * X]
 +        1      * <0.724216 0 1 0 0 1 0.643323 0.660762 > * X]
 -    0.5306 * <0.500599 1 1 0 0 1 0.910492 0.173928 > * X]
 +        1      * <0.675563 0 1 0 0 1 0.474232 0.653235 > * X]
 -        1      * <0.847458 0 1 0 0 1 0.830361 0.10009 > * X]
 -        1      * <0.355932 0 1 0 0 1 0.189168 0.286149 > * X]
 -    1.6873

Number of support vectors: 55
``` |

| drugC, drugX | ```
-        1      * <0.898305 1 0 1 0 0 0.572153 0.846535 > * X]
+        1      * <1 1 0 1 0 1 0.726579 0.769033 > * X]
+        0.7349 * <0.769478 0 0 0 1 0 0.90522 0.908122 > * X]
-        0.1583 * <0.135355 1 0 1 0 0 0.099164 0.464699 > * X]
-        1      * <0.016949 1 0 1 0 0 0.613438 0.700465 > * X]
-        0.5147 * <0.62565 0 0 1 0 0 0.936669 0.91366 > * X]
-        0.7106 * <0.131826 1 0 1 0 0 0.08465 0.922506 > * X]
+        0.1478 * <0.830508 1 0 0 1 0 0.0314 0.77012 > * X]
+        1      * <0.915306 0 0 1 0 1 0.553635 0.871275 > * X]
-        0.3764 * <0.484045 1 0 1 0 0 0.804034 0.910414 > * X]
-        1      * <0.542373 0 0 1 0 0 1 0.939079 > * X]
+        1      * <0.268087 0 0 1 0 0 0.525421 0.759926 > * X]
+        1      * <0.508475 1 0 1 0 1 0.542304 0.8591 > * X]
+        0.3956 * <0.536645 1 0 1 0 1 0.067215 0.900802 > * X]
-        1      * <0.843817 0 0 1 0 0 0.864482 0.863815 > * X]
-        1      * <0.966102 1 0 1 0 0 0.011748 0.912743 > * X]
+        1      * <0.338983 1 0 1 0 1 0.467239 0.915152 > * X]
+        1      * <0.779661 1 0 0 1 0 0.618747 0.985242 > * X]
-        0.6099 * <0.924804 0 0 1 0 0 0.111872 0.910781 > * X]
+        0.0916 * <0 1 0 0 1 0 0.359171 0.848108 > * X]
+        0.3458


Number of support vectors: 20
``` |
| drugC, drugA | ```
-        0.4106 * <0.016949 1 0 1 0 0 0.613438 0.700465 > * X]
+        0.8182 * <0.084746 0 1 0 0 0 0.978201 0.983435 > * X]
-        0.8704 * <0.542373 0 0 1 0 0 1 0.939079 > * X]
+        0.4291 * <0.576271 1 1 0 0 1 0 1 > * X]
+        0.1919 * <0.457627 1 1 0 0 1 0.90372 0.789429 > * X]
+        0.177  * <0.478197 1 1 0 0 0 0.796409 0.789143 > * X]
-        0.9239 * <0.966102 1 0 1 0 0 0.011748 0.912743 > * X]
+        0.7783 * <0.59322 1 1 0 0 0 0.045761 0.822725 > * X]
-        0.1895 * <0.131826 1 0 1 0 0 0.08465 0.922506 > * X]
+        0.0458


Number of support vectors: 9
``` |
| drugC, drugB | ```
         0.2799 * <0.689525 0 1 0 0 1 0.776673 0.923563 > * X]
-        0.6848 * <0.542373 0 0 1 0 0 1 0.939079 > * X]
+        0.0257 * <0.719881 0 1 0 0 1 0.810403 0.899242 > * X]
+        0.295  * <0.728814 0 1 0 0 1 0.931465 0.686025 > * X]
+        0.8194 * <0.979351 1 1 0 0 0 0.546254 0.903834 > * X]
+        1      * <1 1 1 0 0 0 0.543509 0.916089 > * X]
-        0.8101 * <0.966102 1 0 1 0 0 0.011748 0.912743 > * X]
-        0.8687 * <0.898305 1 0 1 0 0 0.572153 0.846535 > * X]
+        0.0031 * <0.61382 0 1 0 0 1 0.764924 0.909006 > * X]
-        0.0636 * <0.484045 1 0 1 0 0 0.804034 0.910414 > * X]
+        0.004  * <0.762712 1 1 0 0 1 0.342504 0.898872 > * X]
-        0.0208


Number of support vectors: 11
``` |

| drugX, drugA | ```
-        0.4306 * <0.338983 1 0 1 0 1 0.467239 0.915152 > * X]
-        0.3127 * <1 1 0 1 0 1 0.726579 0.769033 > * X]
-        0.3837 * <0.677966 1 0 0 1 1 0.022764 0.838336 > * X]
+        0.9919 * <0.559322 1 1 0 0 1 0.679558 0.897015 > * X]
-        0.2804 * <0.084746 0 0 1 0 1 0.785209 0.826222 > * X]
-        1      * <0.915254 1 1 0 0 1 0.495503 0.905013 > * X]
-        0.4358 * <0.881356 1 0 0 1 1 0.875813 0.965248 > * X]
+        0.8331 * <0.578918 1 1 0 0 1 0.034146 0.903424 > * X]
-        0.1102 * <0.268087 0 0 1 0 0 0.525421 0.759926 > * X]
-        0.0535 * <0 1 0 0 1 0 0.359171 0.848108 > * X]
-        0.5303 * <0.033898 1 0 0 1 1 0.561062 0.780678 > * X]
-        0.1182 * <0.769478 0 0 0 1 0 0.90522 0.908122 > * X]
+        1      * <0.576271 1 1 0 0 1 0 1 > * X]
-        0.5954 * <0.536645 1 0 1 0 1 0.067215 0.900802 > * X]
+        1      * <0.457627 1 1 0 0 1 0.90372 0.789429 > * X]
-        0.3502 * <0.152542 0 0 0 1 0 0.771359 0.93595 > * X]
+        0.7759 * <0.084746 0 1 0 0 0 0.978201 0.983435 > * X]
-        0.3195

Number of support vectors: 17
``` |
| drugX, drugB | ```
-        0.0234 * <0 1 0 0 1 0 0.359171 0.848108 > * X]
-        0.239  * <0.915306 0 0 1 0 1 0.553635 0.871275 > * X]
-        0.1557 * <0.779661 1 0 0 1 0 0.618747 0.985242 > * X]
-        0.1251 * <0.050847 0 0 0 1 1 0.134882 0.723538 > * X]
-        1      * <0.915254 1 1 0 0 1 0.495503 0.905013 > * X]
-        0.0015 * <0.966102 0 0 1 0 1 0.65279 0.531874 > * X]
+        0.9178 * <1 1 1 0 0 0 0.543509 0.916089 > * X]
+        1      * <0.719881 0 1 0 0 1 0.810403 0.899242 > * X]
-        1      * <1 1 0 1 0 1 0.726579 0.769033 > * X]
-        0.2267 * <0.830508 1 0 0 1 0 0.0314 0.77012 > * X]
-        0.1271 * <0.915254 1 0 0 1 1 0.689545 0.926045 > * X]
+        0.7605 * <0.966102 1 1 0 0 1 0.558874 0.502527 > * X]
+        1      * <0.762712 1 1 0 0 1 0.342504 0.898872 > * X]
-        0.0144 * <0.576271 1 0 1 0 1 0.026028 0.293093 > * X]
-        0.3056 * <0.084746 0 0 1 0 1 0.785209 0.826222 > * X]
-        0.1868 * <0.536645 1 0 1 0 1 0.067215 0.900802 > * X]
-        0.2637 * <0.769478 0 0 0 1 0 0.90522 0.908122 > * X]
-        0.0093 * <0.268087 0 0 1 0 0 0.525421 0.759926 > * X]
+        1      * <0.610169 1 1 0 0 1 0.839376 0.892983 > * X]
-        1      * <0.881356 1 0 0 1 1 0.875813 0.965248 > * X]
-        0.3066

Number of support vectors: 20
``` |

drugA, drugB	

```
       0.4832 * <0.762712 1 1 0 0 0 0.765736 0.645623 > * X]
 +      1      * <0.681855 0 1 0 0 0 0.585715 0.769667 > * X]
 -      1      * <0.288136 0 1 0 0 1 0.566338 0.842636 > * X]
 -      1      * <0.570844 1 1 0 0 1 0.396743 0.913104 > * X]
 +      1      * <0.753342 1 1 0 0 0 0.780516 0.666544 > * X]
 +      1      * <0.861442 1 1 0 0 1 0.342797 0.623951 > * X]
 +      1      * <0.755777 1 1 0 0 0 0.787382 0.659258 > * X]
 -      1      * <0.378661 0 1 0 0 0 0.824897 0.760304 > * X]
 -      1      * <0.457627 1 1 0 0 1 0.90372 0.789429 > * X]
 +      1      * <0.762712 1 1 0 0 0 0.655429 0.832348 > * X]
 +      1      * <0.847458 1 1 0 0 1 0.341971 0.602701 > * X]
 -      1      * <0.59322 1 1 0 0 0 0.045761 0.822725 > * X]
 -      1      * <0.371091 0 1 0 0 0 0.590632 0.75168 > * X]
 -      1      * <0.468226 1 1 0 0 0 0.63048 0.563932 > * X]
 -      1      * <0.348288 0 1 0 0 0 0.717514 0.776648 > * X]
 +      1      * <0.713664 0 1 0 0 0 0.736816 0.737114 > * X]
 +      1      * <0.677966 0 1 0 0 0 0.346215 0.636348 > * X]
 +      1      * <0.857877 1 1 0 0 1 0.3488 0.609129 > * X]
 +      1      * <0.762712 1 1 0 0 0 0.763602 0.653622 > * X]
 -      1      * <0.391011 0 1 0 0 0 0.586496 0.774717 > * X]
 +      1      * <0.75622 1 1 0 0 0 0.78565 0.643928 > * X]
 +      1      * <0.762712 1 1 0 0 0 0.415667 0.802976 > * X]
 +      1      * <0.66043 0 1 0 0 1 0.651251 0.825051 > * X]
 -      1      * <0.338983 0 1 0 0 0 0.933814 0.793729 > * X]
 -      1      * <0.566882 1 1 0 0 1 0.199314 0.835778 > * X]
 +      1      * <0.932203 1 1 0 0 0 0.22563 0.666466 > * X]
 -      1      * <0.186441 0 1 0 0 1 0.711716 0.728056 > * X]
 +      0.075  * <0.725997 0 1 0 0 0 0.754137 0.764612 > * X]
 -      1      * <0.394008 0 1 0 0 0 0.588525 0.877535 > * X]
 -      1      * <0.535271 1 1 0 0 0 0.152759 0.46513 > * X]
 -      1      * <0.566256 1 1 0 0 1 0.261752 0.803595 > * X]
 +      0.4531 * <0.905242 1 1 0 0 0 0.320477 0.660034 > * X]
 +      1      * <0.896975 1 1 0 0 1 0.34466 0.616431 > * X]
 +      1      * <0.625547 0 1 0 0 1 0.809604 0.8397 > * X]
 +      1      * <0.67971 0 1 0 0 1 0.400428 0.825792 > * X]
 -      1      * <0.576271 1 1 0 0 1 0.096022 0.700013 > * X]
 +      1      * <0.755874 1 1 0 0 0 0.760996 0.658819 > * X]
 -      1      * <0.585272 1 1 0 0 1 0.461584 0.865236 > * X]
 +      1      * <0.68169 0 1 0 0 1 0.499451 0.793028 > * X]
 +      1      * <0.922064 1 1 0 0 0 0.236355 0.650309 > * X]
 -      1      * <0.569646 1 1 0 0 1 0.575302 0.891177 > * X]
 -      1      * <0.475875 1 1 0 0 0 0.232135 0.403247 > * X]
 -      1      * <0.508475 0 1 0 0 0 0.120368 0.378091 > * X]
 +      0.7531 * <0.670865 0 1 0 0 1 0.400108 0.662388 > * X]
 +      1      * <0.882213 1 1 0 0 1 0.347298 0.619667 > * X]
 -      1      * <0.478197 1 1 0 0 0 0.796409 0.789143 > * X]
 -      1      * <0.474576 1 1 0 0 0 0.394562 0.451042 > * X]
 -      1      * <0.542373 1 1 0 0 0 0.159518 0.57106 > * X]
 -      1      * <0.559602 1 1 0 0 1 0.408435 0.945337 > * X]
 -      1      * <0.57385 1 1 0 0 1 0.131103 0.937048 > * X]
 -      1      * <0.392647 0 1 0 0 0 0.586001 0.80673 > * X]
 -      1      * <0.353632 0 1 0 0 0 0.66537 0.750611 > * X]
 +      1      * <0.748389 1 1 0 0 0 0.784089 0.660266 > * X]
 +      1      * <0.719477 0 1 0 0 0 0.711432 0.729585 > * X]
 -      1      * <0.365991 0 1 0 0 0 0.568785 0.57871 > * X]
 -      0.0015 * <0.576271 1 1 0 0 1 0.049753 0.729937 > * X]
 +      1      * <0.762712 1 1 0 0 1 0.342504 0.898872 > * X]
 +      1      * <0.762712 1 1 0 0 0 0.559611 0.806379 > * X]
 -      1      * <0.559322 1 1 0 0 1 0.679558 0.897015 > * X]
 +      1      * <0.639468 0 1 0 0 1 0.684835 0.932431 > * X]
 -      1      * <0.389831 0 1 0 0 1 0.590252 0.749105 > * X]
 +      1      * <0.745763 1 1 0 0 0 0.79868 0.6452 > * X]
 +      1      * <0.755016 1 1 0 0 0 0.556786 0.784475 > * X]
 -      1      * <0.515421 1 1 0 0 0 0.144772 0.413734 > * X]
 -      1      * <0.544235 1 1 0 0 0 0.429308 0.742749 > * X]
 -      0.7628 * <0.517798 1 1 0 0 0 0.123319 0.495917 > * X]
 +      1      * <0.747018 1 1 0 0 0 0.48851 0.716228 > * X]
 +      1      * <0.610169 1 1 0 0 1 0.839376 0.892983 > * X]
 -      1      * <0.476421 1 1 0 0 0 0.267858 0.568305 > * X]
 -      1      * <0.435944 1 1 0 0 0 0.775375 0.894573 > * X]
 -      1      * <0.458905 1 1 0 0 0 0.572185 0.498801 > * X]
 -      1      * <0.508199 1 1 0 0 0 0.233816 0.380848 > * X]
 +      1      * <0.634014 0 1 0 0 1 0.709612 0.916344 > * X]
 +      1      * <0.61382 0 1 0 0 1 0.764924 0.909006 > * X]
 -      1      * <0.56616 1 1 0 0 1 0.648782 0.800363 > * X]
 +      1      * <0.762712 1 1 0 0 0 0.759537 0.653014 > * X]
 -      1      * <0.592004 1 1 0 0 1 0.284338 0.851882 > * X]
 +      1      * <0.749543 1 1 0 0 0 0.453025 0.854301 > * X]
 +      1      * <0.637413 0 1 0 0 1 0.651905 0.908237 > * X]
 +      1      * <0.7459 1 1 0 0 0 0.787492 0.644718 > * X]
 +      1      * <0.762712 1 1 0 0 0 0.370568 0.64896 > * X]
 -      0.8363

Number of support vectors: 81
```

- **Poly**: Se obtuvieron las siguientes ecuaciones de los hiperplanos que separan a dos clases

Clases	Ecuación
| drugY, drugC | ```
     -1.1286 * (normalized) EDAD
+    -0.3192 * (normalized) SEXO=M
+    -0.2877 * (normalized) PRESIÓN SANGUÍNEA=HIGH
+     0.7483 * (normalized) PRESIÓN SANGUÍNEA=LOW
+    -0.4607 * (normalized) PRESIÓN SANGUÍNEA=NORMAL
+    -0.9941 * (normalized) COLESTEROL=NORMAL
+    -1.036  * (normalized) SODIO
+     3.4922 * (normalized) POTASIO
-     0.7955
``` |
| drugY, drugX | ```
     -0.1551 * (normalized) EDAD
+    -0.2383 * (normalized) SEXO=M
+    -0.8813 * (normalized) PRESIÓN SANGUÍNEA=HIGH
+     0.1693 * (normalized) PRESIÓN SANGUÍNEA=LOW
+     0.712  * (normalized) PRESIÓN SANGUÍNEA=NORMAL
+     0.6219 * (normalized) COLESTEROL=NORMAL
+    -2.1542 * (normalized) SODIO
+     4.7404 * (normalized) POTASIO
-     1.5973
``` |
| drugY, drugA | ```
     -1.1634 * (normalized) EDAD
+     0.4072 * (normalized) SEXO=M
+     1.0118 * (normalized) PRESIÓN SANGUÍNEA=HIGH
+    -0.4817 * (normalized) PRESIÓN SANGUÍNEA=LOW
+    -0.5301 * (normalized) PRESIÓN SANGUÍNEA=NORMAL
+    -0.7825 * (normalized) COLESTEROL=NORMAL
+    -1.5732 * (normalized) SODIO
+     4.5678 * (normalized) POTASIO
-     1.4811
``` |
| drugY, drugB | ```
      2.1163 * (normalized) EDAD
+     0.0555 * (normalized) SEXO=M
+     1.2469 * (normalized) PRESIÓN SANGUÍNEA=HIGH
+    -0.8205 * (normalized) PRESIÓN SANGUÍNEA=LOW
+    -0.4263 * (normalized) PRESIÓN SANGUÍNEA=NORMAL
+     0.0133 * (normalized) COLESTEROL=NORMAL
+    -0.5652 * (normalized) SODIO
+     3.7804 * (normalized) POTASIO
-     3.892
``` |
| drugC, drugX | ```
      0.0003 * (normalized) EDAD
+     0.0003 * (normalized) SEXO=M
+    -1.0005 * (normalized) PRESIÓN SANGUÍNEA=LOW
+     1.0005 * (normalized) PRESIÓN SANGUÍNEA=NORMAL
+     2.0009 * (normalized) COLESTEROL=NORMAL
+    -0.0009 * (normalized) SODIO
+    -0.0003 * (normalized) POTASIO
+     0.0003
``` |

| drugC, drugA | ```
       -0.0005 * (normalized) EDAD
+      -0.0005 * (normalized) SEXO=M
+       1.0003 * (normalized) PRESIÓN SANGUÍNEA=HIGH
+      -1.0003 * (normalized) PRESIÓN SANGUÍNEA=LOW
+       0      * (normalized) COLESTEROL=NORMAL
+      -0.0003 * (normalized) SODIO
+       0.0017 * (normalized) POTASIO
-       0.0007
``` |
| drugC, drugB | ```
        0.0048 * (normalized) EDAD
+       0      * (normalized) SEXO=M
+       1.0003 * (normalized) PRESIÓN SANGUÍNEA=HIGH
+      -1.0003 * (normalized) PRESIÓN SANGUÍNEA=LOW
+       0.0015 * (normalized) COLESTEROL=NORMAL
+       0.0012 * (normalized) SODIO
+      -0.0037 * (normalized) POTASIO
-       0.0016
``` |
| drugX, drugA | ```
       -0.0045 * (normalized) EDAD
+       0.0001 * (normalized) SEXO=M
+       1.334  * (normalized) PRESIÓN SANGUÍNEA=HIGH
+      -0.6662 * (normalized) PRESIÓN SANGUÍNEA=LOW
+      -0.6678 * (normalized) PRESIÓN SANGUÍNEA=NORMAL
+      -0.0008 * (normalized) COLESTEROL=NORMAL
+      -0.0008 * (normalized) SODIO
+       0.0023 * (normalized) POTASIO
-       0.3329
``` |
| drugX, drugB | ```
       -0.0017 * (normalized) EDAD
+      -0.0003 * (normalized) SEXO=M
+       1.334  * (normalized) PRESIÓN SANGUÍNEA=HIGH
+      -0.6668 * (normalized) PRESIÓN SANGUÍNEA=LOW
+      -0.6672 * (normalized) PRESIÓN SANGUÍNEA=NORMAL
+      -0.0002 * (normalized) COLESTEROL=NORMAL
+       0      * (normalized) SODIO
+      -0.0001 * (normalized) POTASIO
-       0.332
``` |
| drugA, drugB | ```
        6.0021 * (normalized) EDAD
+      -0.6651 * (normalized) SEXO=M
+      -0      * (normalized) PRESIÓN SANGUÍNEA=HIGH
+       0.1578 * (normalized) COLESTEROL=NORMAL
+       1.485  * (normalized) SODIO
+      -0.4275 * (normalized) POTASIO
-       3.7309
``` |

- **Puk**: Se obtuvieron las siguientes ecuaciones de los hiperplanos que separan a dos clases

