



Pràctica 2: Classificació

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Apartat B

Efectes dels canvis de C

Si C és petita

⇒Kernels lineals no funcionen gaire bé.

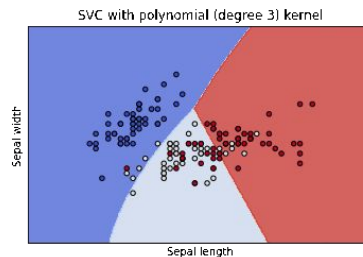
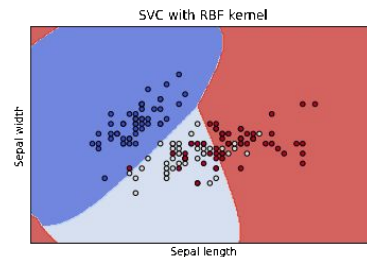
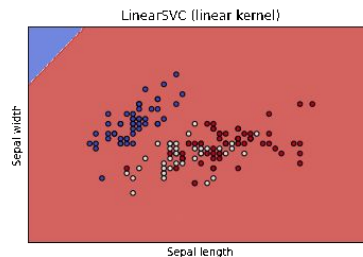
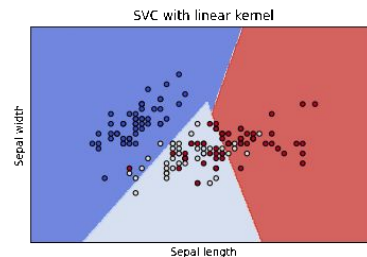
⇒Polinomial i RBF van bé.

Si C és gran

⇒Kernels lineals prediuen bé.

