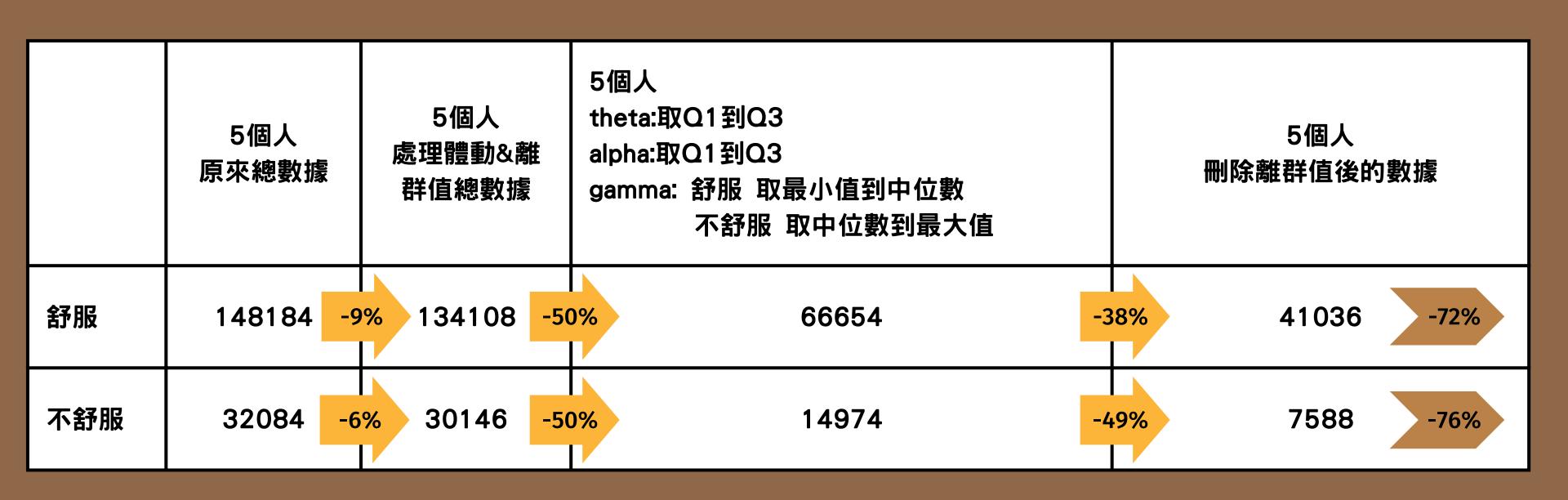


4種模型訓練 CZ fz CZfz

theta & alpha & gamma特徵之數據



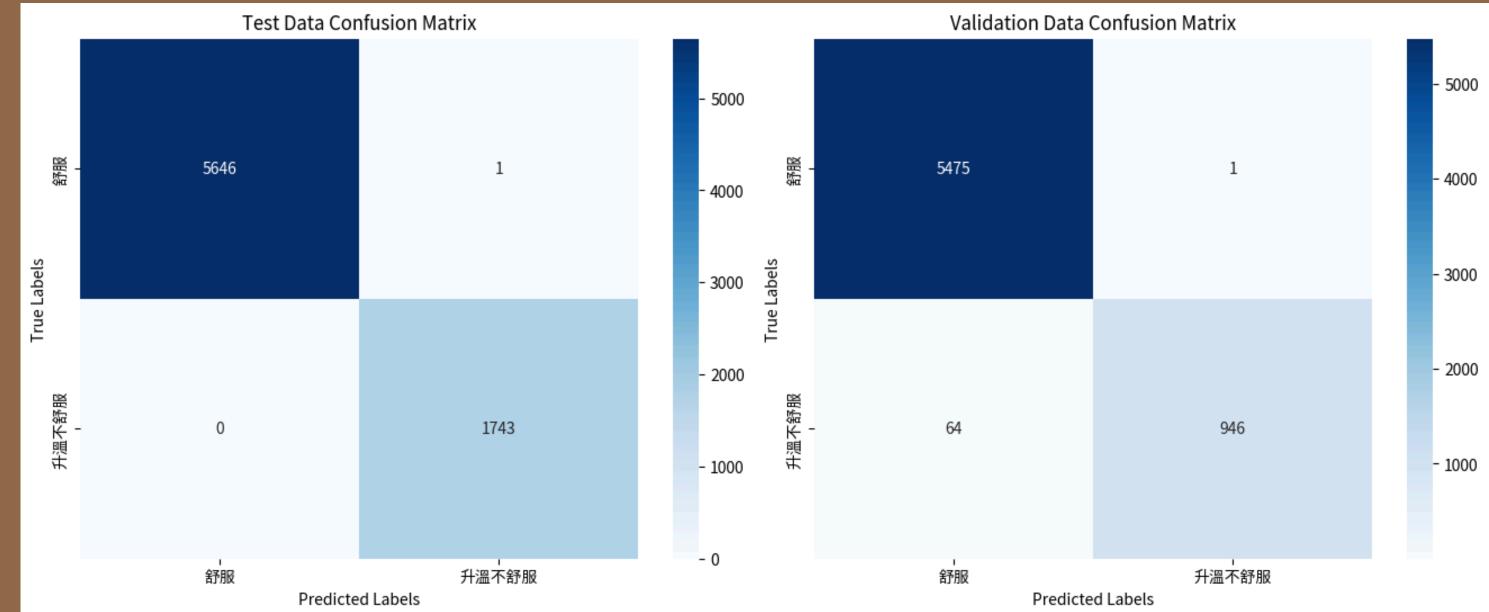
Train: ['xubo', 'rong']