Clases	Ecuación

drugY, drugC	
| | ```
-      0.1224 * <1 1 1 0 0 1 0.805356 0.552739 > * X]
-      0.1628 * <0.762712 1 0 0 1 0 0.699786 0.52217 > * X]
+      0.4782 * <0.484045 1 0 1 0 0 0.804034 0.910414 > * X]
-      0.1136 * <0.40678 0 0 0 1 1 0.780594 0.451026 > * X]
+      1      * <0.494275 1 0 1 0 0 0.644259 0.640139 > * X]
-      0.166  * <0.983051 0 1 0 0 0 0.777621 0.401834 > * X]
-      0.6947 * <1 0 0 1 0 0 0.73886 0.298313 > * X]
-      0.2059 * <0.474576 1 0 1 0 1 0.065506 0.119499 > * X]
+      0.3211 * <0.134201 0 0 1 0 0 0.111044 0.410388 > * X]
+      0.8834 * <0.924804 0 0 1 0 0 0.111872 0.910781 > * X]
-      0.0633 * <0.355932 0 1 0 0 1 0.189168 0.286149 > * X]
+      0.273  * <0.121495 1 0 1 0 0 0.173822 0.516236 > * X]
-      0.1974 * <0.355932 0 0 0 1 0 0.159258 0.227487 > * X]
-      0.1631 * <0.220339 0 0 0 1 0 0.910881 0.397015 > * X]
-      1      * <0.779661 0 0 1 0 0 0.149348 0.18365 > * X]
-      0.1031 * <0.711864 0 0 0 1 1 0.13084 0.021668 > * X]
-      0.0113 * <0 0 1 0 0 1 0.497321 0.36233 > * X]
-      0.0079 * <0.271186 1 1 0 0 0 0.608171 0.073252 > * X]
-      0.1266 * <0.830508 0 0 1 0 1 0.136435 0.025215 > * X]
-      0.1294 * <0.59322 1 0 0 1 1 0.625547 0.457417 > * X]
-      0.0813 * <0.050847 0 1 0 0 1 0.163284 0.054278 > * X]
-      0.0645 * <0.135593 1 0 0 1 0 0.98124 0.13424 > * X]
+      1      * <0.186441 0 0 1 0 0 0.196604 0.347974 > * X]
+      1      * <0.542373 1 0 1 0 0 0.604061 0.609812 > * X]
-      0.081  * <0.610169 0 0 1 0 1 0.951431 0.302781 > * X]
-      1      * <0.508475 1 0 1 0 0 0.639917 0.367333 > * X]
-      1      * <0.728814 0 0 1 0 0 0.976784 0.502527 > * X]
-      0.1539 * <0.016949 0 1 0 0 1 0.842836 0.5642 > * X]
-      1      * <0.474576 1 0 1 0 0 0.319177 0.346752 > * X]
-      0.1368 * <0.457627 0 1 0 0 0 0.083506 0.089114 > * X]
-      0.1435 * <0.864407 1 1 0 0 0 0.883285 0.534853 > * X]
-      0.0673 * <0.881356 1 0 1 0 1 0.809496 0.328531 > * X]
-      0.3038 * <0.440678 0 0 1 0 1 0.630826 0.334571 > * X]
+      0.2303 * <0.448347 1 0 1 0 0 0.628141 0.640494 > * X]
+      1      * <0.898305 1 0 1 0 0 0.572153 0.846535 > * X]
-      0.0898 * <0.050847 0 1 0 0 0 0.972452 0.063247 > * X]
+      0.179  * <0.131826 1 0 1 0 0 0.08465 0.922506 > * X]
-      0.1128 * <0.389831 0 0 1 0 1 0.249021 0.000335 > * X]
-      0.0773 * <0.169492 1 0 0 1 0 0.695989 0.347706 > * X]
+      0.1568 * <0.134716 0 0 1 0 0 0.089346 0.832421 > * X]
-      0.1934 * <0.135593 1 0 0 1 0 0.109087 0.204548 > * X]
-      0.4808 * <0.305085 0 0 1 0 0 0.904849 0.0939 > * X]
+      0.5332 * <0.542373 0 0 1 0 0 1 0.939079 > * X]
-      0.0965 * <0.661017 1 0 0 1 0 0.01219 0.007663 > * X]
-      1      * <0.915254 1 0 1 0 0 0.895619 0.588947 > * X]
-      0.1652 * <0.881356 0 0 0 1 0 0.72011 0.491818 > * X]
-      0.2504 * <0.372881 1 0 1 0 1 0.584437 0.396898 > * X]
-      0.0466 * <0.016949 1 1 0 0 1 0.153705 0.158853 > * X]
+      0.8485 * <0.016949 1 0 1 0 0 0.613438 0.700465 > * X]
+      1      * <0.135355 1 0 1 0 0 0.099164 0.464699 > * X]
-      1      * <0.389831 1 0 1 0 0 0.886238 0.443296 > * X]
+      1      * <0.966102 1 0 1 0 0 0.011748 0.912743 > * X]
-      1      * <0.220339 0 0 1 0 0 0.269683 0.177977 > * X]
+      0.6967 * <0.542373 0 0 1 0 0 0.100041 0.562159 > * X]
-      0.1082 * <0.186441 1 0 1 0 1 0.733783 0.297711 > * X]
-      0.0973 * <0 1 1 0 0 1 0.209254 0.231955 > * X]
-      1      * <0.694915 1 0 1 0 0 0.789352 0.570575 > * X]
-      1      * <0.559322 0 0 1 0 0 0.945399 0.638038 > * X]
-      0.0434 * <0.711864 1 0 1 0 1 0.092393 0.134508 > * X]
-      0.045  * <0.847458 0 1 0 0 1 0.830361 0.10009 > * X]
+      1      * <0.554514 1 0 1 0 0 0.597821 0.622883 > * X]
-      0.1491 * <0.423729 1 1 0 0 0 0.14389 0 > * X]
-      0.7016 * <0.966102 1 0 1 0 0 0.11917 0.226517 > * X]
+      1      * <0.542373 0 0 1 0 0 0.954858 0.758451 > * X]
+      0.4203 * <0.843817 0 0 1 0 0 0.864482 0.863815 > * X]
-      0.0225 * <0.440678 1 1 0 0 1 0.39968 0.391862 > * X]
-      0.0676 * <0.728814 0 1 0 0 0 0.153289 0.148312 > * X]
-      0.0941 * <0.271186 1 1 0 0 1 0.975205 0.533748 > * X]
-      0.0444 * <0.898305 0 0 0 1 1 0.811886 0.173192 > * X]
+      1      * <0.207592 0 0 1 0 0 0.370486 0.417112 > * X]
+      1      * <0.710341 0 0 1 0 0 0.846154 0.7035 > * X]
-      0.0139 * <0.983051 0 0 0 1 0 0.839921 0.389837 > * X]
-      0.1428 * <0.322034 1 1 0 0 0 0.980014 0.459525 > * X]
-      0.0724 * <0.135593 0 1 0 0 0 0.738509 0.188 > * X]
-      0.3118 * <0.457627 1 0 1 0 0 0.646467 0.297125 > * X]
+      0.7057 * <0.737469 0 0 1 0 0 0.689815 0.692763 > * X]
-      0.7037

Number of support vectors: 76
``` |

| drugY, drugX | |

```
    1       * <0.640572 1 0 0 1 0 0.162767 0.49618 > * X]
-       0.3624 * <0.779661 0 0 1 0 0 0.149348 0.18365 > * X]
+       1       * <0.268087 0 0 1 0 0 0.525421 0.759926 > * X]
-       0.3394 * <0.271186 1 1 0 0 1 0.975205 0.533748 > * X]
+       1       * <0.856467 0 0 0 1 1 0.645401 0.635978 > * X]
-       0.3362 * <0.440678 1 1 0 0 1 0.39968 0.391862 > * X]
+       0.3732 * <0.830508 1 0 0 1 0 0.0314 0.77012 > * X]
-       0.1482 * <0 1 1 0 0 1 0.209254 0.231955 > * X]
+       0.0472 * <0.050847 0 0 0 1 1 0.134882 0.723538 > * X]
-       0.2605 * <0.423729 1 1 0 0 0 0.14389 0 > * X]
+       1       * <0.779661 1 0 0 1 0 0.618747 0.985242 > * X]
+       1       * <0.135593 1 0 0 1 0 0.235994 0.475103 > * X]
+       1       * <0.135593 1 0 0 1 1 0.718263 0.601295 > * X]
-       1       * <0.220339 0 0 0 1 0 0.910881 0.397015 > * X]
-       1       * <0.372881 1 0 1 0 1 0.584437 0.396898 > * X]
-       0.3476 * <0.966102 1 0 1 0 0 0.11917 0.226517 > * X]
-       0.6137 * <0.220339 0 0 1 0 0 0.269683 0.177977 > * X]
+       0.9822 * <0.047864 0 0 0 1 1 0.508355 0.745426 > * X]
-       0.0563 * <0.135593 0 1 0 0 0 0.738509 0.188 > * X]
+       0.9412 * <0.40884 0 0 1 0 1 0.034861 0.516017 > * X]
+       0.3646 * <0.355932 1 0 1 0 1 0.069416 0.437807 > * X]
-       1       * <0.610169 0 0 1 0 1 0.951431 0.302781 > * X]
+       0.0022 * <0.576271 0 0 0 1 1 0.491352 0.904076 > * X]
+       0.076  * <0.033898 1 0 0 1 1 0.561062 0.780678 > * X]
+       0.6198 * <0.084746 0 0 1 0 1 0.785209 0.826222 > * X]
-       1       * <0.440678 0 0 1 0 1 0.630826 0.334571 > * X]
-       1       * <0.932203 0 0 0 1 0 0.568988 0.257404 > * X]
+       1       * <0.118644 1 0 0 1 0 0.091327 0.415772 > * X]
-       0.2874 * <0.864407 1 1 0 0 0 0.883285 0.534853 > * X]
+       1       * <0.359884 1 0 1 0 1 0.269573 0.452286 > * X]
-       1       * <0.711864 1 0 1 0 1 0.092393 0.134508 > * X]
+       1       * <0.711864 0 0 0 1 0 0.242317 0.36658 > * X]
+       0.8111 * <0.847458 0 0 1 0 1 0.656884 0.58883 > * X]
+       1       * <0.915254 1 1 0 0 1 0.495503 0.905013 > * X]
+       0.1428 * <0.423729 0 0 1 0 1 0.463097 0.67269 > * X]
-       0.1501 * <0.728814 0 1 0 0 0 0.153289 0.148312 > * X]
-       0.9914 * <0.559322 0 0 1 0 0 0.945399 0.638038 > * X]
-       1       * <0.762712 1 0 0 1 0 0.699786 0.52217 > * X]
-       0.8821 * <1 1 1 0 0 1 0.805356 0.552739 > * X]
-       1       * <0.40678 0 0 0 1 1 0.780594 0.451026 > * X]
-       1       * <0.881356 0 0 0 1 0 0.72011 0.491818 > * X]
-       1       * <0.40678 1 0 0 1 0 0.276334 0.303668 > * X]
+       1       * <0.2039 0 0 0 1 0 0.740929 0.666114 > * X]
-       0.4682 * <0.016949 0 1 0 0 1 0.842836 0.5642 > * X]
-       0.2141 * <0.457627 0 1 0 0 0 0.083506 0.089114 > * X]
+       1       * <0.745763 0 0 0 1 0 0.965723 0.728525 > * X]
+       1       * <0.644068 1 0 0 1 0 0.365678 0.428505 > * X]
+       0.0726 * <0.220339 0 0 0 1 0 0.618325 0.632818 > * X]
-       0.044  * <0 0 1 0 0 1 0.497321 0.36233 > * X]
+       1       * <0.372881 1 0 1 0 1 0.600545 0.79034 > * X]
-       0.0196 * <0.305085 0 0 1 0 0 0.904849 0.0939 > * X]
-       1       * <0.474576 1 0 1 0 1 0.065506 0.119499 > * X]
+       0.524  * <0.762712 1 0 0 1 1 0.36714 0.735351 > * X]
-       0.379  * <0.474576 1 0 1 0 0 0.319177 0.346752 > * X]
+       1       * <0.40678 1 0 1 0 1 0.264732 0.391226 > * X]
-       0.4949 * <0.983051 0 0 0 1 0 0.839921 0.389837 > * X]
-       0.1786 * <1 0 0 1 0 0 0.73886 0.298313 > * X]
+       1       * <0.576271 1 0 1 0 1 0.026028 0.293093 > * X]
+       1       * <0.59322 0 0 0 1 1 0.257008 0.484138 > * X]
+       0.2124 * <0.874182 0 0 0 1 1 0.358785 0.928399 > * X]
-       1       * <0.169492 1 0 0 1 0 0.695989 0.347706 > * X]
-       1       * <0.576271 0 0 0 1 0 0.731188 0.476793 > * X]
-       1       * <0.40678 0 0 1 0 1 0.376186 0.143493 > * X]
-       0.3088 * <0.983051 0 1 0 0 0 0.777621 0.401834 > * X]
-       0.2063 * <0.847458 0 1 0 0 1 0.830361 0.10009 > * X]
+       1       * <0.966102 0 0 1 0 1 0.65279 0.531874 > * X]
-       1       * <0.59322 1 0 0 1 1 0.625547 0.457417 > * X]
-       0.8529 * <0.79661 1 0 0 1 0 0.645901 0.427149 > * X]
-       0.2177 * <0.322034 1 1 0 0 0 0.980014 0.459525 > * X]
-       0.253  * <0.322034 1 0 0 1 0 0.258629 0.113961 > * X]
+       1       * <0.576271 0 0 0 1 1 0.194274 0.359227 > * X]
-       0.0304 * <0.389831 0 0 1 0 1 0.249021 0.000335 > * X]
-       1       * <0.881356 1 0 1 0 1 0.809496 0.328531 > * X]
-       1       * <0.135593 1 0 0 1 0 0.109087 0.204548 > * X]
+       0.4355 * <0.40678 0 0 0 1 1 0.043816 0.556822 > * X]
+       1       * <0.322034 0 0 1 0 1 0.821884 0.733845 > * X]
-       0.218  * <0.813559 1 0 0 1 0 0.292882 0.062761 > * X]
+       0.2873 * <0.593486 0 0 0 1 0 0.410758 0.49411 > * X]
-       1       * <0.355932 0 0 0 1 0 0.159258 0.227487 > * X]
+       1       * <0.59322 0 0 0 1 0 0.747883 0.593549 > * X]
-       1       * <0.59322 0 0 0 1 1 0.604822 0.383998 > * X]
+       1       * <0.474576 1 0 0 1 1 0.097722 0.366145 > * X]
-       0.1968 * <0.050847 0 1 0 0 1 0.163284 0.054278 > * X]
-       0.2887 * <0.355932 0 1 0 0 1 0.189168 0.286149 > * X]
+       0.1205 * <0.536645 1 0 1 0 1 0.067215 0.900802 > * X]
+       0.218  * <0.779661 0 0 1 0 1 0.057395 0.856942 > * X]
-       0.2174 * <0.389831 1 0 1 0 0 0.886238 0.443296 > * X]
+       1       * <0.254237 0 0 0 1 0 0.004514 0.469247 > * X]
-       0.5229 * <0.898305 0 0 0 1 1 0.811886 0.173192 > * X]
+       0.0818 * <0.152542 0 0 0 1 0 0.771359 0.93595 > * X]
+       1       * <1 1 0 1 0 1 0.726579 0.769033 > * X]
-       0.2074 * <0.050847 0 1 0 0 0 0.972452 0.063247 > * X]
-       0.2508 * <0.016949 1 1 0 0 1 0.153705 0.158853 > * X]
+       0.0388 * <0.677966 1 0 0 1 1 0.022764 0.838336 > * X]
-       1       * <0.711864 0 0 0 1 1 0.13084 0.021668 > * X]
-       0.7547 * <0.661017 1 0 0 1 0 0.01219 0.007663 > * X]
+       0.9204 * <0.881356 1 0 0 1 1 0.875813 0.965248 > * X]
+       0.6347 * <0.915254 0 0 0 1 0 0.69118 0.951377 > * X]
+       1       * <0.610169 0 0 0 1 0 0.450828 0.500084 > * X]
-       0.4183 * <0.915254 1 0 1 0 0 0.895619 0.588947 > * X]
+       0.5187 * <0 1 0 0 1 0 0.359171 0.848108 > * X]
-       1       * <0.830508 0 0 1 0 1 0.136435 0.025215 > * X]
-       0.9072 * <0.186441 1 0 1 0 1 0.733783 0.297711 > * X]
-       0.3171

Number of support vectors: 103
```

drugY, drugA	

```
      1        * <0.508199 1 1 0 0 0 0.233816 0.380848 > * X]
+        0.1981 * <0.239032 1 1 0 0 1 0.348419 0.584513 > * X]
+        0.6052 * <0.576271 1 1 0 0 1 0 1 > * X]
+        0.1075 * <0.192716 1 1 0 0 1 0.656393 0.743259 > * X]
+        1        * <0.186441 0 1 0 0 1 0.711716 0.728056 > * X]
+        1        * <0.458905 1 1 0 0 0 0.572185 0.498801 > * X]
-        0.1457 * <0.762712 1 0 0 1 0 0.699786 0.52217 > * X]
-        0.9852 * <1 1 1 0 0 1 0.805356 0.552739 > * X]
+        0.4941 * <0.288136 1 1 0 0 1 0.074721 0.603437 > * X]
-        0.0851 * <0.779661 0 0 1 0 0 0.149348 0.18365 > * X]
-        0.085  * <0.169492 1 0 0 1 0 0.695989 0.347706 > * X]
-        0.085  * <0.186441 1 0 1 0 1 0.733783 0.297711 > * X]
+        1        * <0.457627 1 1 0 0 1 0.90372 0.789429 > * X]
+        0.1157 * <0.288136 1 1 0 0 1 0.534188 0.61826 > * X]
-        0.0148 * <0.305085 0 0 1 0 0 0.904849 0.0939 > * X]
+        0.157  * <0.237288 1 1 0 0 0 0.316007 0.478784 > * X]
-        0.2139 * <0.59322 1 0 0 1 1 0.625547 0.457417 > * X]
-        0.1273 * <0.881356 0 0 0 1 0 0.72011 0.491818 > * X]
-        0.1702 * <0.220339 0 0 0 1 0 0.910881 0.397015 > * X]
+        0.3044 * <0.435944 1 1 0 0 0 0.775375 0.894573 > * X]
+        0.511  * <0.084746 0 1 0 0 0 0.978201 0.983435 > * X]
-        0.0825 * <0.440678 0 0 1 0 1 0.630826 0.334571 > * X]
+        1        * <0.078372 0 1 0 0 0 0.865221 0.615792 > * X]
-        1        * <0.135593 0 1 0 0 0 0.738509 0.188 > * X]
-        1        * <0.728814 1 1 0 0 0 0.679287 0.342586 > * X]
-        0.0798 * <0.830508 0 0 1 0 1 0.136435 0.025215 > * X]
+        1        * <0.478197 1 1 0 0 0 0.796409 0.789143 > * X]
-        0.0693 * <0.881356 1 0 1 0 1 0.809496 0.328531 > * X]
+        1        * <0.468226 1 1 0 0 0 0.63048 0.563932 > * X]
-        0.499  * <0 0 1 0 0 1 0.497321 0.36233 > * X]
-        1        * <0.728814 0 1 0 0 0 0.153289 0.148312 > * X]
+        1        * <0.194321 1 1 0 0 1 0.566581 0.587597 > * X]
-        0.1196 * <0.966102 1 0 1 0 0 0.11917 0.226517 > * X]
+        0.1648 * <0.365991 0 1 0 0 0 0.568785 0.57871 > * X]
-        0.1197 * <0.915254 1 0 1 0 0 0.895619 0.588947 > * X]
+        1        * <0.508475 0 1 0 0 0 0.120368 0.378091 > * X]
-        1        * <0.610169 1 1 0 0 0 0.85459 0.431834 > * X]
-        0.5279 * <0.983051 0 1 0 0 0 0.777621 0.401834 > * X]
-        1        * <0.457627 0 1 0 0 0 0.083506 0.089114 > * X]
-        1        * <0.271186 1 1 0 0 1 0.975205 0.533748 > * X]
-        0.5612 * <0.271186 1 1 0 0 0 0.608171 0.073252 > * X]
+        0.3459 * <0.59322 1 1 0 0 0 0.045761 0.822725 > * X]
+        0.6285 * <0.515421 1 1 0 0 0 0.144772 0.413734 > * X]
-        1        * <0.016949 0 1 0 0 1 0.842836 0.5642 > * X]
-        0.1789 * <0.135593 1 0 0 1 0 0.109087 0.204548 > * X]
-        0.1647 * <0.40678 0 0 0 1 1 0.780594 0.451026 > * X]
+        1        * <0.283538 1 1 0 0 1 0.193516 0.540045 > * X]
-        0.29   * <0.016949 1 1 0 0 1 0.153705 0.158853 > * X]
-        0.1263 * <0.474576 1 0 1 0 0 0.319177 0.346752 > * X]
+        0.2572 * <0.576271 1 1 0 0 1 0.096022 0.700013 > * X]
-        0.1687 * <0.220339 0 0 1 0 0 0.269683 0.177977 > * X]
-        0.0901 * <0.661017 1 0 0 1 0 0.01219 0.007663 > * X]
+        0.8095 * <0.56616 1 1 0 0 1 0.648782 0.800363 > * X]
-        0.0387 * <0.135593 1 0 0 1 0 0.98124 0.13424 > * X]
+        1        * <0.159216 0 1 0 0 0 0.484092 0.379515 > * X]
+        1        * <0.067797 0 1 0 0 0 0.042446 0.314727 > * X]
-        0.8009 * <0.355932 0 1 0 0 1 0.189168 0.286149 > * X]
-        0.2236 * <0.559322 0 0 1 0 0 0.945399 0.638038 > * X]
+        0.632  * <0.288136 0 1 0 0 1 0.566338 0.842636 > * X]
+        0.895  * <0.372881 0 1 0 0 0 0.149037 0.379664 > * X]
-        0.6281 * <0.237288 0 1 0 0 0 0.903705 0.152428 > * X]
-        0.1352 * <0.694915 0 1 0 0 0 0.633496 0.159773 > * X]
-        0.0153 * <1 0 0 1 0 0 0.73886 0.298313 > * X]
-        0.0969 * <0.389831 1 0 1 0 0 0.886238 0.443296 > * X]
-        0.0278 * <0.389831 0 0 1 0 1 0.249021 0.000335 > * X]
-        0.0664 * <0.610169 0 0 1 0 1 0.951431 0.302781 > * X]
-        0.1039 * <0.711864 0 0 0 1 1 0.13084 0.021668 > * X]
+        1        * <0.389831 0 1 0 0 1 0.590252 0.749105 > * X]
-        0.3416 * <0.864407 1 1 0 0 0 0.883285 0.534853 > * X]
-        0.1073 * <0.847458 0 1 0 0 1 0.830361 0.10009 > * X]
-        1        * <0.322034 1 1 0 0 0 0.980014 0.459525 > * X]
-        0.1776 * <0.830508 1 1 0 0 1 0.605589 0.25645 > * X]
-        0.6295 * <0.186441 0 1 0 0 1 0.817466 0.384366 > * X]
-        1        * <0.423729 1 1 0 0 0 0.14389 0 > * X]
-        0.1793 * <0.355932 0 0 0 1 0 0.159258 0.227487 > * X]
-        0.0572 * <0.711864 1 0 1 0 1 0.092393 0.134508 > * X]
-        0.0354 * <0.898305 0 0 0 1 1 0.811886 0.173192 > * X]
-        0.0832 * <0.372881 1 0 1 0 1 0.584437 0.396898 > * X]
-        1        * <0 1 1 0 0 1 0.209254 0.231955 > * X]
+        0.6132 * <0.338983 0 1 0 0 0 0.933814 0.793729 > * X]
-        0.0944 * <0.474576 1 0 1 0 1 0.065506 0.119499 > * X]
-        1        * <0.440678 1 1 0 0 1 0.39968 0.391862 > * X]
-        0.007  * <0.500599 1 1 0 0 1 0.910492 0.173928 > * X]
-        0.7148