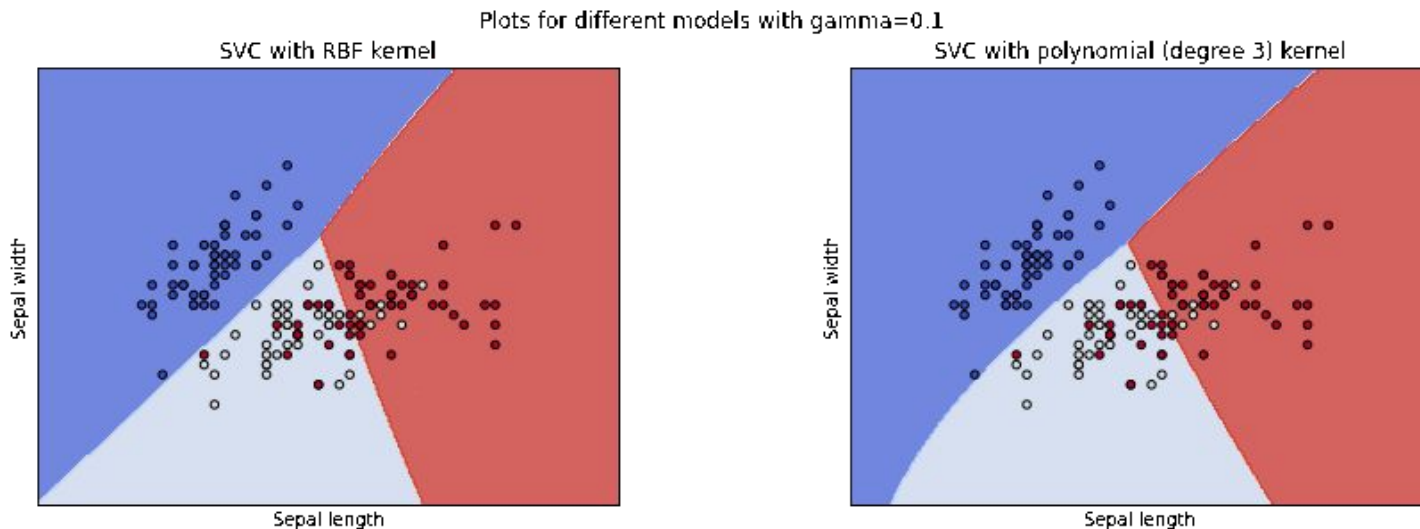
⇒RBF fan overfit

Plots for different models with $C=0.0001$



Apartat B

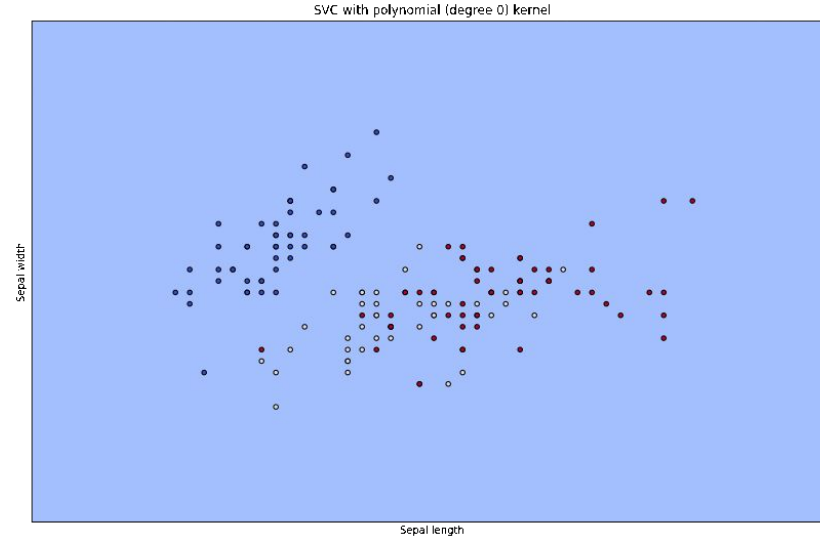
Efectes dels canvis de gamma



Si gamma és petita, polinomial i RBF van bé.
Conforme gamma creix comença a millorar.
A partir de cert punt (gamma=0.6), RBF comença a fer overfit.

Apartat B

Efectes dels canvis de degree



Si degree és massa petit, fa underfit.

Si degree és massa gran, fa overfit (i triga moltíssim a fer el fit).

El nostre *sweet spot*, l'equilibri, creiem que és a 3.