Number of support vectors: 83
```

drugY, drugB	

```
          1     * <0.762712 0 1 0 0 0 0.758898 0.671937 > * X]
  +       1     * <0.966102 1 1 0 0 1 0.558874 0.502527 > * X]
  -     0.1983 * <0.762712 1 0 0 1 0 0.699786 0.52217 > * X]
  -     0.0257 * <0.813559 1 0 0 1 0 0.292882 0.062761 > * X]
  -     0.0992 * <0.711864 0 0 0 1 1 0.13084 0.021668 > * X]
  +     0.4167 * <0.932203 1 1 0 0 0 0.400208 0.453954 > * X]
  -     0.0769 * <0.135593 1 0 0 1 0 0.109087 0.204548 > * X]
  -     0.2018 * <0.915254 1 0 1 0 0 0.895619 0.588947 > * X]
  +     0.0671 * <0.622698 0 1 0 0 1 0.826505 0.724931 > * X]
  -     0.5899 * <0.016949 0 1 0 0 1 0.842836 0.5642 > * X]
  +       1     * <0.745763 1 1 0 0 0 0.79868 0.6452 > * X]
  +       1     * <0.728814 0 1 0 0 1 0.931465 0.686025 > * X]
  +     0.6265 * <0.857877 1 1 0 0 1 0.3488 0.609129 > * X]
  +     0.9424 * <0.958323 1 1 0 0 0 0.50491 0.461567 > * X]
  -     0.0493 * <0.372881 1 0 1 0 1 0.584437 0.396898 > * X]
  -       1     * <0.440678 1 1 0 0 1 0.39968 0.391862 > * X]
  +     0.1453 * <0.67971 0 1 0 0 1 0.400428 0.825792 > * X]
  -     0.0849 * <0.355932 0 0 0 1 0 0.159258 0.227487 > * X]
  -     0.1132 * <0.40678 0 0 0 1 1 0.780594 0.451026 > * X]
  -     0.4253 * <0.372881 0 1 0 0 1 0.745523 0.241291 > * X]
  -     0.162  * <0.966102 1 0 1 0 0 0.11917 0.226517 > * X]
  -     0.0848 * <0.779661 0 0 1 0 0 0.149348 0.18365 > * X]
  -     0.0846 * <1 0 0 1 0 0 0.73886 0.298313 > * X]
  +       1     * <0.898305 0 1 0 0 1 0.695251 0.502527 > * X]
  +     0.3129 * <0.75622 1 1 0 0 0 0.78565 0.643928 > * X]
  -       1     * <0.728814 1 1 0 0 0 0.679287 0.342586 > * X]
  -     0.5925 * <0.271186 1 1 0 0 1 0.975205 0.533748 > * X]
  +       1     * <0.847458 1 1 0 0 1 0.341971 0.602701 > * X]
  -     0.6657 * <0.728814 0 1 0 0 0 0.153289 0.148312 > * X]
  -     0.0201 * <0.59322 0 0 0 1 1 0.604822 0.383998 > * X]
  +       1     * <0.7459 1 1 0 0 0 0.787492 0.644718 > * X]
  -     0.0854 * <0.220339 0 0 0 1 0 0.910881 0.397015 > * X]
  -     0.1868 * <0.59322 1 0 0 1 1 0.625547 0.457417 > * X]
  +       1     * <0.762062 1 1 0 0 0 0.787658 0.640803 > * X]
  -     0.5001 * <0.694915 0 1 0 0 0 0.633496 0.159773 > * X]
  -     0.2386 * <0.135593 0 1 0 0 0 0.738509 0.188 > * X]
  -     0.1015 * <0.711864 1 0 1 0 1 0.092393 0.134508 > * X]
  -     0.115  * <0.830508 0 0 1 0 1 0.136435 0.025215 > * X]
  -     0.0989 * <0.898305 0 0 0 1 1 0.811886 0.173192 > * X]
  -     0.4185 * <0.423729 1 1 0 0 0 0.14389 0 > * X]
  -       1     * <1 1 1 0 0 1 0.805356 0.552739 > * X]
  -     0.0908 * <0.661017 1 0 0 1 0 0.01219 0.007663 > * X]
  +     0.3153 * <0.61382 0 1 0 0 1 0.764924 0.909006 > * X]
  -       1     * <0.864407 1 1 0 0 0 0.883285 0.534853 > * X]
  +     0.4071 * <0.762712 1 1 0 0 1 0.342504 0.898872 > * X]
  -     0.0127 * <0.169492 1 0 0 1 0 0.695989 0.347706 > * X]
  +     0.5577 * <0.932203 1 1 0 0 0 0.23326 0.569199 > * X]
  -     0.5935 * <0.322034 1 1 0 0 0 0.980014 0.459525 > * X]
  -     0.0661 * <0.983051 0 0 0 1 0 0.839921 0.389837 > * X]
  -     0.1315 * <0.881356 1 0 1 0 1 0.809496 0.328531 > * X]
  -     0.1294 * <0.881356 0 0 0 1 0 0.72011 0.491818 > * X]
  -     0.0477 * <0.389831 1 0 1 0 0 0.886238 0.443296 > * X]
  -       1     * <0.983051 0 1 0 0 0 0.777621 0.401834 > * X]
  -     0.0523 * <0.237288 0 1 0 0 0 0.903705 0.152428 > * X]
  +       1     * <0.610169 1 1 0 0 1 0.839376 0.892983 > * X]
  -     0.052  * <0.440678 0 0 1 0 1 0.630826 0.334571 > * X]
  -     0.0228 * <0.474576 1 0 1 0 1 0.065506 0.119499 > * X]
  +     0.8117 * <0.713664 1 0 0 0 0 0.736816 0.737114 > * X]
  -     0.0374 * <0.135593 1 0 0 1 0 0.98124 0.13424 > * X]
  -     0.1061 * <0.610169 0 0 1 0 1 0.951431 0.302781 > * X]
  -     0.0521 * <0.220339 0 0 1 0 0 0.269683 0.177977 > * X]
  -     0.0226 * <0.186441 1 0 1 0 1 0.733783 0.297711 > * X]
  +       1     * <0.677966 0 1 0 0 0 0.346215 0.636348 > * X]
  -       1     * <0.830508 1 1 0 0 1 0.605589 0.25645 > * X]
  -       1     * <0.610169 1 1 0 0 0 0.85459 0.431834 > * X]
  -     0.1818 * <0.559322 0 0 1 0 0 0.945399 0.638038 > * X]
  -       1     * <0.847458 0 1 0 0 1 0.830361 0.10009 > * X]
  -     0.0525 * <0.474576 1 0 1 0 0 0.319177 0.346752 > * X]
  +       1     * <0.670865 0 1 0 0 1 0.400108 0.662388 > * X]
  -     0.7326 * <0.355932 0 1 0 0 1 0.189168 0.286149 > * X]
  -     0.7547

Number of support vectors: 70
```

drugC, drugX	

```
         0.2137 * <0.915254 0 0 0 1 0 0.69118 0.951377 > * X]
   +     0.1663 * <0.355932 1 0 1 0 1 0.069416 0.437807 > * X]
   -     0.5542 * <0.898305 1 0 1 0 0 0.572153 0.846535 > * X]
   +     0.2174 * <0.745763 0 0 0 1 0 0.965723 0.728525 > * X]
   +     0.1118 * <0.474576 1 0 0 1 1 0.097722 0.366145 > * X]
   +     0.4642 * <1 1 0 1 0 1 0.726579 0.769033 > * X]
   -     0.6662 * <0.135355 1 0 1 0 0 0.099164 0.464699 > * X]
   +     0.0952 * <0.135593 1 0 0 1 1 0.718263 0.601295 > * X]
   +     0.3381 * <0.40884 0 0 1 0 1 0.034861 0.516017 > * X]
   -     0.6958 * <0.288136 0 0 1 0 0 0.582704 0.924171 > * X]
   -     0.5975 * <0.016949 1 0 1 0 0 0.613438 0.700465 > * X]
   -     0.5428 * <0.134716 0 0 1 0 0 0.089346 0.832421 > * X]
   +     0.2335 * <0.254237 0 0 0 1 0 0.004514 0.469247 > * X]
   -     0.4957 * <0.131826 1 0 1 0 0 0.08465 0.922506 > * X]
   -     0.1645 * <0.891004 0 0 1 0 0 0.688248 0.864685 > * X]
   -     0.1731 * <0.542373 0 0 1 0 0 0.100041 0.562159 > * X]
   +     0.2611 * <0.830508 1 0 0 1 0 0.0314 0.77012 > * X]
   -     0.1784 * <0.542373 0 0 1 0 0 0.954858 0.758451 > * X]
   +     0.2332 * <0.915306 0 0 1 0 1 0.553635 0.871275 > * X]
   -     0.5414 * <0.484045 1 0 1 0 0 0.804034 0.910414 > * X]
   +     0.0954 * <0.047864 0 0 0 1 1 0.508355 0.745426 > * X]
   +     0.0803 * <0.864407 0 0 0 1 1 0.280797 0.926781 > * X]
   -     0.5569 * <0.542373 0 0 1 0 0 1 0.939079 > * X]
   +     0.0008 * <0.359884 1 0 1 0 1 0.269573 0.452286 > * X]
   +     0.2516 * <0.118644 1 0 0 1 0 0.091327 0.415772 > * X]
   +     1      * <0.268087 0 0 1 0 0 0.525421 0.759926 > * X]
   +     0.0262 * <0.40678 1 0 1 0 1 0.264732 0.391226 > * X]
   +     0.0086 * <0.338983 1 0 0 1 1 0.059244 0.781766 > * X]
   +     0.1357 * <0.322034 0 0 1 0 1 0.821884 0.733845 > * X]
   -     0.2193 * <0.134201 0 0 1 0 0 0.111044 0.410388 > * X]
   +     0.4934 * <0.084746 0 0 1 0 1 0.785209 0.826222 > * X]
   +     0.3352 * <0.536645 1 0 1 0 1 0.067215 0.900802 > * X]
   -     0.6743 * <0.198107 0 0 1 0 0 0.509667 0.606219 > * X]
   +     0.3027 * <0.966102 0 0 1 0 1 0.65279 0.531874 > * X]
   +     0.3194 * <0.576271 1 0 1 0 1 0.026028 0.293093 > * X]
   +     0.0915 * <0.118644 0 0 0 1 0 0.44642 0.980909 > * X]
   +     0.0959 * <0.033898 1 0 0 1 1 0.561062 0.780678 > * X]
   +     0.1107 * <0.050847 0 0 0 1 1 0.134882 0.723538 > * X]
   -     0.0447 * <0.542373 1 0 1 0 0 0.604061 0.609812 > * X]
   +     0.1098 * <0.856467 0 0 0 1 1 0.645401 0.635978 > * X]
   +     0.0753 * <0.542373 0 0 0 1 1 0.067358 0.983937 > * X]
   +     0.0988 * <0.677966 1 0 0 1 1 0.022764 0.838336 > * X]
   +     0.219  * <0.372881 1 0 1 0 1 0.600545 0.79034 > * X]
   -     0.4755 * <0.186441 0 0 1 0 0 0.196604 0.347974 > * X]
   +     0.4375 * <0.915254 1 1 0 0 1 0.495503 0.905013 > * X]
   +     0.2023 * <0.152542 0 0 0 1 0 0.771359 0.93595 > * X]
   -     0.4132 * <0.843817 0 0 1 0 0 0.864482 0.863815 > * X]
   +     0.0455 * <0.2039 0 0 0 1 0 0.740929 0.666114 > * X]
   +     0.1133 * <0.644068 1 0 0 1 0 0.365678 0.428505 > * X]
   +     0.1147 * <0.288136 0 0 0 1 0 0.124293 0.894355 > * X]
   -     0.9107 * <0.966102 1 0 1 0 0 0.011748 0.912743 > * X]
   +     0.2028 * <0.338983 1 0 1 0 1 0.467239 0.915152 > * X]
   +     0.209  * <0.711864 0 0 0 1 0 0.242317 0.36658 > * X]
   +     0.2668 * <0.779661 1 0 0 1 0 0.618747 0.985242 > * X]
   +     0.2009 * <0.881356 1 0 0 1 1 0.875813 0.965248 > * X]
   -     0.8379 * <0.924804 0 0 1 0 0 0.111872 0.910781 > * X]
   +     0.2666 * <0 1 0 0 1 0 0.359171 0.848108 > * X]
   +     0.0366 * <0.40678 0 0 0 1 1 0.043816 0.556822 > * X]
   +     0.3371 * <0.779661 0 0 1 0 1 0.057395 0.856942 > * X]
   +     0.124  * <0.576271 0 0 1 0 1 0.194274 0.359227 > * X]
   +     0.4863

Number of support vectors: 60
```

drugC, drugA	
| | ```
    0.0588 * <0.0813 0 1 0 0 0 0.132196 0.689262 > * X]
+       0.1475 * <0.338983 0 1 0 0 0 0.933814 0.793729 > * X]
+       0.168  * <0.194321 1 1 0 0 1 0.566581 0.587597 > * X]
-       0.2942 * <0.843817 0 0 1 0 0 0.864482 0.863815 > * X]
+       0.0513 * <0.559322 1 1 0 0 1 0.679558 0.897015 > * X]
-       0.4352 * <0.016949 1 0 1 0 0 0.613438 0.700465 > * X]
+       0.1493 * <0.078372 0 1 0 0 0 0.865221 0.615792 > * X]
+       0.4192 * <0.084746 0 1 0 0 0 0.978201 0.983435 > * X]
+       0.4016 * <0.067797 0 1 0 0 0 0.042446 0.314727 > * X]
+       0.2173 * <0.389831 0 1 0 0 1 0.590252 0.749105 > * X]
-       0.3469 * <0.898305 1 0 1 0 0 0.572153 0.846535 > * X]
-       0.4518 * <0.542373 0 0 1 0 0 1 0.939079 > * X]
-       0.1158 * <0.288136 0 0 1 0 0 0.582704 0.924171 > * X]
+       0.0239 * <0.152542 1 1 0 0 1 0.285667 0.747984 > * X]
-       0.3716 * <0.134716 0 0 1 0 0 0.089346 0.832421 > * X]
+       0.3051 * <0.186441 0 1 0 0 1 0.711716 0.728056 > * X]
+       0.455  * <0.576271 1 1 0 0 1 0 1 > * X]
+       0.054  * <0.458905 1 1 0 0 0 0.572185 0.498801 > * X]
+       0.0448 * <0.159216 0 1 0 0 0 0.484092 0.379515 > * X]
-       0.057  * <0.891004 0 0 1 0 0 0.688248 0.864685 > * X]
+       0.1562 * <0.237288 1 1 0 0 0 0.316007 0.478784 > * X]
-       0.0625 * <0.198107 0 0 1 0 0 0.509667 0.606219 > * X]
-       0.4537 * <0.135355 1 0 1 0 0 0.099164 0.464699 > * X]
-       0.0452 * <0.542373 0 0 1 0 0 0.100041 0.562159 > * X]
+       0.061  * <0.394008 0 1 0 0 0 0.588525 0.877535 > * X]
+       0.3415 * <0.508475 0 1 0 0 0 0.120368 0.378091 > * X]
+       0.4049 * <0.457627 1 1 0 0 1 0.90372 0.789429 > * X]
-       0.132  * <0.134201 0 0 1 0 0 0.111044 0.410388 > * X]
+       0.1057 * <0.478197 1 1 0 0 0 0.796409 0.789143 > * X]
-       0.423  * <0.186441 0 0 1 0 0 0.196604 0.347974 > * X]
+       0.0899 * <0.288136 0 1 0 0 1 0.566338 0.842636 > * X]
+       0.1611 * <0.515421 1 1 0 0 0 0.144772 0.413734 > * X]
+       0.3563 * <0.435944 1 1 0 0 0 0.775375 0.894573 > * X]
-       0.0761 * <0.542373 0 0 1 0 0 0.954858 0.758451 > * X]
-       0.61   * <0.966102 1 0 1 0 0 0.011748 0.912743 > * X]
+       0.4058 * <0.59322 1 1 0 0 0 0.045761 0.822725 > * X]
-       0.5537 * <0.924804 0 0 1 0 0 0.111872 0.910781 > * X]
+       0.0605 * <0.382581 0 1 0 0 0 0.149398 0.726236 > * X]
-       0.3404 * <0.131826 1 0 1 0 0 0.08465 0.922506 > * X]
+       0.1503 * <0.132263 0 1 0 0 0 0.344015 0.879332 > * X]
-       0.3795 * <0.484045 1 0 1 0 0 0.804034 0.910414 > * X]
+       0.0967 * <0.508199 1 1 0 0 0 0.233816 0.380848 > * X]
+       0.2629 * <0.288136 1 1 0 0 1 0.074721 0.603437 > * X]
+       0.1097

Number of support vectors: 43
``` |

| drugC, drugB | ```
-       0.0064 * <0.542373 1 0 1 0 0 0.604061 0.609812 > * X]
+       0.2647 * <0.898305 0 1 0 0 1 0.695251 0.502527 > * X]
-       0.3982 * <0.542373 0 0 1 0 0 1 0.939079 > * X]
-       0.386  * <0.135355 1 0 1 0 0 0.099164 0.464699 > * X]
+       0.1322 * <0.762712 0 1 0 0 0 0.758898 0.671937 > * X]
-       0.3638 * <0.186441 0 0 1 0 0 0.196604 0.347974 > * X]
-       0.0499 * <0.542373 0 0 1 0 0 0.100041 0.562159 > * X]
+       0.3695 * <0.725997 0 1 0 0 0 0.754137 0.764612 > * X]
-       0.0719 * <0.542373 0 0 1 0 0 0.954858 0.758451 > * X]
+       0.4553 * <0.932203 1 1 0 0 0 0.23326 0.569199 > * X]
-       0.0853 * <0.288136 0 0 1 0 0 0.582704 0.924171 > * X]
-       0.2903 * <0.843817 0 0 1 0 0 0.864482 0.863815 > * X]
+       0.2555 * <0.728814 0 1 0 0 1 0.931465 0.686025 > * X]
-       0.2805 * <0.131826 1 0 1 0 0 0.08465 0.922506 > * X]
-       0.3068 * <0.134716 0 0 1 0 0 0.089346 0.832421 > * X]
-       0.0741 * <0.891004 0 0 1 0 0 0.688248 0.864685 > * X]
-       0.1041 * <0.134201 0 0 1 0 0 0.111044 0.410388 > * X]
-       0.521  * <0.924804 0 0 1 0 0 0.111872 0.910781 > * X]
+       0.0318 * <0.958323 1 1 0 0 0 0.50491 0.461567 > * X]
+       0.315  * <1 1 1 0 0 0 0.543509 0.916089 > * X]
-       0.0523 * <0.198107 0 0 1 0 0 0.509667 0.606219 > * X]
-       0.5675 * <0.966102 1 0 1 0 0 0.011748 0.912743 > * X]
+       0.1033 * <0.670865 0 1 0 0 1 0.400108 0.662388 > * X]
+       0.0599 * <0.896975 1 1 0 0 1 0.34466 0.616431 > * X]
+       0.4143 * <0.745763 1 1 0 0 0 0.79868 0.6452 > * X]
+       0.0483 * <0.749543 1 1 0 0 0 0.453025 0.854301 > * X]
-       0.352  * <0.898305 1 0 1 0 0 0.572153 0.846535 > * X]
+       0.5484 * <0.677966 0 1 0 0 0 0.346215 0.636348 > * X]
+       0.2053 * <0.61382 0 1 0 0 1 0.764924 0.909006 > * X]
+       0.0393 * <0.932203 1 1 0 0 0 0.400208 0.453954 > * X]
-       0.3424 * <0.484045 1 0 1 0 0 0.804034 0.910414 > * X]
+       0.3222 * <0.762712 1 1 0 0 1 0.342504 0.898872 > * X]
+       0.3195 * <0.966102 1 1 0 0 1 0.558874 0.502527 > * X]
+       0.0246 * <0.847458 1 1 0 0 1 0.341971 0.602701 > * X]
+       0.4384 * <0.610169 1 1 0 0 1 0.839376 0.892983 > * X]
-       0.3671 * <0.016949 1 0 1 0 0 0.613438 0.700465 > * X]
+       0.2721 * <0.67971 0 1 0 0 1 0.400428 0.825792 > * X]
+       0.0013

Number of support vectors: 37
``` |

drugX, drugA	
| | ```
-        0.0852 * <0.288136 0 0 0 1 0 0.124293 0.894355 > * X]
-        0.1956 * <0.40884 0 0 1 0 1 0.034861 0.516017 > * X]
-        0.1999 * <0.047864 0 0 0 1 1 0.508355 0.745426 > * X]
-        0.0116 * <0.881356 1 0 0 1 1 0.558462 0.933407 > * X]
+        0.0771 * <0.0813 0 1 0 0 0 0.132196 0.689262 > * X]
-        0.0492 * <0.2039 0 0 0 1 0 0.740929 0.666114 > * X]
-        0.14   * <0.338983 1 0 1 0 1 0.467239 0.915152 > * X]
-        0.3469 * <1 1 0 1 0 1 0.726579 0.769033 > * X]
+        0.5691 * <0.59322 1 1 0 0 0 0.045761 0.822725 > * X]
-        0.1782 * <0.677966 1 0 0 1 1 0.022764 0.838336 > * X]
+        0.3334 * <0.559322 1 1 0 0 1 0.679558 0.897015 > * X]
-        0.2022 * <0.711864 0 0 0 1 0 0.242317 0.36658 > * X]
-        0.2935 * <0.576271 1 0 1 0 1 0.026028 0.293093 > * X]
-        0.1599 * <0.050847 0 0 0 1 1 0.134882 0.723538 > * X]
-        0.3893 * <0.084746 0 0 1 0 1 0.785209 0.826222 > * X]
-        1      * <0.915254 1 1 0 0 1 0.495503 0.905013 > * X]
+        0.2208 * <0.508199 1 1 0 0 0 0.233816 0.380848 > * X]
+        0.2104 * <0.194321 1 1 0 0 1 0.566581 0.587597 > * X]
+        0.2071 * <0.338983 0 1 0 0 0 0.933814 0.793729 > * X]
+        0.0349 * <0.283538 1 1 0 0 1 0.193516 0.540045 > * X]
-        0.3279 * <0.881356 1 0 0 1 1 0.875813 0.965248 > * X]
-        0.1206 * <0.542373 0 0 0 1 1 0.067358 0.983937 > * X]
+        0.2151 * <0.132263 0 1 0 0 0 0.344015 0.879332 > * X]
+        0.5022 * <0.508475 0 1 0 0 0 0.120368 0.378091 > * X]
-        0.2731 * <0.118644 1 0 0 1 0 0.091327 0.415772 > * X]
-        0.5727 * <0.268087 0 0 1 0 0 0.525421 0.759926 > * X]
-        0.2491 * <0.830508 1 0 0 1 0 0.0314 0.77012 > * X]
-        0.1881 * <0.135593 1 0 0 1 1 0.718263 0.601295 > * X]
-        0.2742 * <0 1 0 0 1 0 0.359171 0.848108 > * X]
+        0.372  * <0.288136 1 1 0 0 1 0.074721 0.603437 > * X]
-        0.0926 * <0.915306 0 0 1 0 1 0.553635 0.871275 > * X]
-        0.255  * <0.254237 0 0 0 1 0 0.004514 0.469247 > * X]
-        0.1728 * <0.033898 1 0 0 1 1 0.561062 0.780678 > * X]
-        0.1375 * <0.372881 1 0 1 0 1 0.600545 0.79034 > * X]
+        0.0707 * <0.394008 0 1 0 0 0 0.588525 0.877535 > * X]
+        0.0858 * <0.576271 1 1 0 0 1 0.096022 0.700013 > * X]
+        0.5038 * <0.186441 0 1 0 0 1 0.711716 0.728056 > * X]
-        0.0294 * <0.322034 0 0 1 0 1 0.821884 0.733845 > * X]
+        0.1856 * <0.237288 1 1 0 0 0 0.316007 0.478784 > * X]
-        0.2565 * <0.779661 1 0 0 1 0 0.618747 0.985242 > * X]
+        0.5877 * <0.067797 0 1 0 0 0 0.042446 0.314727 > * X]
-        0.1204 * <0.644068 1 0 0 1 0 0.365678 0.428505 > * X]
+        0.1774 * <0.515421 1 1 0 0 0 0.144772 0.413734 > * X]
+        0.1265 * <0.288136 0 1 0 0 1 0.566338 0.842636 > * X]
+        0.8121 * <0.576271 1 1 0 0 1 0 1 > * X]
+        0.4507 * <0.389831 0 1 0 0 1 0.590252 0.749105 > * X]
-        0.2115 * <0.536645 1 0 1 0 1 0.067215 0.900802 > * X]
+        0.2201 * <0.078372 0 1 0 0 0 0.865221 0.615792 > * X]
+        0.6315 * <0.457627 1 1 0 0 1 0.90372 0.789429 > * X]
+        0.0622 * <0.458905 1 1 0 0 0 0.572185 0.498801 > * X]
+        0.0648 * <0.159216 0 1 0 0 0 0.484092 0.379515 > * X]
+        0.4467 * <0.435944 1 1 0 0 0 0.775375 0.894573 > * X]
-        0.0884 * <0.118644 0 0 0 1 0 0.44642 0.980909 > * X]
+        0.0705 * <0.382581 0 1 0 0 0 0.149398 0.726236 > * X]
-        0.1993 * <0.779661 0 0 1 0 1 0.057395 0.856942 > * X]
-        0.2029 * <0.856467 0 0 0 1 1 0.645401 0.635978 > * X]
-        0.0855 * <0.576271 0 0 1 0 1 0.194274 0.359227 > * X]
-        0.1151 * <0.864407 0 0 0 1 1 0.280797 0.926781 > * X]
+        0.4869 * <0.585272 1 1 0 0 1 0.461584 0.865236 > * X]
-        0.1754 * <0.915254 0 0 0 1 0 0.69118 0.951377 > * X]
-        0.2076 * <0.474576 1 0 0 1 1 0.097722 0.366145 > * X]
-        0.2279 * <0.152542 0 0 0 1 0 0.771359 0.93595 > * X]
-        0.0878 * <0.40678 0 0 0 1 1 0.043816 0.556822 > * X]
-        0.1073 * <0.355932 1 0 1 0 1 0.069416 0.437807 > * X]
+        0.6161 * <0.084746 0 1 0 0 0 0.978201 0.983435 > * X]
-        0.2384 * <0.966102 0 0 1 0 1 0.65279 0.531874 > * X]
-        0.2295 * <0.745763 0 0 0 1 0 0.965723 0.728525 > * X]
+        0.2085 * <0.478197 1 1 0 0 0 0.796409 0.789143 > * X]
-        0.0514 * <0.338983 1 0 0 1 1 0.059244 0.781766 > * X]
-        0.365

Number of support vectors: 69
``` |

drugX, drugB	
| | ```
       0.3018 *  <0.896975 1 1 0 0 1 0.34466 0.616431 > * X]
-      0.0388 *  <0.881356 1 0 0 1 1 0.558462 0.933407 > * X]
+      0.1567 *  <0.670865 0 1 0 0 1 0.400108 0.662388 > * X]
-      0.1927 *  <0.474576 1 0 0 1 1 0.097722 0.366145 > * X]
-      0.192  *  <0 1 0 0 1 0 0.359171 0.848108 > * X]
+      0.0451 *  <0.932203 1 1 0 0 0 0.400208 0.453954 > * X]
+      0.5516 *  <0.745763 1 1 0 0 0 0.79868 0.6452 > * X]
-      0.1158 *  <0.915306 0 0 1 0 1 0.553635 0.871275 > * X]
-      0.1359 *  <0.864407 0 0 0 1 1 0.280797 0.926781 > * X]
-      0.2364 *  <0.856467 0 0 0 1 1 0.645401 0.635978 > * X]
-      0.1046 *  <0.542373 0 0 0 1 1 0.067358 0.983937 > * X]
-      0.0669 *  <0.288136 0 0 0 1 0 0.124293 0.894355 > * X]
-      0.256  *  <0.779661 1 0 0 1 0 0.618747 0.985242 > * X]
-      0.1733 *  <0.254237 0 0 0 1 0 0.004514 0.469247 > * X]
-      0.0243 *  <0.2039 0 0 0 1 0 0.740929 0.666114 > * X]
-      0.1271 *  <0.372881 1 0 1 0 1 0.600545 0.79034 > * X]
+      0.3935 *  <0.728814 0 1 0 0 1 0.931465 0.686025 > * X]
-      0.1377 *  <0.40884 0 0 1 0 1 0.034861 0.516017 > * X]
-      0.1108 *  <0.050847 0 0 0 1 1 0.134882 0.723538 > * X]
-      1      *  <0.915254 1 1 0 0 1 0.495503 0.905013 > * X]
-      0.2665 *  <0.966102 0 0 1 0 1 0.65279 0.531874 > * X]
-      0.0484 *  <0.322034 0 0 1 0 1 0.821884 0.733845 > * X]
-      0.2233 *  <0.745763 0 0 0 1 0 0.965723 0.728525 > * X]
-      0.1785 *  <0.677966 1 0 0 1 1 0.022764 0.838336 > * X]
+      0.4462 *  <0.67971 0 1 0 0 1 0.400428 0.825792 > * X]
-      0.1574 *  <0.047864 0 0 0 1 1 0.508355 0.745426 > * X]
+      0.4685 *  <1 1 1 0 0 0 0.543509 0.916089 > * X]
+      0.0556 *  <0.958323 1 1 0 0 0 0.50491 0.461567 > * X]
-      0.1253 *  <0.644068 1 0 0 1 0 0.365678 0.428505 > * X]
-      0.0056 *  <0.338983 1 0 0 1 1 0.059244 0.781766 > * X]
+      0.486  *  <0.725997 0 1 0 0 0 0.754137 0.764612 > * X]
+      0.731  *  <0.677966 0 1 0 0 0 0.346215 0.636348 > * X]
-      0.3902 *  <1 1 0 1 0 1 0.726579 0.769033 > * X]
-      0.0061 *  <0.40678 1 0 1 0 1 0.264732 0.391226 > * X]
-      0.2342 *  <0.830508 1 0 0 1 0 0.0314 0.77012 > * X]
-      0.1968 *  <0.779661 0 0 1 0 1 0.057395 0.856942 > * X]
-      0.2013 *  <0.711864 0 0 0 1 0 0.242317 0.36658 > * X]
+      0.1921 *  <0.762712 0 1 0 0 0 0.758898 0.671937 > * X]
-      0.0543 *  <0.118644 0 0 0 1 0 0.44642 0.980909 > * X]
-      0.0735 *  <0.40678 0 0 0 1 1 0.043816 0.556822 > * X]
-      0.0442 *  <0.355932 1 0 1 0 1 0.069416 0.437807 > * X]
+      0.652  *  <0.966102 1 1 0 0 1 0.558874 0.502527 > * X]
+      1      *  <0.762712 1 1 0 0 1 0.342504 0.898872 > * X]
-      0.2887 *  <0.576271 1 0 1 0 1 0.026028 0.293093 > * X]
-      0.1678 *  <0.135593 1 0 0 1 1 0.718263 0.601295 > * X]
+      0.326  *  <0.61382 0 1 0 0 1 0.764924 0.909006 > * X]
-      0.1175 *  <0.033898 1 0 0 1 1 0.561062 0.780678 > * X]
-      0.1964 *  <0.915254 0 0 0 1 0 0.69118 0.951377 > * X]
-      0.1734 *  <0.152542 0 0 0 1 0 0.771359 0.93595 > * X]
-      0.2979 *  <0.084746 0 0 1 0 1 0.785209 0.826222 > * X]
-      0.1849 *  <0.536645 0 1 0 1 0 0.067215 0.900802 > * X]
-      0.1962 *  <0.118644 1 0 0 1 0 0.091327 0.415772 > * X]
+      0.6119 *  <0.932203 1 1 0 0 0 0.23326 0.569199 > * X]
+      0.0185 *  <0.749543 1 1 0 0 0 0.453025 0.854301 > * X]
-      0.0106 *  <0.59322 0 0 0 1 1 0.257008 0.484138 > * X]
-      0.095  *  <0.338983 1 0 1 0 1 0.467239 0.915152 > * X]
-      0.4558 *  <0.268087 0 0 1 0 0 0.525421 0.759926 > * X]
+      0.8674 *  <0.610169 1 1 0 0 1 0.839376 0.892983 > * X]
+      0.4289 *  <0.898305 0 1 0 0 1 0.695251 0.502527 > * X]
-      0.3373 *  <0.881356 1 0 0 1 1 0.875813 0.965248 > * X]
-      0.0931 *  <0.576271 0 0 1 0 1 0.194274 0.359227 > * X]
-      0.442

Number of support vectors: 61
``` |

| drugA, drugB | ```
     1      * <0.681855 0 1 0 0 0 0.585715 0.769667 > * X]
 -       1        * <0.288136 0 1 0 0 1 0.566338 0.842636 > * X]
 +       1        * <0.861442 1 1 0 0 1 0.342797 0.623951 > * X]
 -       1        * <0.378661 0 1 0 0 0 0.824897 0.760304 > * X]
 -     0.9053 * <0.457627 1 1 0 0 1 0.90372 0.789429 > * X]
 +       1        * <0.847458 1 1 0 0 1 0.341971 0.602701 > * X]
 -       1        * <0.59322 1 1 0 0 0 0.045761 0.822725 > * X]
 -       1        * <0.468226 1 1 0 0 0 0.63048 0.563932 > * X]
 -     0.6626 * <0.394949 0 1 0 0 0 0.484231 0.838427 > * X]
 +       1        * <0.713664 0 1 0 0 0 0.736816 0.737114 > * X]
 +       1        * <0.677966 0 1 0 0 0 0.346215 0.636348 > * X]
 +     0.7384 * <0.857877 1 1 0 0 1 0.3488 0.609129 > * X]
 +       1        * <0.762712 1 1 0 0 0 0.415667 0.802976 > * X]
 -     0.2989 * <0.338983 0 1 0 0 0 0.933814 0.793729 > * X]
 -     0.5671 * <0.186441 0 1 0 0 1 0.711716 0.728056 > * X]
 +     0.8417 * <0.725997 0 1 0 0 0 0.754137 0.764612 > * X]
 -     0.7785 * <0.394008 0 1 0 0 0 0.588525 0.877535 > * X]
 +       1        * <0.617403 0 1 0 0 1 0.787382 0.706853 > * X]
 +     0.5993 * <0.67971 0 1 0 0 1 0.400428 0.825792 > * X]
 +     0.8031 * <0.932203 1 1 0 0 0 0.23326 0.569199 > * X]
 -       1        * <0.576271 1 1 0 0 1 0.096022 0.700013 > * X]
 -     0.9624 * <0.585272 1 1 0 0 1 0.461584 0.865236 > * X]
 -     0.0286 * <0.384467 0 1 0 0 0 0.363582 0.559772 > * X]
 -     0.2705 * <0.382581 0 1 0 0 0 0.149398 0.726236 > * X]
 -       1        * <0.508475 0 1 0 0 0 0.120368 0.378091 > * X]
 +       1        * <0.670865 0 1 0 0 1 0.400108 0.662388 > * X]
 -       1        * <0.478197 1 1 0 0 0 0.796409 0.789143 > * X]
 -     0.743  * <0.542373 1 1 0 0 0 0.159518 0.57106 > * X]
 +     0.3405 * <0.748389 1 1 0 0 0 0.784089 0.660266 > * X]
 -     0.4696 * <0.365991 0 1 0 0 0 0.568785 0.57871 > * X]
 -     0.2363 * <0.576271 1 1 0 0 1 0.049753 0.729937 > * X]
 +       1        * <0.762712 1 1 0 0 1 0.342504 0.898872 > * X]
 -     0.1632 * <0.559322 1 1 0 0 1 0.679558 0.897015 > * X]
 -     0.1459 * <0.576271 1 1 0 0 1 0 1 > * X]
 +     0.1363 * <0.639468 0 1 0 0 1 0.684835 0.932431 > * X]
 -       1        * <0.389831 0 1 0 0 1 0.590252 0.749105 > * X]
 +       1        * <0.745763 1 1 0 0 0 0.79868 0.6452 > * X]
 +     0.0407 * <0.966102 1 1 0 0 1 0.558874 0.502527 > * X]
 -       1        * <0.544235 1 1 0 0 0 0.429308 0.742749 > * X]
 +     0.0085 * <0.747018 1 1 0 0 0 0.48851 0.716228 > * X]
 +       1        * <0.610169 1 1 0 0 1 0.839376 0.892983 > * X]
 -     0.6788 * <0.435944 1 1 0 0 0 0.775375 0.894573 > * X]
 -     0.2904 * <0.458905 1 1 0 0 0 0.572185 0.498801 > * X]
 -     0.3953 * <0.508199 1 1 0 0 0 0.233816 0.380848 > * X]
 +       1        * <0.61382 0 1 0 0 1 0.764924 0.909006 > * X]
 -       1        * <0.56616 1 1 0 0 1 0.648782 0.800363 > * X]
 -       1        * <0.592004 1 1 0 0 1 0.284338 0.851882 > * X]
 +       1        * <0.749543 1 1 0 0 0 0.453025 0.854301 > * X]
 +     0.0878 * <0.622698 0 1 0 0 1 0.826505 0.724931 > * X]
 +       1        * <0.7459 1 1 0 0 0 0.787492 0.644718 > * X]
 +       1        * <0.762712 1 1 0 0 0 0.370568 0.64896 > * X]
 -     0.2632


Number of support vectors: 51
``` |

- **RBF**: Se obtuvieron las siguientes ecuaciones de los hiperplanos que separan a dos clases

Clases	Ecuación

drugY, drugC	

```
-      1    * <0.728814 0 0 1 0 0 0.979469 0.222568 > * X]
-      1    * <0.152542 0 1 0 0 1 0.375049 0.25302 > * X]
-      1    * <0.728814 1 1 0 0 0 0.679287 0.342586 > * X]
-      1    * <0.762712 1 0 1 0 0 0.699786 0.52217 > * X]
-      1    * <0.932203 0 0 0 1 0 0.568908 0.257404 > * X]
+      1    * <0.05248 0 0 1 0 0 0.556604 0.005932 > * X]
+      1    * <0.440678 1 0 1 0 0 0.673086 0.827209 > * X]
+      1    * <0.484045 1 0 1 0 0 0.804034 0.910414 > * X]
-      1    * <0.627119 1 0 1 0 1 0.411676 0.002025 > * X]
-      1    * <0.576271 0 0 0 1 0 0.731188 0.476793 > * X]
-      1    * <0.40678 0 0 0 1 1 0.780594 0.451026 > * X]
+      1    * <0.494275 1 0 1 0 0 0.644255 0.640135 > * X]
+      1    * <0.59322 0 0 0 1 1 0.604822 0.383998 > * X]
-      1    * <0.322034 0 1 0 0 1 0.423368 0.246963 > * X]
+      1    * <0.542373 0 0 1 0 0 0.34819 0.586393 > * X]
+      1    * <0.126288 1 0 1 0 0 0.097145 0.839229 > * X]
-      1    * <0.983051 0 1 0 0 0 0.777621 0.401834 > * X]
+      1    * <0.610169 1 1 0 0 0 0.85459 0.431834 > * X]
-      1    * <0.40678 0 0 1 0 1 0.376196 0.143493 > * X]
-      1    * <1 0 0 1 0 0 0.73886 0.290313 > * X]
-      1    * <0.474576 1 0 1 0 0 0.065506 0.119459 > * X]
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-      1    * <0.542373 0 0 1 0 0 0.586595 0.662979 > * X]
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-      1    * <0.322034 1 0 0 1 0 0.258629 0.113961 > * X]
-      1    * <0.220339 1 0 0 1 0 0.212207 0.026152 > * X]
+      1    * <0.062426 1 0 1 0 0 0.36392 0.736943 > * X]
+      1    * <0.186611 0 0 1 0 0 0.300058 0.462224 > * X]
-      1    * <0.355932 0 1 0 0 1 0.189168 0.286149 > * X]
+      1    * <0.121495 1 0 1 0 0 0.173022 0.516236 > * X]
+      1    * <0.355932 0 0 0 1 0 0.159258 0.227487 > * X]
-      1    * <0.542373 1 0 1 0 1 0.87793 0.087876 > * X]
+      1    * <0.238905 0 0 1 0 0 0.408561 0.759595 > * X]
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+      1    * <0.220339 0 0 1 0 0 0.910881 0.397015 > * X]
-      1    * <0.779661 0 0 1 0 0 0.149340 0.10365 > * X]
-      1    * <0 0 1 0 0 1 0.497321 0.36233 > * X]
-      1    * <0.271186 1 1 0 0 0 0.608171 0.073252 > * X]
-      1    * <0.830508 0 0 1 0 1 0.136435 0.025215 > * X]
-      1    * <0.546212 1 0 1 0 0 0.396301 0.757193 > * X]
-      1    * <0.542373 1 0 1 0 1 0.700602 0.107921 > * X]
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-      1    * <0.07969 1 0 1 0 0 0.350104 0.705023 > * X]
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-      1    * <0.118644 1 0 1 0 0 0.066946 0.74616 > * X]
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+      1    * <0.186441 0 0 1 0 0 0.196604 0.347974 > * X]
-      1    * <0.542373 1 0 1 0 0 0.604061 0.609812 > * X]
+      1    * <0.694915 0 0 1 0 0 0.880567 0.892782 > * X]
-      1    * <0.610169 0 0 1 0 1 0.951431 0.302781 > * X]
-      1    * <0.79661 1 0 1 0 1 0.767506 0.159991 > * X]
-      1    * <0.508475 1 0 1 0 0 0.639917 0.367333 > * X]
+      1    * <0.576391 0 0 1 0 0 0.909503 0.900916 > * X]
+      1    * <0.035336 1 0 1 0 0 0.443006 0.839274 > * X]
+      1    * <0.626177 0 0 1 0 0 0.625652 0.81641 > * X]
+      1    * <0.891004 0 0 1 0 0 0.688248 0.864685 > * X]
-      1    * <0.728814 0 0 1 0 0 0.976784 0.502527 > * X]
-      1    * <0.016949 0 1 0 0 1 0.842836 0.5642 > * X]
-      1    * <0.850615 0 0 1 0 0 0.774490 0.872999 > * X]
-      1    * <0.474576 1 0 1 0 0 0.319177 0.346752 > * X]
-      1    * <0.457627 0 1 0 0 0 0.083506 0.089114 > * X]
-      1    * <0.138278 0 0 1 0 0 0.151768 0.585816 > * X]
-      1    * <0.864407 1 1 0 0 0 0.803285 0.534653 > * X]
-      1    * <0.40678 1 0 0 1 0 0.276334 0.303668 > * X]
-      1    * <0.881356 1 0 1 0 1 0.809496 0.320531 > * X]
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-   0.4207  * <0.440678 0 0 0 1 1 0.869003 0.281682 > * X]
-      1    * <0.525424 0 1 0 0 0 0.690601 0.038149 > * X]
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-      1    * <0.286362 0 0 1 0 0 0.440587 0.668276 > * X]
-      1    * <0.489357 1 0 1 0 0 0.650103 0.026934 > * X]
+      1    * <0.542373 0 0 1 0 0 0.573558 0.79554 > * X]
+      1    * <0.890305 1 0 1 0 0 0.572153 0.646535 > * X]
+      1    * <0.050847 0 1 0 0 0 0.972452 0.063247 > * X]
-   0.9198  * <0.131826 1 0 1 0 0 0.08465 0.922506 > * X]
-      1    * <0.389831 0 0 1 0 1 0.249021 0.000335 > * X]
-      1    * <0.457627 0 0 1 0 1 0.664925 0.101379 > * X]
+      1    * <0.087052 1 0 1 0 0 0.481464 0.829991 > * X]
-      1    * <0.169492 1 0 1 0 0 0.695989 0.347706 > * X]
-      1    * <0.135593 1 0 0 1 0 0.109087 0.204548 > * X]
-      1    * <0.237288 0 1 0 0 0 0.903705 0.152420 > * X]
-      1    * <0.711079 0 0 1 0 0 0.363367 0.702202 > * X]
+      1    * <0.542373 0 0 1 0 0 0.762028 0.764307 > * X]
-      1    * <0.305085 0 0 1 0 0 0.904849 0.0939 > * X]
+      1    * <0.561773 1 0 1 0 0 0.497783 0.712406 > * X]
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-      1    * <0.08773 1 0 1 0 0 0.173264 0.82595 > * X]
-      1    * <0.372081 1 1 0 1 0 0.504437 0.396898 > * X]
-      1    * <0.0295 1 0 1 0 0 0.330018 0.601767 > * X]
+      1    * <0.016949 1 0 1 0 0 0.413438 0.700465 > * X]
-      1    * <0.135355 1 0 1 0 0 0.099164 0.464699 > * X]
-      1    * <0.389831 1 0 1 0 0 0.886238 0.443296 > * X]
+      1    * <0.542373 0 0 1 0 0 0.752085 0.782581 > * X]
-      1    * <0.966102 1 0 1 0 0 0.011748 0.912743 > * X]
+      1    * <0.220339 0 0 1 0 0 0.269693 0.177977 > * X]
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+      1    * <0.186441 1 0 1 0 1 0.733783 0.297711 > * X]
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+      1    * <0.813559 1 0 1 0 0 0.292082 0.062761 > * X]
-      1    * <0.779661 0 1 0 0 0 0.331132 0.07961 > * X]
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-      1    * <0.726803 0 0 1 0 0 0.833506 0.752386 > * X]
-      1    * <0.728814 0 1 0 0 0 0.153289 0.148312 > * X]
+      1    * <0.79661 1 0 0 1 0 0.645901 0.427149 > * X]
+      1    * <0.234231 0 0 1 0 0 0.511768 0.579602 > * X]
+      1    * <0.152542 1 0 0 1 0 0.895261 0.219523 > * X]
+      1    * <0.207592 0 0 1 0 0 0.370486 0.417112 > * X]
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-      1    * <0.542373 0 0 1 0 0 0.54897 0.719764 > * X]
-      1    * <0.983051 0 0 1 0 0 0.839921 0.389037 > * X]
-      1    * <0.322034 1 1 0 0 0 0.980014 0.459525 > * X]
+   0.5009  * <0.62565 0 0 1 0 0 0.936669 0.91366 > * X]
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+      1    * <0.457627 1 0 1 0 0 0.646467 0.297125 > * X]
+      1    * <0.737469 0 0 1 0 0 0.699815 0.692763 > * X]
+      1    * <0.542373 1 0 1 0 0 0.497869 0.818555 > * X]
+      1    * <0.745763 0 0 1 0 0 0.354359 0.690995 > * X]
-   0.3303

Number of support vectors: 142
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drugY, drugX