Apartat A.1

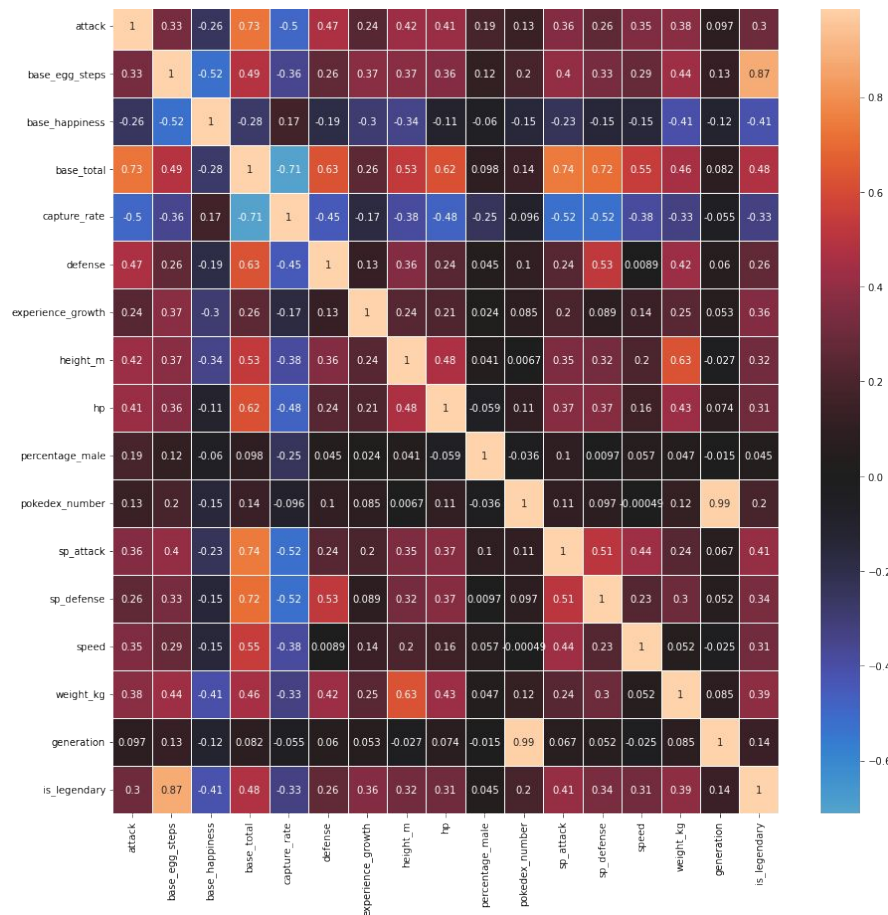
Variable Objectiu:
is_legendary

Atribut	Tipus	Descripció
name	String	The English name of the Pokemon
japanese_name	String	The Original Japanese name of the Pokemon
pokedex_number	Numeric	The entry number of the Pokemon in the National Pokedex
percentage_male	Numeric.	The percentage of the species that are male. Blank if the Pokemon is genderless.
type1	String categoric	The Primary Type of the Pokemon
type2	String categoric	The Secondary Type of the Pokemon
classification	String categoric	The Classification of the Pokemon as described by the Sun and Moon Pokedex
height_m	Numeric	Height of the Pokemon in metres
weight_kg	Numeric	The Weight of the Pokemon in kilograms
capture_rate	Numeric	Capture Rate of the Pokemon
base_egg_steps	Numeric	The number of steps required to hatch an egg of the Pokemon
abilities	String categoric	A stringified list of abilities that the Pokemon is capable of having
experience_growth	Numeric	The Experience Growth of the Pokemon
base_happiness	Numeric	Base Happiness of the Pokemon
against_?	Numeric	Eighteen features that denote the amount of damage taken against an attack of a particular type
hp	Numeric	The Base HP of the Pokemon
attack	Numeric	The Base Attack of the Pokemon
defense	Numeric	The Base Defense of the Pokemon
sp_attack	Numeric	The Base Special Attack of the Pokemon
sp_defense	Numeric	The Base Special Defense of the Pokemon
speed	Numeric	The Base Speed of the Pokemon
generation	Numeric	The numbered generation which the Pokemon was first introduced
is_legendary	Binary	Denotes if the Pokemon is legendary

Apartat A.1

Variables principals:

- *base_egg_steps*
- *base_happines*
- *base_total*
- *capture_rate*
- *expirience_growth*



Apartat A.1

Variables principals:

- *base_egg_steps*
- *base_happines*
- *base_total*
- *capture_rate*
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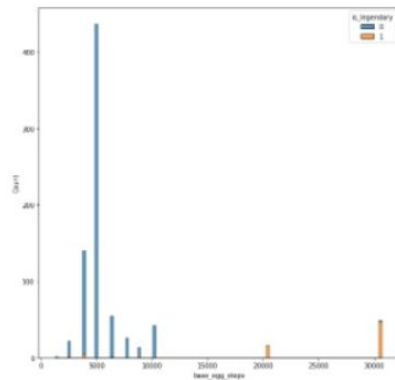