```
    1   * <0.640572 1 0 0 1 0 0.162767 0.49618 > * X]
-   1   * <0.779661 0 0 1 0 0 0.149346 0.18365 > * X]
-   1   * <0.268167 0 0 1 0 0 0.525421 0.759926 > * X]
+   1   * <0.31116 0 0 1 0 1 0.654726 0.752230 > * X]
-   1   * <0.220339 1 0 0 1 0 0.212207 0.026152 > * X]
-   1   * <0.271106 1 1 0 0 1 0.975205 0.5337748 > * X]
-   1   * <0.856467 0 0 0 1 1 0.645401 0.635978 > * X]
-   1   * <0.440678 1 1 0 0 1 0.39960 0.391862 > * X]
-   1   * <0.830500 1 1 0 0 1 0.605589 0.25645 > * X]
-   1   * <0.830500 1 0 0 1 0 0.0314 0.77012 > * X]
+   1   * <0.330903 1 0 0 1 0 0.059244 0.781766 > * X]
-   1   * <0.322034 0 1 0 0 1 0.423368 0.246563 > * X]
-   1   * <0 1 1 0 0 1 0.209254 0.231955 > * X]
-   1   * <0.288136 0 1 0 0 1 0.361937 0.079493 > * X]
+   1   * <0.515306 0 0 1 0 1 0.553635 0.071275 > * X]
-   1   * <0.372861 0 1 0 0 1 0.745523 0.241291 > * X]
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-   1   * <0.694915 0 1 0 0 0 0.634496 0.159773 > * X]
-   1   * <0.779661 1 0 0 1 0 0.610747 0.905262 > * X]
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-   1   * <0.220339 0 0 0 1 0 0.910801 0.397015 > * X]
-   1   * <0.372881 1 0 1 0 1 0.584437 0.396898 > * X]
-   1   * <0.966102 1 0 1 0 0 0.11917 0.226517 > * X]
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-   1   * <0.423729 0 0 0 1 0 0.031151 0.513804 > * X]
+   1   * <0.576271 0 0 0 1 1 0.491352 0.904076 > * X]
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-   1   * <0.457627 0 0 1 0 1 0.664925 0.101379 > * X]
-   1   * <0.084746 0 0 1 0 1 0.785209 0.826222 > * X]
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+   1   * <0.135593 1 0 0 1 0 0.50124 0.13424 > * X]
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-   1   * <0.40678 0 0 1 0 1 0.376186 0.143493 > * X]
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Number of support vectors: 171
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drugY, drugA

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Number of support vectors: 169
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drugY, drugB

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-     1   * <0.644068 1 0 1 0 0 0.299161 0.115735 > * X]
-     1   * <0.66043 0 1 0 0 1 0.651251 0.825051 > * X]
+     1   * <0.711864 0 1 0 0 1 0.64159 0.933809 > * X]
-     1   * <0.271186 1 1 0 0 0 0.975205 0.533748 > * X]
*     1   * <0.913945 1 1 0 0 0 0.420644 0.490961 > * X]
+     1   * <0.847458 1 1 0 0 0 0.341971 0.602701 > * X]
-     1   * <0.728814 0 1 0 0 0 0.153289 0.148312 > * X]
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-     1   * <0.7459 1 1 0 0 0 0.787492 0.644718 > * X]
-     1   * <0.220339 0 0 0 1 0 0.910881 0.397015 > * X]
*     1   * <0.932203 0 0 0 1 0 0.568988 0.257404 > * X]
+     1   * <0.898305 1 1 0 0 0 0.571158 0.63632 > * X]
-     1   * <0.736927 0 1 0 0 1 0.914040 0.684727 > * X]
*     1   * <0.762712 1 0 0 0 0 0.559611 0.806379 > * X]
*     1   * <0.740309 1 1 0 0 0 0.784089 0.660266 > * X]
+     1   * <0.861442 1 1 0 0 0 0.342797 0.623951 > * X]
-     1   * <0.500475 1 0 1 0 0 0.639917 0.367333 > * X]
-     1   * <0.560463 1 1 0 0 0 0.550569 0.560824 > * X]
-     1   * <0.68169 0 1 0 0 1 0.495451 0.793028 > * X]
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*     1   * <0 1 1 0 0 1 0.209254 0.231955 > * X]
-     1   * <0.457627 0 1 0 0 0 0.083506 0.009114 > * X]
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-     1   * <0.694915 0 1 0 0 0 0.634496 0.159773 > * X]
-     1   * <0.135593 0 1 0 0 0 0.738509 0.108 > * X]
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-     1   * <0.617403 0 1 0 0 1 0.787302 0.706853 > * X]
-     1   * <0.898305 0 0 0 1 1 0.811806 0.173192 > * X]
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-     1   * <0 0 1 0 0 1 0.497321 0.36233 > * X]
-     1   * <0.661017 1 0 0 1 0 0.01219 0.007663 > * X]
-     1   * <0.689525 0 1 0 0 1 0.776673 0.923563 > * X]
*     1   * <0.896975 1 1 0 0 1 0.34466 0.614431 > * X]
-     1   * <0.61382 0 1 0 0 1 0.766924 0.909006 > * X]
-     1   * <0.898305 1 1 0 0 0 0.446658 0.579475 > * X]
-     1   * <0.664407 1 1 0 0 0 0.083285 0.534053 > * X]
-     1   * <0.526602 1 1 0 0 0 0.382761 0.612625 > * X]
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*     1   * <0.169492 1 0 0 1 0 0.695989 0.347706 > * X]
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*     1   * <0.903051 0 0 0 1 0 0.039921 0.389837 > * X]
-     1   * <0.101695 0 1 0 0 1 0.618684 0.100408 > * X]
-     1   * <0.881356 1 0 1 0 1 0.809496 0.328531 > * X]
-     1   * <0.694915 1 0 1 0 0 0.789352 0.570575 > * X]
-     1   * <0.542373 1 0 1 0 1 0.87793 0.087876 > * X]
-     1   * <0.898305 1 1 0 0 0 0.644636 0.596438 > * X]
-     1   * <0.881356 0 0 0 1 0 0.72011 0.491818 > * X]
-     1   * <0.389631 1 0 1 0 0 0.866238 0.443296 > * X]
*     1   * <0.971376 1 1 0 0 0 0.551907 0.634746 > * X]
+     1   * <0.637413 0 1 0 0 1 0.651905 0.908237 > * X]
-     1   * <0.673328 0 1 0 0 1 0.516679 0.659811 > * X]
-     1   * <0.152542 1 0 0 1 0 0.375049 0.25302 > * X]
-     1   * <0.903051 0 1 0 0 0 0.777621 0.401834 > * X]
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+     1   * <0.237288 0 1 0 0 0 0.903705 0.152420 > * X]
-     1   * <0.755074 1 1 0 0 0 0.760996 0.658019 > * X]
+     1   * <0.92202 1 1 0 0 0 0.396845 0.501868 > * X]
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-     1   * <0.847458 1 1 0 0 0 0.92029 0.078305 > * X]
-     1   * <0.118644 0 1 0 0 1 0.901085 0.264532 > * X]
-     1   * <0.610169 1 1 0 0 1 0.839376 0.892903 > * X]
-     1   * <0.576271 0 0 0 1 0 0.731188 0.476793 > * X]
-     1   * <0.474576 1 0 1 0 0 0.065506 0.115459 > * X]
-     1   * <0.322034 1 0 0 1 0 0.258629 0.113961 > * X]
-     1   * <0.713664 0 1 0 0 0 0.736816 0.737114 > * X]
-     1   * <0.525424 0 1 0 0 0 0.690601 0.038149 > * X]
*     1   * <0.932203 1 1 0 0 0 0.30880 0.612059 > * X]
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-     1   * <0.727535 0 1 0 0 1 0.742714 0.898838 > * X]
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-     1   * <0.610169 0 0 1 0 1 0.951431 0.302781 > * X]
-     1   * <0.753342 1 1 0 0 0 0.780516 0.666544 > * X]
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-     1   * <0.677566 0 1 0 0 0 0.366215 0.636340 > * X]
-     1   * <0.830508 1 1 0 0 1 0.605589 0.25645 > * X]
-     1   * <0.322034 0 1 0 0 1 0.423360 0.246563 > * X]
-     1   * <0.542373 1 0 1 0 1 0.780602 0.107921 > * X]
*     1   * <0.610169 1 1 0 0 0 0.85459 0.431834 > * X]
+     1   * <0.762712 1 1 0 0 0 0.765736 0.645623 > * X]
+     1   * <0.725957 0 1 0 0 0 0.754137 0.764612 > * X]
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+     1   * <0.661855 0 1 0 0 0 0.585715 0.769667 > * X]
+     1   * <0.932764 1 0 0 0 1 0.463811 0.476745 > * X]
+     1   * <0.724216 0 1 0 0 1 0.643323 0.660762 > * X]
+     1   * <0.050047 0 1 0 0 0 0.972452 0.063247 > * X]
+     1   * <0.559322 0 0 1 0 0 0.945399 0.638038 > * X]
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-     1   * <0.500599 1 1 0 0 1 0.910492 0.173928 > * X]
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+     1   * <0.457627 1 0 1 0 0 0.666467 0.297125 > * X]
-     1   * <0.670865 0 1 0 0 1 0.400100 0.662380 > * X]
-     1   * <0.355932 0 1 0 0 1 0.105168 0.286149 > * X]
-     1   * <0.016949 1 1 0 0 1 0.153705 0.150893 > * X]
-     0.3657

Number of support vectors: 163
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Universidad Pontificia Bolivariana

drugC, drugX	

```
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     -      1      * <0.542373 0 0 1 0 0 0.398612 0.59338 > * X]
            0.9995 * <0.626177 0 0 1 0 0 0.625652 0.01641 > * X]
     +      1      * <0.915254 0 0 0 1 0 0.69118 0.951377 > * X]
     +      1      * <0.355932 1 0 1 0 1 0.069416 0.437007 > * X]
     -      1      * <0.448347 1 0 1 0 0 0.628141 0.640494 > * X]
     -      1      * <0.898305 1 0 1 0 0 0.572153 0.846535 > * X]
     +      1      * <0.745763 0 0 0 1 0 0.965723 0.728525 > * X]
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     +      1      * <0.524881 1 0 1 0 1 0.241894 0.86712 > * X]
     +      1      * <1 1 0 1 0 1 0.726579 0.769033 > * X]
     -      1      * <0.566131 1 0 1 0 0 0.409555 0.652076 > * X]
     -      1      * <0.769478 0 0 0 1 0 0.90522 0.908122 > * X]
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     +      1      * <0.593486 0 0 0 1 0 0.410758 0.49411 > * X]
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     -      1      * <0.035336 1 0 1 0 0 0.443006 0.839274 > * X]
            0.7599 * <0.134716 0 0 1 0 0 0.089346 0.832421 > * X]
     -      1      * <0.816314 0 0 1 0 0 0.154334 0.878101 > * X]
     +      1      * <0.254237 0 0 0 1 0 0.004514 0.469247 > * X]
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     -      1      * <0.851004 0 0 1 0 0 0.608248 0.864685 > * X]
     +      1      * <0.694915 1 0 0 1 0 0.322559 0.836663 > * X]
     +      1      * <0.779661 0 0 0 1 0 0.486167 0.911816 > * X]
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     -      1      * <0.542373 0 0 1 0 0 0.263153 0.653434 > * X]
     +      1      * <0.59322 0 0 0 1 0 0.307546 0.753144 > * X]
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     -      1      * <0.062426 1 0 1 0 0 0.36392 0.736943 > * X]
     -      1      * <0.322034 0 0 1 0 1 0.821884 0.733845 > * X]
     -      1      * <0.134201 0 0 1 0 0 0.111044 0.410388 > * X]
     -      1      * <0.084746 0 0 1 0 1 0.785209 0.826222 > * X]
     +      1      * <0.508475 1 0 1 0 1 0.542304 0.8591 > * X]
     +      1      * <0.536645 1 0 1 0 1 0.067215 0.900802 > * X]
     -      1      * <0.423729 0 0 0 1 0 0.031191 0.513804 > * X]
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     +      1      * <0.576271 1 0 1 0 1 0.026020 0.293093 > * X]
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     +      1      * <0.34349 1 0 1 0 1 0.05989 0.578531 > * X]
     -      1      * <0.542373 0 0 1 0 0 0.34819 0.586393 > * X]
     -      1      * <0.542373 0 0 1 0 0 0.137112 0.890201 > * X]
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     -      1      * <0.288136 0 0 1 0 1 0.566457 0.783171 > * X]
            0.9815 * <0.286362 0 0 1 0 0 0.440587 0.668276 > * X]
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     -      1      * <0.576271 1 0 1 0 0 0.39166 0.705401 > * X]
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     +      1      * <0.610169 0 0 0 1 0 0.450828 0.500084 > * X]
     -      1      * <0.711079 0 0 1 0 0 0.363867 0.702202 > * X]
     -      1      * <0.644068 1 0 0 1 0 0.365678 0.428505 > * X]
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     +      1      * <0.627119 0 0 1 0 0 0.125733 0.59457 > * X]
     +      1      * <0.40678 0 0 1 0 1 0.145349 0.552489 > * X]
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     -      1      * <0.966102 1 0 1 0 0 0.011748 0.912743 > * X]
     -      1      * <0.135126 0 0 1 0 0 0.08765 0.819131 > * X]
     +      1      * <0.338903 1 0 1 0 1 0.467239 0.915152 > * X]
            0.313  * <0.084746 0 0 0 1 1 0.438278 0.793306 > * X]
     +      1      * <0.711864 0 0 0 1 0 0.242317 0.36658 > * X]
     -      1      * <0.121495 1 0 1 0 0 0.173022 0.516236 > * X]
     -      1      * <0.779661 1 0 0 1 0 0.618747 0.985242 > * X]
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     -      1      * <0.494275 1 0 1 0 0 0.644259 0.640139 > * X]
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     -      1      * <0.177272 0 0 1 0 0 0.195125 0.737225 > * X]
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     +      1      * <0.423729 0 0 1 0 1 0.463097 0.67269 > * X]
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     +      1      * <0.118644 0 0 1 0 0 0.066946 0.74616 > * X]
     -      1      * <0.779661 0 0 1 0 1 0.057395 0.856942 > * X]
     -      1      * <0.576271 0 0 1 0 1 0.194274 0.359227 > * X]
     -      1      * <0.554514 1 0 1 0 0 0.597821 0.622083 > * X]
     +      0.0408

Number of support vectors: 138
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drugC, drugA	