Figura 10: Passos per fer eclosió

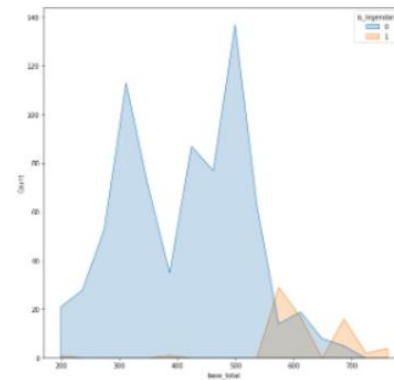


Figura 11: Base de poder

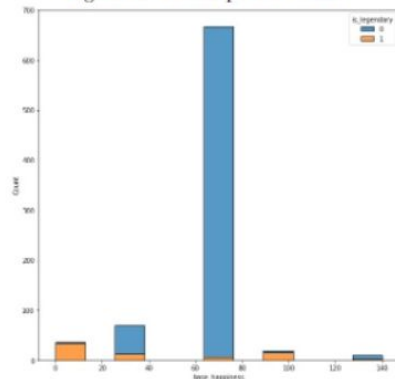


Figura 12: Felicitat base

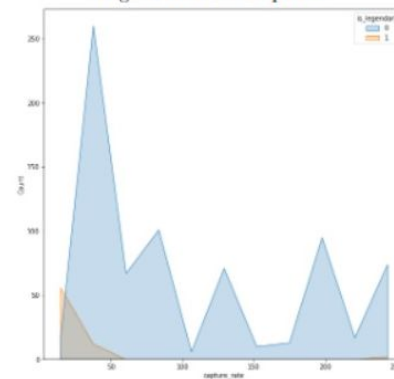


Figura 13: Rati de captura

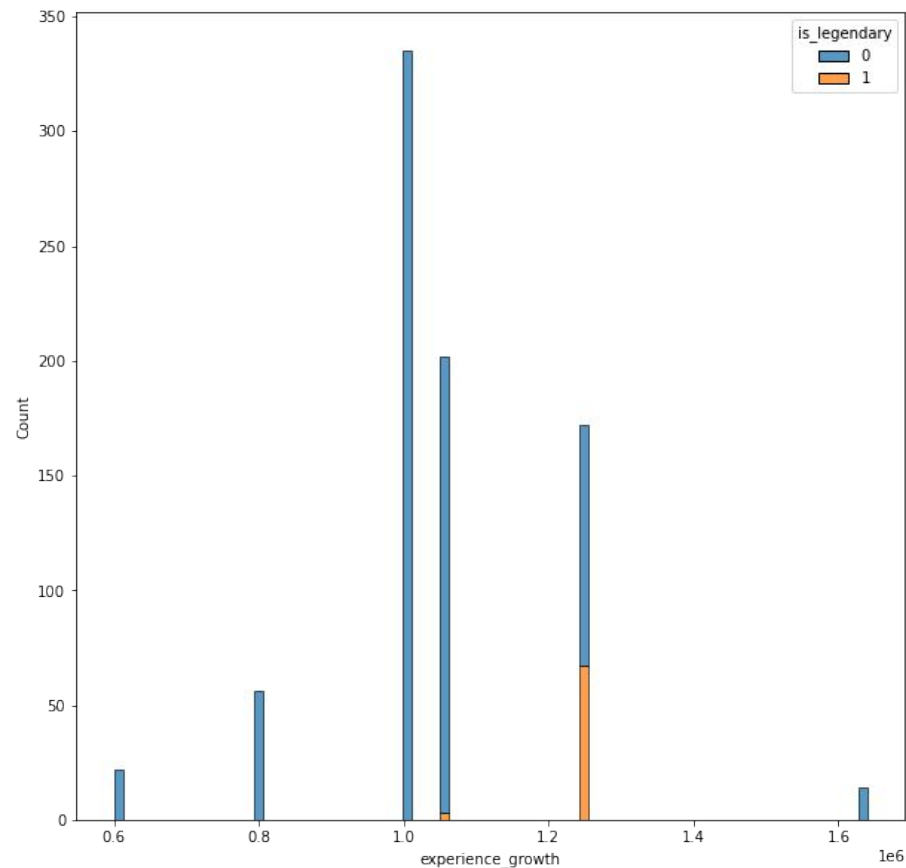
Apartat A.2

Variables principals:

- *base_egg_steps*
- *base_happines*
- *base_total*
- *capture_rate*
- *expirience_growth*

Les dades necessiten ser normalitzades

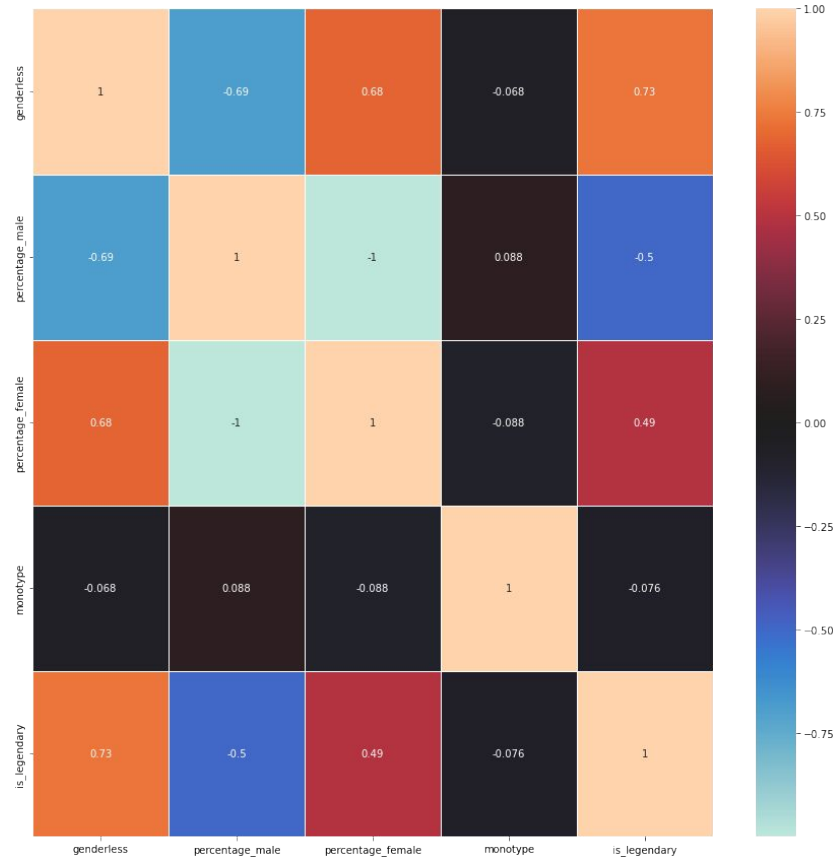
`preprocessing.StandardScaler()`



Apartat A.2

Columnes amb NaNs

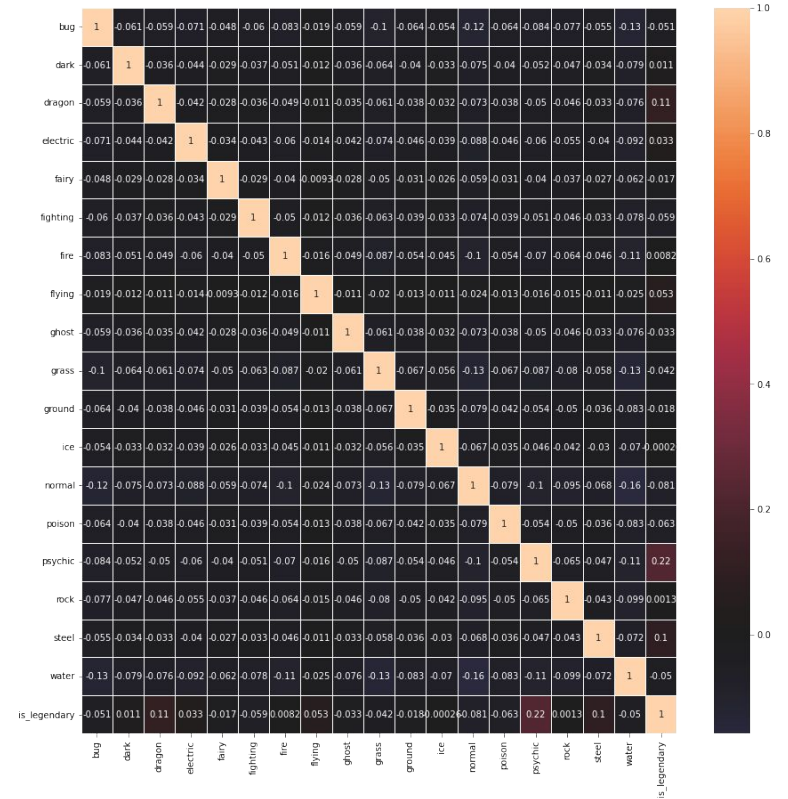
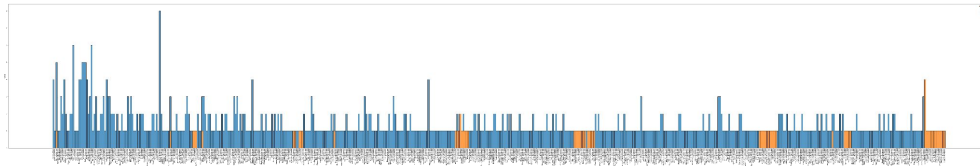
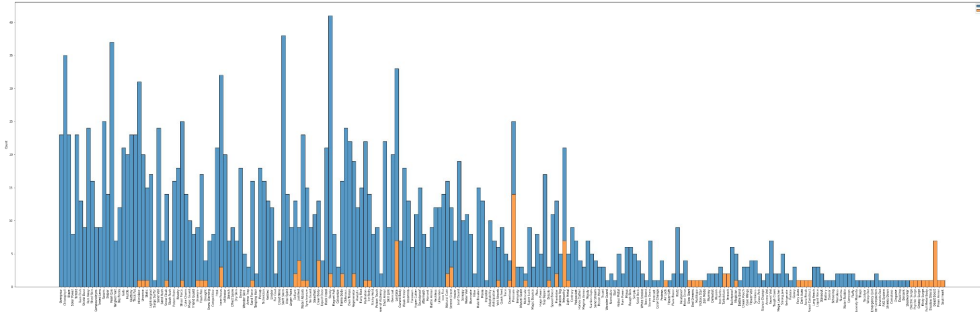
- *percentage_male*
- *type2*
- *weight_kg*
- *height_m*



Pràctica 2: Classificació

Apartat A.2

Variables categòriques