```
-        0.0701 * <0.576391 0 0 1 0 0 0.905503 0.900916 > * X]
-        1      * <0.08773 1 0 1 0 0 0.173264 0.82595 > * X]
-        0.0561 * <0.135126 0 0 1 0 0 0.08765 0.819131 > * X]
+        0.0813 0 1 0 0 0 0.132196 0.689262 > * X]
+        0.6972 * <0.542373 0 0 1 0 0 0.34819 0.586393 > * X]
+        1      * <0.394949 0 1 0 0 0 0.484231 0.838427 > * X]
+        1      * <0.338983 0 1 0 0 0 0.933814 0.793729 > * X]
-        0.9024 * <0.542373 0 0 1 0 0 0.820279 0.772674 > * X]
+        1      * <0.476421 1 1 0 0 0 0.267858 0.568305 > * X]
-        0.7872 * <0.440678 1 0 1 0 0 0.673086 0.827209 > * X]
+        1      * <0.182602 0 1 0 0 0 0.304287 0.738863 > * X]
-        1      * <0.220339 0 0 1 0 0 0.394363 0.501539 > * X]
+        1      * <0.535271 1 1 0 0 0 0.152759 0.46513 > * X]
-        0.9718 * <0.542373 0 0 1 0 0 0.586595 0.662979 > * X]
-        1      * <0.489357 1 0 1 0 0 0.650103 0.826934 > * X]
+        1      * <0.348288 0 1 0 0 0 0.717514 0.776648 > * X]
-        1      * <0.035336 1 0 1 0 0 0.443006 0.839274 > * X]
+        1      * <0.353632 0 1 0 0 0 0.66537 0.750611 > * X]
-        1      * <0.843817 0 0 1 0 0 0.864482 0.863815 > * X]
-        1      * <0.159053 0 0 1 0 0 0.19329 0.804225 > * X]
+        1      * <0.508435 1 1 0 0 0 0.102184 0.677435 > * X]
-        1      * <0.389387 0 1 0 0 0 0.257323 0.525416 > * X]
+        1      * <0.517798 1 1 0 0 0 0.123319 0.495917 > * X]
-        1      * <0.126288 1 0 1 0 0 0.097145 0.839229 > * X]
-        1      * <0.07969 1 0 1 0 0 0.350104 0.705023 > * X]
+        1      * <0.109028 0 1 0 0 0 0.957855 0.951239 > * X]
-        1      * <0.177272 0 0 1 0 0 0.195125 0.737225 > * X]
-        0.0649 * <0.711079 0 0 1 0 0 0.363867 0.702202 > * X]
-        0.2971 * <0.566131 1 0 1 0 0 0.409555 0.652076 > * X]
-        1      * <0.186611 0 0 1 0 0 0.300058 0.462224 > * X]
+        1      * <0.544235 1 1 0 0 0 0.429308 0.742749 > * X]
-        1      * <0.542373 0 0 1 0 0 0.395522 0.608011 > * X]
+        1      * <0.352605 0 1 0 0 0 0.608169 0.777055 > * X]
+        0.0145 * <0.578918 1 1 0 0 1 0.034146 0.903424 > * X]
-        1      * <0.238985 0 0 1 0 0 0.408561 0.755595 > * X]
-        1      * <0.016949 1 0 1 0 0 0.613438 0.700465 > * X]
-        1      * <0.286362 0 0 1 0 0 0.440587 0.668276 > * X]
+        1      * <0.078372 0 1 0 0 0 0.865221 0.615792 > * X]
+        1      * <0.084746 0 1 0 0 0 0.978201 0.983435 > * X]
+        1      * <0.067797 0 1 0 0 0 0.042446 0.314727 > * X]
+        1      * <0.391011 0 1 0 0 0 0.586496 0.774717 > * X]
-        0.7201 * <0.898305 1 0 1 0 0 0.572153 0.846535 > * X]
-        1      * <0.448347 1 0 1 0 0 0.628141 0.640494 > * X]
-        1      * <0.542373 0 0 1 0 0 1 0.939079 > * X]
+        1      * <0.392647 0 1 0 0 0 0.586001 0.80673 > * X]
-        0.532  * <0.542373 0 0 1 0 0 0.263193 0.653434 > * X]
-        1      * <0.384467 0 1 0 0 0 0.363582 0.559772 > * X]
+        1      * <0.355932 0 1 0 0 0 0.590951 0.761871 > * X]
-        1      * <0.134716 0 0 1 0 0 0.089346 0.832421 > * X]
-        1      * <0.378661 0 1 0 0 0 0.824897 0.760304 > * X]
-        1      * <0.371091 0 1 0 0 0 0.590632 0.75168 > * X]
-        1      * <0.542373 1 0 1 0 0 0.604061 0.609812 > * X]
-        1      * <0.474576 1 1 0 0 0 0.394562 0.451042 > * X]
+        1      * <0.576271 1 1 0 0 1 0 1 > * X]
+        1      * <0.458905 1 1 0 0 0 0.572185 0.498801 > * X]
+        0.8958 * <0.159216 0 1 0 0 0 0.484092 0.379515 > * X]
-        0.1604 * <0.546212 1 0 1 0 0 0.396301 0.757193 > * X]
+        1      * <0.468226 1 1 0 0 0 0.63048 0.563932 > * X]
-        1      * <0.576271 1 0 1 0 0 0.39166 0.705401 > * X]
-        1      * <0.542373 0 0 1 0 0 0.752885 0.782581 > * X]
+        1      * <0.237288 1 1 0 0 0 0.316007 0.478784 > * X]
-        1      * <0.198107 0 0 1 0 0 0.509667 0.606219 > * X]
-        1      * <0.135355 1 0 1 0 0 0.099164 0.464699 > * X]
+        0.500599 1 1 0 0 0 0.085608 0.780444 > * X]
-        1      * <0.710341 0 0 1 0 0 0.846154 0.7035 > * X]
-        1      * <0.542373 0 0 1 0 0 0.100041 0.562159 > * X]
+        1      * <0.342751 0 1 0 0 0 0.665149 0.78987 > * X]
+        1      * <0.394008 0 1 0 0 0 0.588525 0.877535 > * X]
-        0.8005 * <0.542373 0 0 1 0 0 0.762028 0.764307 > * X]
-        1      * <0.508475 0 1 0 0 0 0.120368 0.378091 > * X]
+        0.0057 * <0.57385 1 1 0 0 1 0.131103 0.937048 > * X]
-        1      * <0.207592 0 0 1 0 0 0.370486 0.417112 > * X]
-        1      * <0.134201 0 0 1 0 0 0.111044 0.410388 > * X]
+        1      * <0.478197 1 1 0 0 0 0.796409 0.789143 > * X]
-        1      * <0.186441 0 0 1 0 0 0.196604 0.347974 > * X]
-        1      * <0.062426 1 0 1 0 0 0.36392 0.736943 > * X]
-        1      * <0.726803 0 0 1 0 0 0.833506 0.752386 > * X]
+        1      * <0.515421 1 1 0 0 0 0.144772 0.413734 > * X]
-        1      * <0.234231 0 0 1 0 0 0.511768 0.579602 > * X]
-        1      * <0.087052 1 0 1 0 0 0.481464 0.829991 > * X]
+        1      * <0.365991 0 1 0 0 0 0.568785 0.57871 > * X]
+        1      * <0.435944 1 1 0 0 0 0.775375 0.894573 > * X]
+        0.0295 1 0 1 0 0 0.330018 0.601767 > * X]
-        1      * <0.542373 0 0 1 0 0 0.954858 0.758451 > * X]
-        1      * <0.737469 0 0 1 0 0 0.689815 0.692763 > * X]
+        1      * <0.144765 0 1 0 0 0 0.847196 0.853511 > * X]
-        1      * <0.966102 1 0 1 0 0 0.011748 0.912743 > * X]
-        1      * <0.59322 1 1 0 0 0 0.045761 0.822725 > * X]
+        1      * <0.382581 0 1 0 0 0 0.149398 0.726236 > * X]
-        1      * <0.542373 0 0 1 0 0 0.398612 0.59338 > * X]
-        0.3789 * <0.131826 1 0 1 0 0 0.08465 0.922506 > * X]
+        1      * <0.356645 0 1 0 0 0 0.226684 0.541174 > * X]
-        1      * <0.554514 1 0 1 0 0 0.597821 0.622883 > * X]
-        1      * <0.132263 0 1 0 0 0 0.344015 0.879332 > * X]
+        1      * <0.107584 0 1 0 0 0 0.859722 0.802726 > * X]
-        1      * <0.542373 1 1 0 0 0 0.159518 0.57106 > * X]
-        1      * <0.121495 1 0 1 0 0 0.173822 0.516236 > * X]
-        0.7147 * <0.561773 1 0 1 0 0 0.497783 0.712406 > * X]
+        1      * <0.504902 1 1 0 0 0 0.11465 0.48057 > * X]
+        1      * <0.508199 1 1 0 0 0 0.233816 0.380848 > * X]
-        1      * <0.231607 0 0 1 0 0 0.509578 0.63558 > * X]
-        0.1361 * <0.542373 0 0 1 0 0 0.54897 0.719764 > * X]
-        1      * <0.118644 1 0 1 0 0 0.066946 0.74616 > * X]
-        0.3603 * <0.204995 0 0 1 0 0 0.332436 0.777668 > * X]
-        0.243 * <0.889201 0 0 1 0 0 0.08991 0.875578 > * X]
+        1      * <0.40678 1 1 0 0 0 0.583303 0.930797 > * X]
+        1      * <0.090145 0 1 0 0 0 0.81666 0.809388 > * X]
-        1      * <0.138278 0 0 1 0 0 0.151768 0.585816 > * X]
+        0.8248 * <0.372881 0 1 0 0 0 0.149037 0.379664 > * X]
-        1      * <0.494275 1 0 1 0 0 0.644259 0.640139 > * X]
-        0.8477 * <0.542373 0 0 1 0 0 0.517037 0.687903 > * X]
+        1      * <0.475875 1 1 0 0 0 0.232135 0.403247 > * X]
+        1      * <0.505564 1 1 0 0 0 0.117896 0.701305 > * X]
+        0.0048

Number of support vectors: 113
```

drugC, drugB	
| | ```
-       1       * <0.726803 0 0 1 0 0 0.833506 0.752386 > * X]
-       1       * <0.087052 1 0 1 0 0 0.481464 0.829991 > * X]
-       1       * <0.889201 0 0 1 0 0 0.08991 0.875578 > * X]
+       1       * <0.762712 1 1 0 0 0 0.763602 0.653622 > * X]
+       1       * <0.755016 1 1 0 0 0 0.556786 0.784475 > * X]
-       1       * <0.542373 1 0 1 0 0 0.604061 0.609812 > * X]
+       1       * <0.719477 0 1 0 0 0 0.711432 0.729585 > * X]
+       1       * <0.637413 0 1 0 0 1 0.651905 0.908237 > * X]
-       1       * <0.121495 1 0 1 0 0 0.173822 0.516236 > * X]
-       1       * <0.626177 0 0 1 0 0 0.625652 0.81641 > * X]
+     0.0507 * <0.94189 1 1 0 0 0 0.427854 0.736444 > * X]
      0.5215 * <0.135593 1 0 1 0 0 0.148757 0.946809 > * X]
+       1       * <0.900095 1 1 0 0 0 0.355901 0.526855 > * X]
-       1       * <0.576391 0 0 1 0 0 0.909503 0.900916 > * X]
-     0.3117 * <0.542373 0 0 1 0 0 1 0.939079 > * X]
+       1       * <0.625547 0 1 0 0 1 0.809604 0.8397 > * X]
-       1       * <0.135355 1 0 1 0 0 0.099164 0.464699 > * X]
-       1       * <0.561773 1 0 1 0 0 0.497783 0.712406 > * X]
-       1       * <0.777243 0 0 1 0 0 0.288261 0.826543 > * X]
-       1       * <0.745763 0 0 1 0 0 0.354359 0.690995 > * X]
-       1       * <0.694915 0 0 1 0 0 0.880567 0.892782 > * X]
+       1       * <0.898305 1 1 0 0 0 0.352926 0.637503 > * X]
+       1       * <0.762712 0 1 0 0 0 0.758898 0.671937 > * X]
+       1       * <0.747018 1 1 0 0 0 0.48851 0.716228 > * X]
+       1       * <0.932203 1 1 0 0 0 0.246708 0.549631 > * X]
-       1       * <0.448347 1 0 1 0 0 0.628141 0.640494 > * X]
+       1       * <0.953911 1 1 0 0 0 0.48387 0.843893 > * X]
+       1       * <0.748389 1 1 0 0 0 0.784089 0.660266 > * X]
+       1       * <0.755777 1 1 0 0 0 0.787382 0.659258 > * X]
+       1       * <0.725997 0 1 0 0 0 0.754137 0.764612 > * X]
+       1       * <0.762712 1 1 0 0 0 0.655429 0.832348 > * X]
-       1       * <0.542373 0 0 1 0 0 0.954858 0.758451 > * X]
+       1       * <0.910446 1 1 0 0 0 0.349187 0.641463 > * X]
+       1       * <0.922826 1 1 0 0 0 0.28807 0.666092 > * X]
+       1       * <0.932203 1 1 0 0 0 0.30888 0.612059 > * X]
+       1       * <0.753342 1 1 0 0 0 0.780516 0.666544 > * X]
+       1       * <0.755874 1 1 0 0 0 0.760996 0.658819 > * X]
+       1       * <0.762712 1 1 0 0 0 0.559611 0.806379 > * X]
+       1       * <0.68169 0 1 0 0 1 0.499451 0.793028 > * X]
+       1       * <0.634014 0 1 0 0 1 0.709612 0.916344 > * X]
-       1       * <0.737469 0 0 1 0 0 0.689815 0.692763 > * X]
+       1       * <0.932203 1 1 0 0 0 0.23326 0.569199 > * X]
-       1       * <0.850615 0 0 1 0 0 0.774498 0.872999 > * X]
+       1       * <0.7459 1 1 0 0 0 0.787492 0.644718 > * X]
-       1       * <0.839708 0 0 1 0 0 0.813134 0.891221 > * X]
+       1       * <0.762712 1 1 0 0 0 0.771639 0.63245 > * X]
-       1       * <0.710341 0 0 1 0 0 0.846154 0.7035 > * X]
-       1       * <0.843817 0 0 1 0 0 0.864482 0.863815 > * X]
+       1       * <0.66043 0 1 0 0 1 0.651251 0.825051 > * X]
-       1       * <0.489357 1 0 1 0 0 0.650103 0.826934 > * X]
+       1       * <0.639468 0 1 0 0 1 0.684835 0.932431 > * X]
-       1       * <0.542373 1 0 1 0 0 0.497869 0.818559 > * X]
-       1       * <0.891004 0 0 1 0 0 0.688248 0.864685 > * X]
-       1       * <0.494275 1 0 1 0 0 0.644259 0.640139 > * X]
-       1       * <0.035336 1 0 1 0 0 0.443006 0.839274 > * X]
+       1       * <0.762712 1 1 0 0 0 0.415667 0.802976 > * X]
+       1       * <0.762062 1 1 0 0 0 0.787658 0.640803 > * X]
-       1       * <0.440678 1 0 1 0 0 0.673086 0.827209 > * X]
+       1       * <0.75622 1 1 0 0 0 0.78565 0.643928 > * X]
-       1       * <0.924804 0 0 1 0 0 0.111872 0.910781 > * X]
+       1       * <0.762712 1 1 0 0 0 0.761656 0.637233 > * X]
-       1       * <0.966102 1 0 1 0 0 0.011748 0.912743 > * X]
-       1       * <0.903028 0 0 1 0 0 0.26926 0.855868 > * X]
+       1       * <0.670865 0 1 0 0 1 0.400108 0.662388 > * X]
+       1       * <0.762712 1 1 0 0 0 0.370568 0.64896 > * X]
-       1       * <0.711079 0 0 1 0 0 0.363867 0.702202 > * X]
-       1       * <0.62565 0 0 1 0 0 0.936669 0.91366 > * X]
-       1       * <0.0295 1 0 1 0 0 0.330018 0.601767 > * X]
+       1       * <0.681855 0 1 0 0 0 0.585715 0.769667 > * X]
+       1       * <0.713664 0 1 0 0 0 0.736816 0.737114 > * X]
+       1       * <0.745763 1 1 0 0 0 0.79868 0.6452 > * X]
+       1       * <0.749543 1 1 0 0 0 0.453025 0.854301 > * X]
-       1       * <0.739595 0 0 1 0 0 0.669928 0.881176 > * X]
-       1       * <0.898305 1 0 1 0 0 0.572153 0.846535 > * X]
-       1       * <0.816314 0 0 1 0 0 0.154334 0.878101 > * X]
-       1       * <0.677966 0 1 0 0 0 0.346215 0.636348 > * X]
+       1       * <0.61382 0 1 0 0 1 0.764924 0.909006 > * X]
+       1       * <0.905242 1 1 0 0 0 0.320477 0.660034 > * X]
-       1       * <0.062426 1 0 1 0 0 0.36392 0.736943 > * X]
-       1       * <0.118644 1 0 1 0 0 0.066946 0.74616 > * X]
-     0.4073 * <0.126288 1 0 1 0 0 0.097145 0.839229 > * X]
-       1       * <0.576271 1 0 1 0 0 0.39166 0.705401 > * X]
-       1       * <0.566131 1 0 1 0 0 0.409555 0.652076 > * X]
-       1       * <0.484045 1 0 1 0 0 0.804034 0.910414 > * X]
-       1       * <0.85248 0 0 1 0 0 0.556684 0.805932 > * X]
-       1       * <0.554514 1 0 1 0 0 0.597821 0.622883 > * X]
-       1       * <0.56637 1 0 1 0 0 0.484746 0.789619 > * X]
+       1       * <0.922064 1 1 0 0 0 0.236355 0.650309 > * X]
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+       1       * <0.762712 1 1 0 0 0 0.765736 0.645623 > * X]
-       1       * <0.07969 1 0 1 0 0 0.350104 0.705023 > * X]
-       1       * <0.546212 1 0 1 0 0 0.396301 0.757193 > * X]
+       1       * <0.762712 1 1 0 0 0 0.759537 0.653014 > * X]
+     0.0554 * <0.711864 0 1 0 0 1 0.64159 0.933809 > * X]
-       1       * <0.016949 1 0 1 0 0 0.613438 0.700465 > * X]
+     0.1344 * <0.926802 1 1 0 0 0 0.382761 0.612625 > * X]
+       1       * <0.67971 0 1 0 0 1 0.400428 0.825792 > * X]
+     0.021

Number of support vectors: 97
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drugX, drugA	

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-       1      * <0.288136 0 0 0 1 0 0.124293 0.894355 > * X]
-       1      * <0.627119 1 0 0 1 0 0.125733 0.59497 > * X]
-       1      * <0.022192 0 0 0 1 1 0.283214 0.810846 > * X]
+   0.2399 * <0.144765 0 1 0 0 0 0.847196 0.853511 > * X]
-       1      * <0.40884 0 0 1 0 1 0.034861 0.516017 > * X]
+       1      * <0.384467 0 1 0 0 0 0.363582 0.559772 > * X]
-       1      * <0.508475 1 0 1 0 1 0.082001 0.729746 > * X]
-       1      * <0.047064 0 0 0 1 1 0.500355 0.745426 > * X]
+       1      * <0.342751 0 1 0 0 0 0.665149 0.78987 > * X]
+       1      * <0.372081 1 0 1 0 1 0.294334 0.815564 > * X]
+       1      * <0.570844 1 1 0 0 1 0.396743 0.913104 > * X]
+       1      * <0.0813 0 1 0 0 0 0.132196 0.689262 > * X]
-       1      * <0.220339 0 0 0 1 0 0.618325 0.632818 > * X]
-       1      * <0.2039 0 0 0 1 0 0.740929 0.666114 > * X]
-       1      * <0.284667 1 1 0 0 1 0.216356 0.742617 > * X]
+   0.5918 * <0.915254 1 0 0 1 1 0.689545 0.926045 > * X]
-       1      * <0.338983 1 0 1 0 1 0.467239 0.915152 > * X]
+       1      * <1 1 0 1 0 1 0.726579 0.769033 > * X]
+       1      * <0.559602 1 1 0 0 1 0.408435 0.945337 > * X]
-   0.0976 * <0.881356 1 0 0 1 1 0.596354 0.945175 > * X]
-       1      * <0.220339 0 0 0 1 0 0.160432 0.874527 > * X]
+       1      * <0.59322 1 1 0 0 0 0.045761 0.822725 > * X]
-       1      * <0.559322 1 1 0 0 1 0.679558 0.897015 > * X]
-       1      * <0.276278 1 1 0 0 1 0.462919 0.634001 > * X]
+   0.8009 * <0.542373 1 1 0 0 0 0.159518 0.57106 > * X]
-       1      * <0.508475 1 0 1 0 1 0.542304 0.8591 > * X]
+       1      * <0.566256 1 1 0 0 1 0.261752 0.803595 > * X]
+       1      * <0.576271 1 0 1 0 1 0.026028 0.293093 > * X]
+       1      * <0.365991 0 1 0 0 0 0.568785 0.57871 > * X]
-       1      * <0.084746 0 0 0 1 0 0.785209 0.826222 > * X]
+       1      * <0.271186 1 1 0 0 1 0.572822 0.663987 > * X]
-       1      * <0.915254 1 1 0 0 1 0.495503 0.905013 > * X]
-       1      * <0.847450 0 0 1 0 1 0.656884 0.58803 > * X]
+       1      * <0.356645 0 1 0 0 0 0.226684 0.541174 > * X]
+       1      * <0.271186 1 1 0 0 1 0.630352 0.782351 > * X]
+       1      * <0.355932 0 1 0 0 0 0.590951 0.761071 > * X]
-       1      * <0.682564 1 0 0 1 0 0.241562 0.836852 > * X]
+       1      * <0.576271 1 0 1 0 1 0.317565 0.615035 > * X]
+       1      * <0.566882 1 1 0 0 1 0.199314 0.835778 > * X]
+       1      * <0.372081 0 1 0 0 0 0.149037 0.379664 > * X]
-       1      * <0.40678 0 0 1 0 1 0.145349 0.552489 > * X]
-       1      * <0.28044 1 1 0 0 1 0.531701 0.753418 > * X]
-       1      * <0.591118 0 0 1 0 1 0.29121 0.577485 > * X]
-       1      * <0.128286 0 0 0 1 0 0.529809 0.977721 > * X]
+       1      * <0.338983 0 1 0 0 0 0.933814 0.793729 > * X]
+       1      * <0.288136 1 1 0 0 1 0.534188 0.61826 > * X]
+       1      * <0.56616 1 1 0 0 1 0.640782 0.800363 > * X]
+       1      * <0.176539 1 1 0 0 1 0.330309 0.742087 > * X]
+       1      * <0.283538 1 1 0 0 1 0.193516 0.540045 > * X]
+       1      * <0.353632 0 1 0 0 0 0.66537 0.750611 > * X]
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+       1      * <0.132263 0 1 0 0 0 0.344015 0.879332 > * X]
+       1      * <0.288136 0 0 1 0 1 0.566457 0.783171 > * X]
-       1      * <0.423729 0 0 0 1 0 0.031191 0.513804 > * X]
+       1      * <0.271186 1 1 0 0 1 0.618032 0.686647 > * X]
-       1      * <0.423729 0 0 1 0 1 0.463097 0.67269 > * X]
+   0.4312 * <0.517798 1 1 0 0 0 0.123319 0.495917 > * X]
-       1      * <0.135593 1 0 0 1 0 0.235994 0.475103 > * X]
-       1      * <0.241926 1 1 0 0 1 0.487667 0.628934 > * X]
+       1      * <0.508475 0 1 0 0 0 0.120368 0.378091 > * X]
+       1      * <0.578918 1 1 0 0 1 0.034146 0.903424 > * X]
+   0.2461 * <0.504902 1 1 0 0 0 0.11465 0.48057 > * X]
+       1      * <0.391011 0 1 0 0 0 0.586496 0.774717 > * X]
+       1      * <0.576271 1 1 0 0 1 0.043537 0.904092 > * X]
+       1      * <0.535271 1 1 0 0 0 0.152759 0.46513 > * X]
+       1      * <0.118644 1 0 0 1 0 0.091327 0.415772 > * X]
-       1      * <0.338983 1 0 1 0 1 0.457255 0.854994 > * X]
-       1      * <0.694915 1 0 0 1 0 0.322559 0.836663 > * X]
+       1      * <0.57385 1 1 0 0 1 0.131103 0.937048 > * X]
-   0.5583 * <0.59322 0 0 0 1 0 0.307546 0.753144 > * X]
-       1      * <0.278316 1 1 0 0 1 0.599715 0.818066 > * X]
+       1      * <0.394949 0 1 0 0 0 0.484231 0.838427 > * X]
-       1      * <0.34349 1 0 1 0 1 0.05909 0.578531 > * X]
-       1      * <0.525424 1 0 0 1 1 0.065819 0.873607 > * X]
-       1      * <0.268087 0 0 1 0 0 0.525421 0.759926 > * X]
-       1      * <0.830508 1 0 0 1 0 0.0314 0.77012 > * X]
+       1      * <0.481024 1 0 1 0 1 0.097702 0.614676 > * X]
-       1      * <0.135593 1 0 0 1 1 0.718263 0.601295 > * X]
+       1      * <0.392647 0 1 0 0 0 0.586001 0.80673 > * X]
-       1      * <0 1 0 0 1 0 0.359171 0.848108 > * X]
+       1      * <0.288136 1 1 0 0 1 0.074721 0.603437 > * X]
+       1      * <0.576271 1 1 0 0 1 0.049753 0.729937 > * X]
-       1      * <0.915306 0 0 1 0 1 0.553635 0.871275 > * X]
-       1      * <0.254237 0 0 0 1 0 0.004514 0.469247 > * X]
+       1      * <0.033898 1 0 0 1 1 0.561062 0.780678 > * X]
-       1      * <0.372081 1 0 1 0 1 0.600545 0.79034 > * X]
+       1      * <0.394008 0 1 0 0 0 0.588525 0.877535 > * X]
+       1      * <0.576271 1 1 0 0 1 0.096022 0.700013 > * X]
+       1      * <0.186441 0 1 0 0 1 0.711716 0.728056 > * X]
-       1      * <0.322034 0 0 1 0 1 0.821884 0.733845 > * X]
-       1      * <0.40670 1 0 1 0 1 0.264732 0.391226 > * X]
+       1      * <0.275277 1 1 0 0 1 0.603194 0.816413 > * X]
+       1      * <0.779661 1 0 0 1 0 0.618747 0.985242 > * X]
+       1      * <0.067797 0 1 0 0 0 0.042446 0.314727 > * X]
-       1      * <0.644068 1 0 0 1 0 0.365678 0.420505 > * X]
-       1      * <0.769478 0 0 0 1 0 0.90522 0.908122 > * X]
+       1      * <0.348288 0 1 0 0 0 0.717514 0.776648 > * X]
+   0.3391 * <0.515421 1 1 0 0 0 0.144772 0.413734 > * X]
+       1      * <0.288136 0 1 0 0 1 0.566338 0.842636 > * X]
+       1      * <0.576271 1 1 0 0 1 0 1 > * X]
+       1      * <0.152542 1 1 0 0 1 0.205667 0.747984 > * X]
+       1      * <0.283447 1 1 0 0 1 0.530169 0.840085 > * X]
+       1      * <0.389387 0 1 0 0 0 0.257323 0.525416 > * X]
+       1      * <0.389831 0 1 0 0 1 0.590252 0.749105 > * X]
+       1      * <0.371091 0 1 0 0 0 0.590632 0.75168 > * X]
+       1      * <0.352605 0 1 0 0 0 0.608169 0.777055 > * X]
-       1      * <0.640572 1 0 0 1 0 0.162767 0.49618 > * X]
-       1      * <0.536645 1 0 1 0 1 0.067215 0.900802 > * X]
+       1      * <0.457627 1 1 0 0 1 0.90372 0.789429 > * X]
-       1      * <0.31116 0 0 1 0 1 0.654726 0.752238 > * X]
-       1      * <0.680919 1 0 0 1 0 0.160741 0.037737 > * X]
-       1      * <0.159216 0 1 0 0 0 0.484092 0.379515 > * X]
+       1      * <0.569646 1 1 0 0 1 0.575302 0.891177 > * X]
-       1      * <0.118644 0 0 0 1 0 0.44642 0.980909 > * X]
-       1      * <0.522095 1 0 1 0 1 0.068468 0.75321 > * X]
-       1      * <0.59322 0 0 0 1 0 0.827537 0.755346 > * X]
+       1      * <0.239032 1 1 0 0 1 0.348419 0.584513 > * X]
-       1      * <0.382581 0 1 0 0 0 0.149398 0.726236 > * X]
-   0.5792 * <0.779661 0 0 1 0 1 0.057395 0.856942 > * X]
-       1      * <0.359084 1 0 1 0 0 0.269573 0.452286 > * X]
+       1      * <0.271186 1 1 0 0 1 0.532169 0.767183 > * X]
-       1      * <0.576271 0 0 1 0 1 0.194274 0.359227 > * X]
+       1      * <0.271186 1 1 0 0 1 0.580416 0.646003 > * X]
+       1      * <0.585272 1 1 0 0 1 0.461584 0.865236 > * X]
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-       1      * <0.037471 0 0 0 1 1 0.432784 0.735231 > * X]
-       1      * <0.474576 0 0 0 1 1 0.097722 0.366145 > * X]
-       1      * <0.152542 0 0 0 1 0 0.771359 0.93595 > * X]
-       1      * <0.355932 1 0 1 0 1 0.069416 0.437807 > * X]
+       1      * <0.378661 0 1 0 0 0 0.824897 0.760304 > * X]
-       1      * <0.745763 0 0 0 1 0 0.965723 0.728525 > * X]
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-       1      * <0.59322 0 0 0 1 0 0.747883 0.593549 > * X]
+       1      * <0.592004 1 1 0 0 1 0.284338 0.051082 > * X]
+       1      * <0.338983 1 0 0 1 1 0.059244 0.781766 > * X]
-       1      * <0.524881 1 0 1 0 1 0.241894 0.86712 > * X]
-   0.3491

Number of support vectors: 138
```

drugX, drugB	

```
-        1    * <0.522095 1 0 1 0 1 0.068468 0.75321 > * X]
+        1    * <0.625547 0 1 0 0 1 0.809604 0.8397 > * X]
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-        1    * <0.680919 1 0 0 1 0 0.160741 0.837737 > * X]
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-        1    * <0.801356 1 0 0 1 1 0.558462 0.933407 > * X]
-        1    * <0.926802 1 1 0 0 0 0.382761 0.612625 > * X]
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-        1    * <0.591118 0 0 1 0 1 0.29121 0.577485 > * X]
+        1    * <0.675563 0 1 0 0 1 0.474232 0.653235 > * X]
+        1    * <0.898305 1 1 0 0 0 0.446658 0.579475 > * X]
-        1    * <0.617403 0 1 0 0 1 0.787382 0.706853 > * X]
+        1    * <0.639468 0 1 0 0 1 0.684835 0.932431 > * X]
-        1    * <0.779661 0 0 0 1 0 0.486167 0.911816 > * X]
-        1    * <0.915306 0 0 1 0 1 0.553635 0.871275 > * X]
+   0.2241 * <0.932203 1 1 0 0 0 0.378637 0.508304 > * X]
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-        1    * <0.220339 0 0 0 1 0 0.618325 0.632818 > * X]
-        1    * <0.856467 0 0 0 1 1 0.645401 0.635978 > * X]
-        1    * <0.505242 1 1 0 0 0 0.320477 0.660034 > * X]
-        1    * <0.777633 0 0 0 1 0 0.545038 0.916115 > * X]
+        1    * <0.724216 0 1 0 0 1 0.643323 0.660762 > * X]
-   0.5092 * <0.135593 1 0 0 1 0 0.235994 0.475103 > * X]
+        1    * <0.779661 1 0 0 1 0 0.618747 0.985242 > * X]
+        1    * <0.727535 0 1 0 0 1 0.742714 0.898838 > * X]
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-        1    * <0.640572 1 0 0 1 0 0.162767 0.49618 > * X]
+        1    * <0.634014 0 1 0 0 1 0.709612 0.916344 > * X]
+        1    * <0.66043 0 1 0 0 1 0.651251 0.825051 > * X]
-        1    * <0.2039 0 0 0 1 0 0.740929 0.666114 > * X]
-        1    * <0.372881 1 0 1 0 1 0.600545 0.79034 > * X]
-        1    * <0.59322 0 0 0 1 0 0.387546 0.753144 > * X]
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+        1    * <0.644068 0 1 0 0 1 0.65037 0.683783 > * X]
-   0.8214 * <0.423729 0 0 0 1 1 0.031191 0.513804 > * X]
-        1    * <0.59322 0 0 0 1 0 0.827537 0.755346 > * X]
-        1    * <0.31116 0 0 1 0 1 0.654726 0.752238 > * X]
+        1    * <0.689525 0 1 0 0 1 0.776673 0.923563 > * X]
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-        1    * <0.915254 1 1 0 0 1 0.495503 0.905013 > * X]
-        1    * <0.673328 0 1 0 0 1 0.516679 0.659811 > * X]
-        1    * <0.801356 1 0 0 1 1 0.596354 0.945175 > * X]
-        1    * <0.966102 0 0 1 0 1 0.65279 0.531874 > * X]
-        1    * <0.637413 0 1 0 0 1 0.651905 0.908237 > * X]
+        1    * <0.719477 0 1 0 0 0 0.711432 0.729505 > * X]
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-        1    * <0.322034 0 0 1 0 1 0.821884 0.733845 > * X]
+        1    * <0.847458 1 1 0 0 1 0.341971 0.602701 > * X]
-        1    * <0.745763 0 0 0 1 0 0.565723 0.728525 > * X]
-        1    * <0.932203 1 1 0 0 0 0.30888 0.612059 > * X]
+        1    * <0.762712 1 1 0 0 0 0.415667 0.802976 > * X]
+        1    * <0.900095 1 1 0 0 0 0.355901 0.526855 > * X]
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-        1    * <0.593486 0 0 0 1 0 0.410758 0.49411 > * X]
+        1    * <0.68169 0 1 0 0 1 0.499451 0.793028 > * X]
+        1    * <0.898305 1 1 0 0 0 0.439561 0.508416 > * X]
-        1    * <0.67971 0 1 0 0 1 0.400428 0.825792 > * X]
+   0.0474 * <0.913945 1 1 0 0 0 0.420644 0.490961 > * X]
+        1    * <0.910446 1 1 0 0 0 0.349187 0.641463 > * X]
+        1    * <0.074182 0 0 0 1 1 0.358785 0.928399 > * X]
+        1    * <0.719081 0 1 0 0 1 0.810403 0.899242 > * X]
-        1    * <0.644068 1 0 0 1 0 0.365678 0.428505 > * X]
-        1    * <0.614961 0 0 0 1 0 0.438609 0.575092 > * X]
+        1    * <0.762712 1 1 0 0 0 0.559611 0.806379 > * X]
+        1    * <0.725997 0 1 0 0 0 0.754137 0.764612 > * X]
+        1    * <0.677966 0 1 0 0 0 0.346215 0.636348 > * X]
+        1    * <0.922826 1 1 0 0 0 0.28807 0.666092 > * X]
-        1    * <1 1 0 1 0 1 0.726579 0.769033 > * X]
-        1    * <0.40678 1 0 1 0 1 0.264732 0.391226 > * X]
+        1    * <0.898305 1 1 0 0 0 0.352926 0.637503 > * X]
+        1    * <0.830508 1 0 0 1 0 0.0314 0.77012 > * X]
-        1    * <0.775661 0 0 1 0 1 0.057395 0.856942 > * X]
-        1    * <0.915254 1 0 0 1 0 0.699545 0.926045 > * X]
+        1    * <0.711864 0 1 0 0 1 0.64159 0.533809 > * X]
+        1    * <0.847458 0 0 1 0 1 0.656884 0.58883 > * X]
-        1    * <0.882213 1 1 0 0 1 0.347298 0.619667 > * X]
+        1    * <0.524081 1 0 1 0 1 0.241094 0.06712 > * X]
-   0.1488 * <0.34349 1 0 1 0 1 0.05989 0.578531 > * X]
-        1    * <0.682564 1 0 0 1 0 0.241562 0.836852 > * X]
-        1    * <0.711864 0 0 0 1 0 0.242317 0.36658 > * X]
-        1    * <0.372881 1 0 1 0 1 0.294334 0.815564 > * X]
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+        1    * <0.762712 0 1 0 0 0 0.758898 0.671937 > * X]
-        1    * <0.355932 1 0 1 0 1 0.069416 0.437807 > * X]
+        1    * <0.966102 1 1 0 0 1 0.558074 0.502527 > * X]
+        1    * <0.932203 1 1 0 0 0 0.246708 0.549631 > * X]
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-        1    * <0.576271 1 0 1 0 1 0.026028 0.293093 > * X]
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-        1    * <0.915254 0 0 0 1 0 0.69118 0.951377 > * X]
-        1    * <0.481024 1 0 1 0 1 0.057702 0.614676 > * X]
-        1    * <0.152542 0 0 0 1 0 0.771359 0.93595 > * X]
-        1    * <0.355984 1 0 1 0 1 0.269573 0.452286 > * X]
-        1    * <0.536645 1 0 1 0 1 0.067215 0.900802 > * X]
-        1    * <0.508475 1 0 1 0 1 0.082001 0.729746 > * X]
+        1    * <0.622698 0 1 0 0 1 0.826505 0.724931 > * X]
+   0.0353 * <0.753342 1 1 0 0 0 0.780516 0.666544 > * X]
-        1    * <0.610169 0 0 0 1 0 0.450028 0.500084 > * X]
+        1    * <0.762712 1 1 0 0 0 0.370568 0.64896 > * X]
+        1    * <0.932203 1 1 0 0 0 0.23326 0.569199 > * X]
+        1    * <0.749543 1 1 0 0 0 0.453025 0.854301 > * X]
-        1    * <0.288136 0 0 1 0 1 0.566457 0.783171 > * X]
-        1    * <0.769478 0 0 0 1 0 0.90522 0.508122 > * X]
+        0    * <0.762712 1 1 0 0 0 0.759537 0.653014 > * X]
-        1    * <0.330983 1 0 1 0 1 0.467239 0.915152 > * X]
-        1    * <0.59322 0 0 0 1 0 0.747883 0.593549 > * X]
-        1    * <0.268087 0 0 1 0 0 0.525421 0.759926 > * X]
+        1    * <0.610169 1 1 0 0 1 0.839376 0.892983 > * X]
+        1    * <0.857077 1 1 0 0 1 0.3480 0.609129 > * X]
+        1    * <0.898305 0 1 0 0 1 0.695251 0.502527 > * X]
+        1    * <0.932203 1 1 0 0 0 0.400065 0.653311 > * X]
-        1    * <0.576271 1 0 1 0 1 0.317565 0.615835 > * X]
+        1    * <0.881356 1 0 0 1 1 0.875013 0.965248 > * X]
+        1    * <0.926066 1 1 0 0 0 0.34404 0.564801 > * X]
+   0.0866 * <0.7459 1 1 0 0 0 0.787492 0.644718 > * X]
-        1    * <0.932203 1 1 0 0 0 0.22563 0.666466 > * X]
-        1    * <0.330983 1 0 1 0 1 0.457255 0.854994 > * X]
-        1    * <0.576271 0 0 1 0 1 0.194274 0.359227 > * X]
+        1    * <0.755016 1 1 0 0 0 0.556786 0.784475 > * X]
-        1    * <0.627119 1 0 0 1 0 0.125733 0.59497 > * X]
-   0.3436

Number of support vectors: 130
```

drugA, drugB

1   * <0.910446 1 1 0 0 0 0.949187 0.641463 > * X]

c. ¿Cuál kernel tiene el mejor desempeño en la máquina de soporte vectorial?

Según lo analizado en el apartado siguiente (Evaluación), se determinó que el kernel Poly presenta un mejor desempeño que todos los demás.

Regresión Logística

d. ¿Cuáles son las ecuaciones de regresión?

Se realiza el modelamiento por medio de división 70-30 y validación cruzada, donde se crea el modelo con siguientes ecuaciones por clase.

Clase	Ecuación
drugY	```Class drugY :
3.32 +
[SEXO=M] * 0.99 +
[COLESTEROL=NORMAL] * 0.88 +
[SODIO] * 69.81 +
[POTASIO] * -1077.32```
drugC	```Class drugC :
-3.92 +
[EDAD] * 0.06 +
[SEXO=M] * -0.87 +
[PRESIÓN SANGUÍNEA=LOW] * 11.44 +
[COLESTEROL=NORMAL] * -10.07 +
[SODIO] * -21.36 +
[POTASIO] * 146.69```
drugX	```Class drugX :
2.64 +
[EDAD] * 0.05 +
[SEXO=M] * -0.95 +
[PRESIÓN SANGUÍNEA=HIGH] * -6.59 +
[PRESIÓN SANGUÍNEA=NORMAL] * 2.99 +
[COLESTEROL=NORMAL] * 3.58 +
[SODIO] * -12.94 +
[POTASIO] * 63.57```
drugA	```Class drugA :
7.63 +
[EDAD] * -0.24 +
[SEXO=M] * 0.62 +
[PRESIÓN SANGUÍNEA=HIGH] * 13.93 +
[COLESTEROL=NORMAL] * -3.23 +
[SODIO] * -17.48 +
[POTASIO] * 65.13```

| drugB | ```
Class drugB :
-20.53 +
[EDAD] * 0.27 +
[SEXO=M] * -3.37 +
[PRESIÓN SANGUÍNEA=HIGH] * 10.91 +
[COLESTEROL=NORMAL] * -2.9 +
[SODIO] * 0.86 +
[POTASIO] * -16.11
``` |

Bayesianos

e. Según el método NaiveBayes, ¿cuáles son las probabilidades de cada clase?

Según el modelo creado, cada clase tiene un 20% de probabilidad

```
                      Class
Attribute        drugY    drugC    drugX    drugA    drugB
                 (0.2)    (0.2)    (0.2)    (0.2)    (0.2)
===============================================================
EDAD
  mean          43.9971  42.0899  44.3763  36.8693  62.7362
  std. dev.     16.7874  15.191   15.8461   9.0187   6.7853
  weight sum        91       91       90       90       91
  precision      0.2296   0.2296   0.2296   0.2296   0.2296

SEXO
  F               48.0     64.0     51.0     34.0     30.0
  M               45.0     29.0     41.0     58.0     63.0
  [total]         93.0     93.0     92.0     92.0     93.0

PRESIÓN SANGUÍNEA
  HIGH            39.0      1.0      2.0     91.0     92.0
  LOW             31.0     92.0     33.0      1.0      1.0
  NORMAL          24.0      1.0     58.0      1.0      1.0
  [total]         94.0     94.0     93.0     93.0     94.0

COLESTEROL
  HIGH            48.0     92.0     34.0     51.0     61.0
  NORMAL          45.0      1.0     58.0     41.0     32.0
  [total]         93.0     93.0     92.0     92.0     93.0

SODIO
  mean           0.7309   0.6856   0.6514   0.6739   0.7212
  std. dev.      0.116    0.0982   0.1019   0.1021   0.0737
  weight sum        91       91       90       90       91
  precision      0.0009   0.0009   0.0009   0.0009   0.0009

POTASIO
  mean           0.035    0.0647   0.0634   0.0625   0.0612
  std. dev.      0.0099   0.0079   0.0108   0.0096   0.0075
  weight sum        91       91       90       90       91
  precision      0.0001   0.0001   0.0001   0.0001   0.0001
```

KNN

f. Según el método Knn, ¿con cuántos vecinos se obtiene el mejor resultado?

Según lo analizado en el apartado siguiente (Evaluación), se determinó que con 3 vecinos se obtiene mejor resultado en las medidas de evaluación.

III. (1.0) EVALUACIÓN

Arboles de decisión

- **División 70-30**

```
               TP Rate  FP Rate  Precision  Recall  F-Measure  MCC    ROC Area  PRC Area  Class
               0,750    0,036    0,818      0,750   0,783      0,739  0,909     0,764     drugY
               0,964    0,000    1,000      0,964   0,982      0,977  0,982     0,972     drugC
               0,906    0,019    0,935      0,906   0,921      0,897  0,985     0,920     drugX
               1,000    0,027    0,893      1,000   0,943      0,932  0,993     0,940     drugA
               1,000    0,009    0,964      1,000   0,982      0,977  0,995     0,964     drugB
Weighted Avg.  0,926    0,018    0,926      0,926   0,925      0,908  0,975     0,916

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 18  0  2  3  1 |  a = drugY
  1 27  0  0  0 |  b = drugC
  3  0 29  0  0 |  c = drugX
  0  0  0 25  0 |  d = drugA
  0  0  0  0 27 |  e = drugB
```

- **Validación cruzada**

```
               TP Rate  FP Rate  Precision  Recall  F-Measure  MCC    ROC Area  PRC Area  Class
               0,846    0,014    0,939      0,846   0,890      0,866  0,922     0,838     drugY
               0,945    0,017    0,935      0,945   0,940      0,925  0,977     0,926     drugC
               0,944    0,019    0,924      0,944   0,934      0,918  0,968     0,924     drugX
               0,989    0,011    0,957      0,989   0,973      0,966  0,988     0,944     drugA
               0,989    0,011    0,957      0,989   0,973      0,966  0,986     0,929     drugB
Weighted Avg.  0,943    0,014    0,942      0,943   0,942      0,928  0,968     0,912

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 77  4  4  3  3 |  a = drugY
  2 86  3  0  0 |  b = drugC
  2  2 85  0  1 |  c = drugX
  1  0  0 89  0 |  d = drugA
  0  0  0  1 90 |  e = drugB
```

Al mantenerse un área ROC buena por medio de la validación cruzada, que cumple con el diseño de experimentos, se considera que es un modelo aceptable.

Redes Neuronales

- **División 70-30**

```
              TP Rate  FP Rate  Precision  Recall  F-Measure  MCC    ROC Area  PRC Area  Class
              1,000    0,027    0,889      1,000   0,941      0,930  1,000     1,000     drugY
              1,000    0,000    1,000      1,000   1,000      1,000  1,000     1,000     drugC
              0,938    0,000    1,000      0,938   0,968      0,959  1,000     1,000     drugX
              0,960    0,000    1,000      0,960   0,980      0,975  1,000     1,000     drugA
              1,000    0,000    1,000      1,000   1,000      1,000  1,000     1,000     drugB
Weighted Avg. 0,978    0,005    0,980      0,978   0,978      0,974  1,000     1,000

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 24  0  0  0  0 |  a = drugY
  0 28  0  0  0 |  b = drugC
  2  0 30  0  0 |  c = drugX
  1  0  0 24  0 |  d = drugA
  0  0  0  0 27 |  e = drugB
```

- **Validación cruzada**

```
              TP Rate  FP Rate  Precision  Recall  F-Measure  MCC    ROC Area  PRC Area  Class
              0,967    0,006    0,978      0,967   0,972      0,966  0,991     0,990     drugY
              1,000    0,006    0,978      1,000   0,989      0,986  0,996     0,965     drugC
              0,967    0,003    0,989      0,967   0,978      0,972  0,986     0,984     drugX
              0,989    0,006    0,978      0,989   0,983      0,979  1,000     0,999     drugA
              0,989    0,003    0,989      0,989   0,989      0,986  0,998     0,988     drugB
Weighted Avg. 0,982    0,004    0,982      0,982   0,982      0,978  0,994     0,985

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 88  1  0  2  0 |  a = drugY
  0 91  0  0  0 |  b = drugC
  1  1 87  0  1 |  c = drugX
  1  0  0 89  0 |  d = drugA
  0  0  1  0 90 |  e = drugB
```

Al mantenerse un área ROC buena por medio de la validación cruzada, que cumple con el diseño de experimentos, se considera que es un modelo aceptable. Sin embargo con división 70-30 se logra un área ROC ideal.

SVM

- **División 70-30**
  Normalized Poly

```
                TP Rate  FP Rate  Precision  Recall  F-Measure  MCC    ROC Area  PRC Area  Class
                0.792    0.009    0.950      0.792   0.864      0.843  0.943     0.824     drugY
                1.000    0.000    1.000      1.000   1.000      1.000  1.000     1.000     drugC
                0.969    0.029    0.912      0.969   0.939      0.921  0.981     0.899     drugX
                0.960    0.009    0.960      0.960   0.960      0.951  0.989     0.939     drugA
                1.000    0.018    0.931      1.000   0.964      0.956  0.991     0.931     drugB
Weighted Avg.   0.949    0.014    0.949      0.949   0.947      0.936  0.982     0.920

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 19  0  3  1  1 |  a = drugY
  0 28  0  0  0 |  b = drugC
  1  0 31  0  0 |  c = drugX
  0  0  0 24  1 |  d = drugA
  0  0  0  0 27 |  e = drugB
```

Poly