Apartat A.3

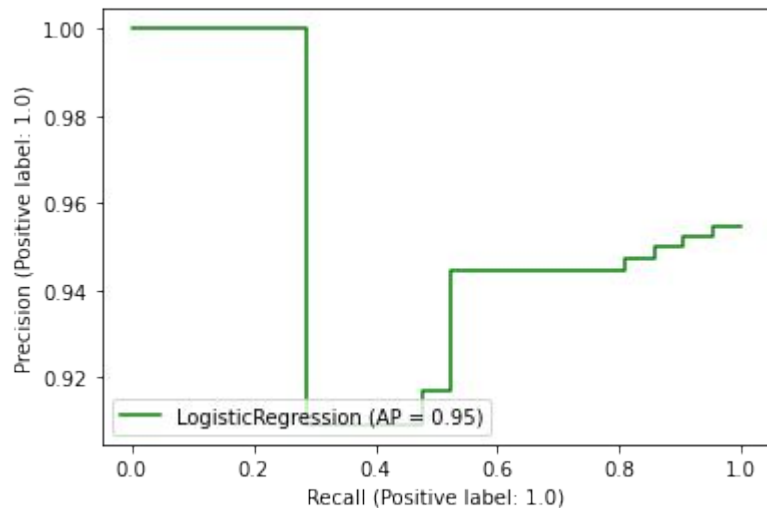
Model	Percentatge	Mitjana general		Mitjana ponderada	
		precisió	f1 score	precisió	f1 score
Logístic	50%	0.96	0.97	0.99	0.99
	70%	0.99	0.96	0.99	0.99
	80%	0.95	0.98	0.94	0.94
SVM Lineal	50%	0.96	0.96	0.99	0.99
	70%	1.00	0.99	1.00	1.00
	80%	0.94	0.96	0.99	0.99
SVM RBF	50%	0.97	0.97	0.99	0.99
	70%	0.97	0.96	0.99	0.99
	80%	1.00	1.00	1.00	1.00