```
                TP Rate  FP Rate  Precision  Recall  F-Measure  MCC    ROC Area  PRC Area  Class
                0.917    0.027    0.880      0.917   0.898      0.876  0.979     0.845     drugY
                1.000    0.000    1.000      1.000   1.000      1.000  1.000     1.000     drugC
                0.906    0.010    0.967      0.906   0.935      0.917  0.979     0.920     drugX
                1.000    0.009    0.962      1.000   0.980      0.976  0.995     0.962     drugA
                1.000    0.000    1.000      1.000   1.000      1.000  1.000     1.000     drugB
Weighted Avg.   0.963    0.009    0.964      0.963   0.963      0.954  0.990     0.947

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 22  0  1  1  0 |  a = drugY
  0 28  0  0  0 |  b = drugC
  3  0 29  0  0 |  c = drugX
  0  0  0 25  0 |  d = drugA
  0  0  0  0 27 |  e = drugB
```

Puk

```
                TP Rate  FP Rate  Precision  Recall  F-Measure  MCC    ROC Area  PRC Area  Class
                0.875    0.027    0.875      0.875   0.875      0.848  0.943     0.795     drugY
                1.000    0.000    1.000      1.000   1.000      1.000  1.000     1.000     drugC
                0.938    0.019    0.938      0.938   0.938      0.918  0.985     0.920     drugX
                0.920    0.009    0.958      0.920   0.939      0.926  0.988     0.924     drugA
                1.000    0.009    0.964      1.000   0.982      0.977  0.995     0.964     drugB
Weighted Avg.   0.949    0.013    0.948      0.949   0.948      0.936  0.983     0.924

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 21  0  2  1  0 |  a = drugY
  0 28  0  0  0 |  b = drugC
  2  0 30  0  0 |  c = drugX
  1  0  0 23  1 |  d = drugA
  0  0  0  0 27 |  e = drugB
```

RBF

```
             TP Rate   FP Rate   Precision   Recall   F-Measure   MCC     ROC Area   PRC Area   Class
             0.417     0.063     0.588       0.417    0.488       0.408   0.656      0.357      drugY
             1.000     0.130     0.667       1.000    0.800       0.762   0.935      0.667      drugC
             0.438     0.000     1.000       0.438    0.609       0.611   0.916      0.758      drugX
             1.000     0.342     0.397       1.000    0.568       0.511   0.829      0.397      drugA
             0.000     0.000     ?           0.000    ?           ?       0.849      0.450      drugB
Weighted Avg. 0.566    0.101     ?           0.566    ?           ?       0.845      0.541

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 10  3  0 11  0 |  a = drugY
  0 28  0  0  0 |  b = drugC
  7 11 14  0  0 |  c = drugX
  0  0  0 25  0 |  d = drugA
  0  0  0 27  0 |  e = drugB
```

- **Validación cruzada**

Normalized Poly

```
             TP Rate   FP Rate   Precision   Recall   F-Measure   MCC     ROC Area   PRC Area   Class
             0.758     0.006     0.972       0.758    0.852       0.830   0.954      0.846      drugY
             1.000     0.019     0.929       1.000    0.963       0.954   0.990      0.929      drugC
             0.956     0.017     0.935       0.956    0.945       0.931   0.982      0.912      drugX
             1.000     0.014     0.947       1.000    0.973       0.967   0.993      0.947      drugA
             1.000     0.017     0.938       1.000    0.968       0.961   0.992      0.938      drugB
Weighted Avg. 0.943    0.014     0.944       0.943    0.940       0.928   0.982      0.914

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 69  6  6  5  5 |  a = drugY
  0 91  0  0  0 |  b = drugC
  2  1 86  0  1 |  c = drugX
  0  0  0 90  0 |  d = drugA
  0  0  0  0 91 |  e = drugB
```

Poly

```
             TP Rate   FP Rate   Precision   Recall   F-Measure   MCC     ROC Area   PRC Area   Class
             0.868     0.008     0.963       0.868    0.913       0.895   0.983      0.916      drugY
             1.000     0.014     0.948       1.000    0.973       0.967   0.993      0.948      drugC
             0.944     0.008     0.966       0.944    0.955       0.944   0.984      0.934      drugX
             1.000     0.006     0.978       1.000    0.989       0.986   0.997      0.978      drugA
             1.000     0.011     0.958       1.000    0.978       0.973   0.994      0.958      drugB
Weighted Avg. 0.962    0.009     0.963       0.962    0.962       0.953   0.990      0.947

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 79  4  3  2  3 |  a = drugY
  0 91  0  0  0 |  b = drugC
  3  1 85  0  1 |  c = drugX
  0  0  0 90  0 |  d = drugA
  0  0  0  0 91 |  e = drugB
```

Puk

TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
0.824	0.011	0.949	0.824	0.882	0.859	0.934	0.829	drugY
1.000	0.011	0.958	1.000	0.978	0.973	0.994	0.958	drugC
0.933	0.019	0.923	0.933	0.928	0.910	0.977	0.896	drugX
1.000	0.014	0.947	1.000	0.973	0.967	0.993	0.947	drugA
0.967	0.014	0.946	0.967	0.957	0.946	0.989	0.934	drugB
Weighted Avg. 0.945	0.014	0.945	0.945	0.944	0.931	0.977	0.913	

=== Confusion Matrix ===

```
 a  b  c  d  e   <-- classified as
75  3  7  2  4 |  a = drugY
 0 91  0  0  0 |  b = drugC
 4  1 84  0  1 |  c = drugX
 0  0  0 90  0 |  d = drugA
 0  0  0  3 88 |  e = drugB
```

RBF

TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
0.077	0.000	1.000	0.077	0.143	0.250	0.708	0.371	drugY
1.000	0.160	0.611	1.000	0.758	0.716	0.920	0.611	drugC
0.633	0.063	0.713	0.633	0.671	0.596	0.909	0.614	drugX
0.222	0.052	0.513	0.222	0.310	0.242	0.835	0.432	drugA
0.901	0.265	0.461	0.901	0.610	0.522	0.850	0.456	drugB
Weighted Avg. 0.567	0.108	0.660	0.567	0.498	0.465	0.844	0.497	

=== Confusion Matrix ===

```
 a  b  c  d  e   <-- classified as
 7 26 23 10 25 |  a = drugY
 0 91  0  0  0 |  b = drugC
 0 32 57  0  1 |  c = drugX
 0  0  0 20 70 |  d = drugA
 0  0  0  9 82 |  e = drugB
```

Según las medidas de evaluación que se obtuvieron de los diferentes kernels por medio de las dos divisiones de datos, en ambas el kernel *Poly* presentó el mejor desempeño con un área ROC de 0.99, por lo que dicho kernel se dejará para la predicción futura.

Regresión Logística

- ## División 70-30

```
                TP Rate  FP Rate  Precision  Recall  F-Measure  MCC    ROC Area  PRC Area  Class
                0.958    0.027    0.885      0.958   0.920      0.903  0.997     0.989     drugY
                1.000    0.000    1.000      1.000   1.000      1.000  1.000     1.000     drugC
                0.938    0.000    1.000      0.938   0.968      0.959  1.000     1.000     drugX
                0.960    0.009    0.960      0.960   0.960      0.951  0.999     0.995     drugA
                1.000    0.000    1.000      1.000   1.000      1.000  1.000     1.000     drugB
Weighted Avg.   0.971    0.006    0.972      0.971   0.971      0.964  0.999     0.997

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 23  0  0  1  0 |  a = drugY
  0 28  0  0  0 |  b = drugC
  2  0 30  0  0 |  c = drugX
  1  0  0 24  0 |  d = drugA
  0  0  0  0 27 |  e = drugB
```

- ## Validación cruzada

```
                TP Rate  FP Rate  Precision  Recall  F-Measure  MCC    ROC Area  PRC Area  Class
                0.978    0.006    0.978      0.978   0.978      0.972  0.999     0.998     drugY
                1.000    0.003    0.989      1.000   0.995      0.993  0.997     0.967     drugC
                0.967    0.000    1.000      0.967   0.983      0.979  0.988     0.985     drugX
                0.989    0.006    0.978      0.989   0.983      0.979  1.000     0.999     drugA
                0.989    0.006    0.978      0.989   0.984      0.979  0.997     0.973     drugB
Weighted Avg.   0.985    0.004    0.985      0.985   0.985      0.981  0.996     0.984

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 89  0  0  1  1 |  a = drugY
  0 91  0  0  0 |  b = drugC
  1  1 87  0  1 |  c = drugX
  1  0  0 89  0 |  d = drugA
  0  0  0  1 90 |  e = drugB
```

Al mantenerse un área ROC buena por medio de la validación cruzada, que cumple con el diseño de experimentos, se considera que es un modelo aceptable.

Bayesianos

- **División 70-30**

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
	0.958	0.054	0.793	0.958	0.868	0.842	0.992	0.967	drugY
	0.929	0.000	1.000	0.929	0.963	0.955	0.998	0.993	drugC
	0.875	0.010	0.966	0.875	0.918	0.896	0.995	0.988	drugX
	0.960	0.009	0.960	0.960	0.960	0.951	0.999	0.997	drugA
	1.000	0.000	1.000	1.000	1.000	1.000	1.000	1.000	drugB
Weighted Avg.	0.941	0.013	0.948	0.941	0.942	0.929	0.997	0.989	

```
=== Confusion Matrix ===

 a  b  c  d  e   <-- classified as
23  0  0  1  0 |  a = drugY
 1 26  1  0  0 |  b = drugC
 4  0 28  0  0 |  c = drugX
 1  0  0 24  0 |  d = drugA
 0  0  0  0 27 |  e = drugB
```

- **Validación cruzada**

	TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
	0.846	0.033	0.865	0.846	0.856	0.820	0.983	0.948	drugY
	0.967	0.014	0.946	0.967	0.957	0.946	0.994	0.947	drugC
	0.911	0.011	0.953	0.911	0.932	0.916	0.985	0.976	drugX
	0.967	0.025	0.906	0.967	0.935	0.920	0.998	0.991	drugA
	0.945	0.008	0.966	0.945	0.956	0.945	0.995	0.964	drugB
Weighted Avg.	0.927	0.018	0.927	0.927	0.927	0.909	0.991	0.965	

```
=== Confusion Matrix ===

 a  b  c  d  e   <-- classified as
77  4  4  4  2 |  a = drugY
 3 88  0  0  0 |  b = drugC
 6  1 82  0  1 |  c = drugX
 3  0  0 87  0 |  d = drugA
 0  0  0  5 86 |  e = drugB
```

Al mantenerse un área ROC buena por medio de la validación cruzada, que cumple con el diseño de experimentos, se considera que es un modelo aceptable.

KNN

- **División 70-30**

  3 vecinos

```
               TP Rate   FP Rate   Precision   Recall   F-Measure   MCC     ROC Area   PRC Area   Class
               0.708     0.027     0.850       0.708    0.773       0.734   0.939      0.832      drugY
               1.000     0.000     1.000       1.000    1.000       1.000   1.000      1.000      drugC
               0.938     0.029     0.909       0.938    0.923       0.899   0.989      0.936      drugX
               0.920     0.027     0.885       0.920    0.902       0.880   0.992      0.942      drugA
               1.000     0.018     0.931       1.000    0.964       0.956   0.999      0.992      drugB
Weighted Avg.  0.919     0.020     0.917       0.919    0.917       0.898   0.985      0.943

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 17  0  3  3  1 |  a = drugY
  0 28  0  0  0 |  b = drugC
  2  0 30  0  0 |  c = drugX
  1  0  0 23  1 |  d = drugA
  0  0  0  0 27 |  e = drugB
```

5 vecinos

```
               TP Rate   FP Rate   Precision   Recall   F-Measure   MCC     ROC Area   PRC Area   Class
               0.625     0.027     0.833       0.625    0.714       0.673   0.923      0.780      drugY
               1.000     0.009     0.966       1.000    0.982       0.978   1.000      1.000      drugC
               0.906     0.038     0.879       0.906    0.892       0.859   0.979      0.885      drugX
               0.920     0.054     0.793       0.920    0.852       0.819   0.989      0.934      drugA
               0.889     0.028     0.889       0.889    0.889       0.861   0.997      0.989      drugB
Weighted Avg.  0.875     0.031     0.875       0.875    0.871       0.844   0.979      0.920

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 15  1  4  3  1 |  a = drugY
  0 28  0  0  0 |  b = drugC
  3  0 29  0  0 |  c = drugX
  0  0  0 23  2 |  d = drugA
  0  0  0  3 24 |  e = drugB
```

7 vecinos

```
               TP Rate   FP Rate   Precision   Recall   F-Measure   MCC     ROC Area   PRC Area   Class
               0.625     0.018     0.882       0.625    0.732       0.700   0.922      0.801      drugY
               1.000     0.009     0.966       1.000    0.982       0.978   1.000      1.000      drugC
               0.969     0.038     0.886       0.969    0.925       0.903   0.982      0.898      drugX
               0.920     0.054     0.793       0.920    0.852       0.819   0.988      0.927      drugA
               0.889     0.018     0.923       0.889    0.906       0.883   0.996      0.984      drugB
Weighted Avg.  0.890     0.028     0.892       0.890    0.886       0.863   0.979      0.924

=== Confusion Matrix ===

  a  b  c  d  e   <-- classified as
 15  1  4  3  1 |  a = drugY
  0 28  0  0  0 |  b = drugC
  1  0 31  0  0 |  c = drugX
  1  0  0 23  1 |  d = drugA
  0  0  0  3 24 |  e = drugB
```

- **Validación cruzada**

3 vecinos

TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
0.604	0.008	0.948	0.604	0.738	0.715	0.917	0.841	drugY
1.000	0.033	0.883	1.000	0.938	0.924	0.993	0.946	drugC
0.944	0.033	0.876	0.944	0.909	0.886	0.981	0.929	drugX
0.989	0.028	0.899	0.989	0.942	0.928	0.983	0.916	drugA
0.967	0.022	0.917	0.967	0.941	0.926	0.981	0.947	drugB
Weighted Avg. 0.901	0.025	0.905	0.901	0.894	0.876	0.971	0.916	

=== Confusion Matrix ===

```
 a  b  c  d  e   <-- classified as
55 11 12  7  6 |  a = drugY
 0 91  0  0  0 |  b = drugC
 3  1 85  0  1 |  c = drugX
 0  0  0 89  1 |  d = drugA
 0  0  0  3 88 |  e = drugB
```

5 vecinos

TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
0.505	0.011	0.920	0.505	0.652	0.632	0.922	0.826	drugY
1.000	0.036	0.875	1.000	0.933	0.918	0.994	0.955	drugC
0.944	0.050	0.825	0.944	0.881	0.852	0.979	0.918	drugX
0.956	0.036	0.869	0.956	0.910	0.888	0.989	0.926	drugA
0.945	0.030	0.887	0.945	0.915	0.893	0.982	0.960	drugB
Weighted Avg. 0.870	0.033	0.875	0.870	0.858	0.837	0.973	0.917	

=== Confusion Matrix ===

```
 a  b  c  d  e   <-- classified as
46 12 18  8  7 |  a = drugY
 0 91  0  0  0 |  b = drugC
 3  1 85  0  1 |  c = drugX
 1  0  0 86  3 |  d = drugA
 0  0  0  5 86 |  e = drugB
```

7 vecinos

TP Rate	FP Rate	Precision	Recall	F-Measure	MCC	ROC Area	PRC Area	Class
0.440	0.008	0.930	0.440	0.597	0.590	0.916	0.821	drugY
1.000	0.041	0.858	1.000	0.924	0.907	0.995	0.959	drugC
0.956	0.058	0.804	0.956	0.873	0.843	0.976	0.899	drugX
0.944	0.041	0.850	0.944	0.895	0.869	0.988	0.920	drugA
0.934	0.033	0.876	0.934	0.904	0.880	0.980	0.954	drugB
Weighted Avg. 0.854	0.036	0.864	0.854	0.838	0.818	0.971	0.911	

=== Confusion Matrix ===

```
 a  b  c  d  e   <-- classified as
40 14 21  9  7 |  a = drugY
 0 91  0  0  0 |  b = drugC
 2  1 86  0  1 |  c = drugX
 1  0  0 85  4 |  d = drugA
 0  0  0  6 85 |  e = drugB
```

Al analizar las diferentes evaluaciones se decide dejar el modelo con 3 vecinos, debido a que con la división 70 – 30 fue el que mejor resultado dio y en cuanto a la validación cruzada fue despreciablemente inferior en el área ROC, pero en las demás medidas dio mejor resultado.

¿Cuál método obtuvo el mejor resultado? ¿Por qué?

A través del análisis realizado, se observa que el modelo obtenido con redes Neuronales obtiene un área ROC de 1 con división 70-30, además de eso, valores de 'Precision', 'Recall' 'TP rate' mayores a 0,97 e incluso se mantienen unas buenas medidas por medio de la validación cruzada, por lo tanto, es el método que mejor resultado presenta.

IV. (1.0) DESPLIEGUE (PREDICCIÓN FUTURA)

a. ¿Cuál es la predicción de cada método?

Arboles de decisión

```
inst#      actual   predicted error prediction
    1        1:?      1:drugY          1
    2        1:?      1:drugY          1
    3        1:?      5:drugB          0.968
    4        1:?      1:drugY          0.974
    5        1:?      2:drugC          0.987
    6        1:?      1:drugY          1
    7        1:?      2:drugC          1
    8        1:?      2:drugC          0.987
    9        1:?      3:drugX          1
   10        1:?      3:drugX          1
   11        1:?      3:drugX          1
```

Redes Neuronales

```
inst#      actual   predicted error prediction
    1        1:?      1:drugY          0.998
    2        1:?      1:drugY          0.995
    3        1:?      5:drugB          0.987
    4        1:?      1:drugY          0.989
    5        1:?      2:drugC          0.994
    6        1:?      1:drugY          1
    7        1:?      2:drugC          0.995
    8        1:?      2:drugC          0.97
    9        1:?      3:drugX          0.995
   10        1:?      3:drugX          0.976
   11        1:?      3:drugX          0.995
```

SVM

Se realiza la predicción por medio del kernel Poly

```
inst#      actual   predicted error prediction
    1        1:?      1:drugY        0.4
    2        1:?      1:drugY        0.4
    3        1:?      5:drugB        0.4
    4        1:?      1:drugY        0.4
    5        1:?      2:drugC        0.4
    6        1:?      1:drugY        0.4
    7        1:?      2:drugC        0.4
    8        1:?      2:drugC        0.4
    9        1:?      3:drugX        0.4
   10        1:?      3:drugX        0.4
   11        1:?      3:drugX        0.4
```

Regresión Logística

```
inst#      actual   predicted error prediction
    1        1:?      1:drugY        1
    2        1:?      1:drugY        1
    3        1:?      5:drugB        1
    4        1:?      1:drugY        0.914
    5        1:?      2:drugC        0.999
    6        1:?      1:drugY        1
    7        1:?      2:drugC        0.982
    8        1:?      2:drugC        0.975
    9        1:?      3:drugX        1
   10        1:?      3:drugX        0.962
   11        1:?      3:drugX        1
```

Bayesianos

```
inst#      actual   predicted error prediction
    1        1:?       1:drugY        0.937
    2        1:?       1:drugY        0.628
    3        1:?       3:drugX        0.603
    4        1:?       1:drugY        0.967
    5        1:?       2:drugC        0.673
    6        1:?       1:drugY        0.999
    7        1:?       2:drugC        0.938
    8        1:?       2:drugC        0.904
    9        1:?       3:drugX        0.923
   10        1:?       3:drugX        0.88
   11        1:?       3:drugX        0.879
```

KNN

```
inst#      actual   predicted error prediction
    1        1:?       1:drugY        0.665
    2        1:?       1:drugY        0.665
    3        1:?       5:drugB        0.997
    4        1:?       1:drugY        0.997
    5        1:?       2:drugC        0.997
    6        1:?       1:drugY        0.997
    7        1:?       2:drugC        0.997
    8        1:?       2:drugC        0.997
    9        1:?       3:drugX        0.997
   10        1:?       3:drugX        0.665
   11        1:?       3:drugX        0.997
```

b. ¿Cuál método es más confiable en la predicción? ¿Por qué?

En primer lugar, es valioso recopilar/resumir la información obtenida en los pasos desarrollados

Método	ROC → 70-30	ROC → VC	Predicción → min('prediction')
Arboles de decisión	0,975	0,968	0,968
Redes Neuronales	1	0,994	0,970
SVM (*poly*)	0,990	0,990	0,400
Regresión Logística	0,999	0,996	0,914
Bayesianos	0,997	0,991	0,603

KNN (*3 vecinos*)	0,985	0,971	0,665

Con esto es posible afirmar que con los 6 métodos se llegaron a modelos que cumplen con el requisito de área ROC para el área de la salud (>95%). Sin embargo, en la predicción se observan resultados muy interesantes pues varios de estos modelos presentan una confianza de predicción ('prediction') bajas o muy bajas en alguna o varas de sus predicciones como: SVM (0,400), Bayesianos (0,603), KNN (0,665) y regresión logística (0,914). En cuanto a la predicción futura estos 4 modelos presentan los mismos resultados excepto en los resultados del método de Bayes, donde para el tercer registro se predijo la droga "drugX" mientras que en los otros fue la droga "drugB".

Por otro lado, se hallan dos modelos que presentan muy buenos resultados tanto en sus medidas ROC y sus predicciones. El modelo obtenido con árbol de decisión presenta una ROC de 0,975 y su 'predition' más bajo es de 0,968. Por su parte el modelo obtenido con redes neuronales (MLP) es de 1 para el área ROC y el 'predition' más bajo es de 0,970. Respecto a las predicciones ambos predicen las mismas drogas para los mismos pacientes con confianza de predicción altas (>95%), sin embargo, el modelo de redes neuronales presenta una mayor confianza, por lo tanto, es más confiable y seguro.

En conclusión, si bien tanto el modelo obtenido con árboles y el modelo obtenido con redes neuronales cumplen con las características necesarias para el área de la salud, el modelo que se obtuvo con **Redes neuronales** presenta mejores resultados y por lo tanto es el modelo mas confiable en la predicción.