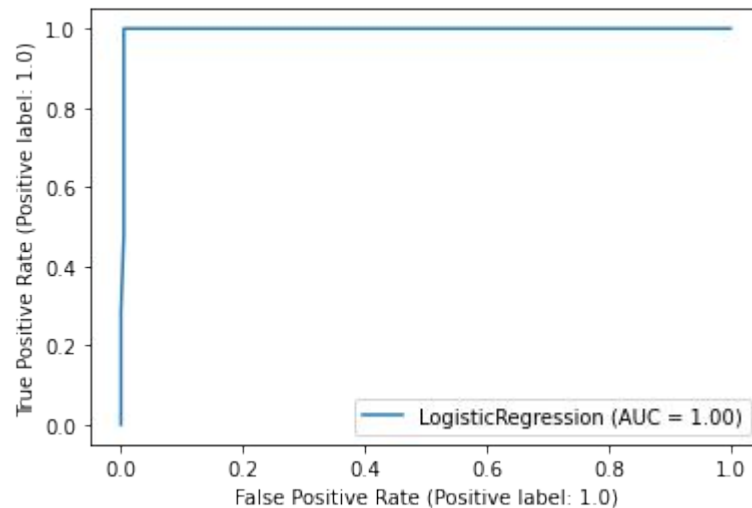
Apartat A.4

Model	K	cross validation					Mitja
Logístic	3	1.00	0.98	0.96			0.98
	4	0.99	1.00	0.96	0.94		0.97
	5	0.99	0.99	0.99	0.98	0.95	0.98
SVM Lineal	3	0.99	0.96	0.96			0.97
	4	0.99	0.98	0.98	0.96		0.98
	5	0.98	0.99	0.99	0.96	0.93	0.97
SVM RBF	3	0.99	0.96	0.96			0.97
	4	0.99	0.98	0.98	0.96		0.98
	5	0.97	0.98	0.98	0.96	0.93	0.96

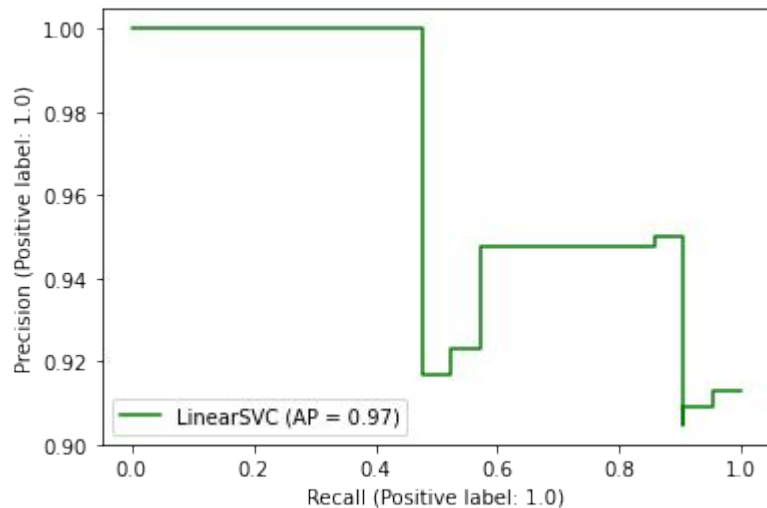
Apartat A.5



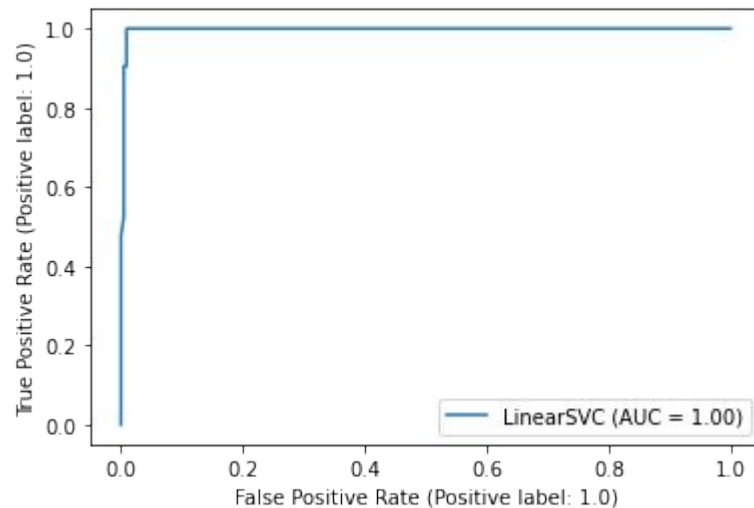
Regressió Logística



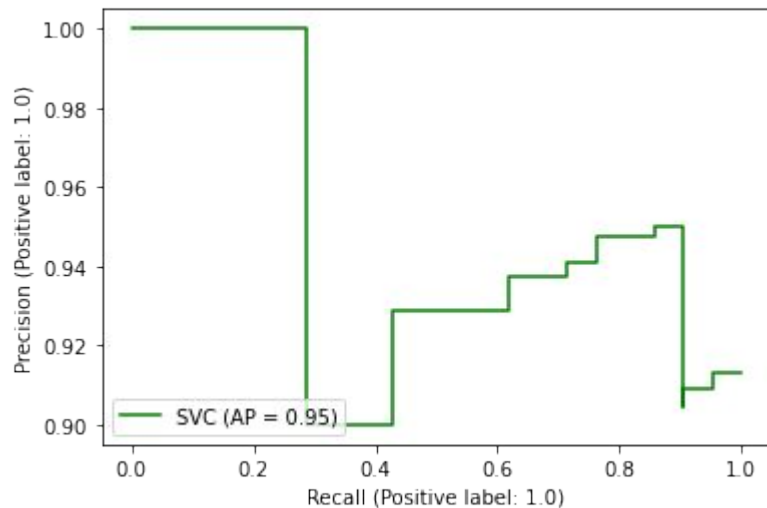
Apartat A.5



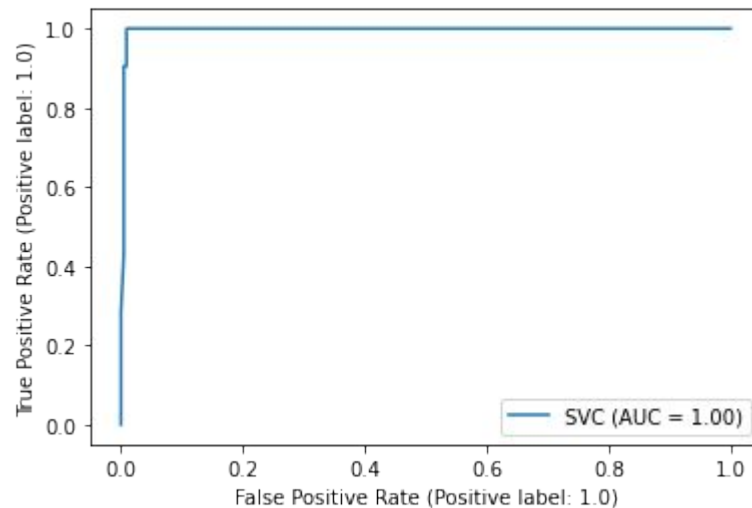
SVM amb kernel Lineal



Apartat A.5



SVM amb kernel RBF



Apartat A.6