Test: ['yxy', 'kingcloser']

Validation: ['OJH']

Cz 邏輯回歸 THETA ALPHA GAMMA





Train: ['xubo', 'rong']

Test: ['yxy', 'kingcloser']

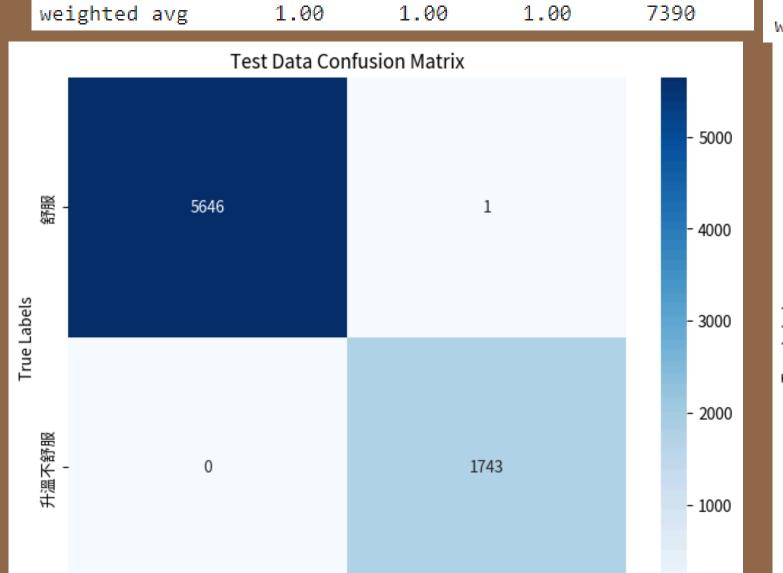
Validation: ['OJH']

Cz 邏輯回歸 THETA ALPHA GAMMA

驗證:KINGCLOSER2

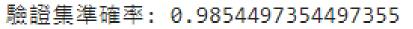
舒服

測試集準確率: 0.9998646820027064 測試集分類報告: recall f1-score support precision 舒服 1.00 1.00 1.00 5647 升溫不舒服 1.00 1.00 1.00 1743 1.00 7390 accuracy 1.00 1.00 1.00 7390 macro avg



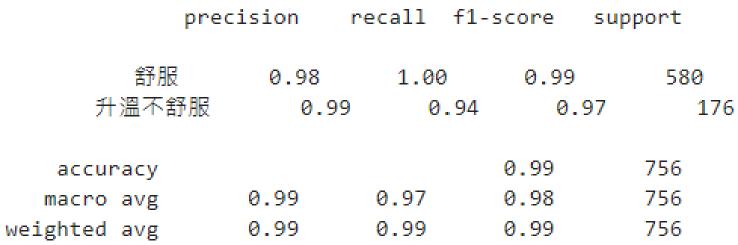
Predicted Labels

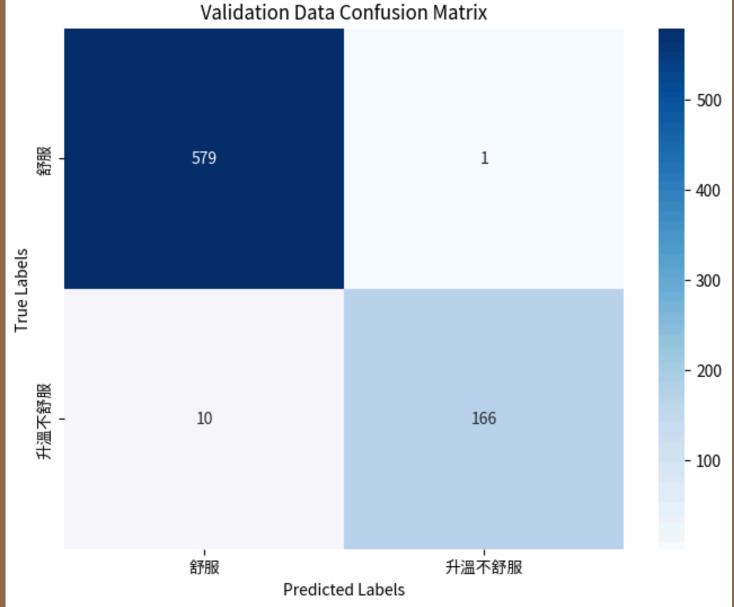
升溫不舒服



驗證集分類報告:

- 0





Train: ['xubo', 'rong']

Test: ['yxy', 'kingcloser']

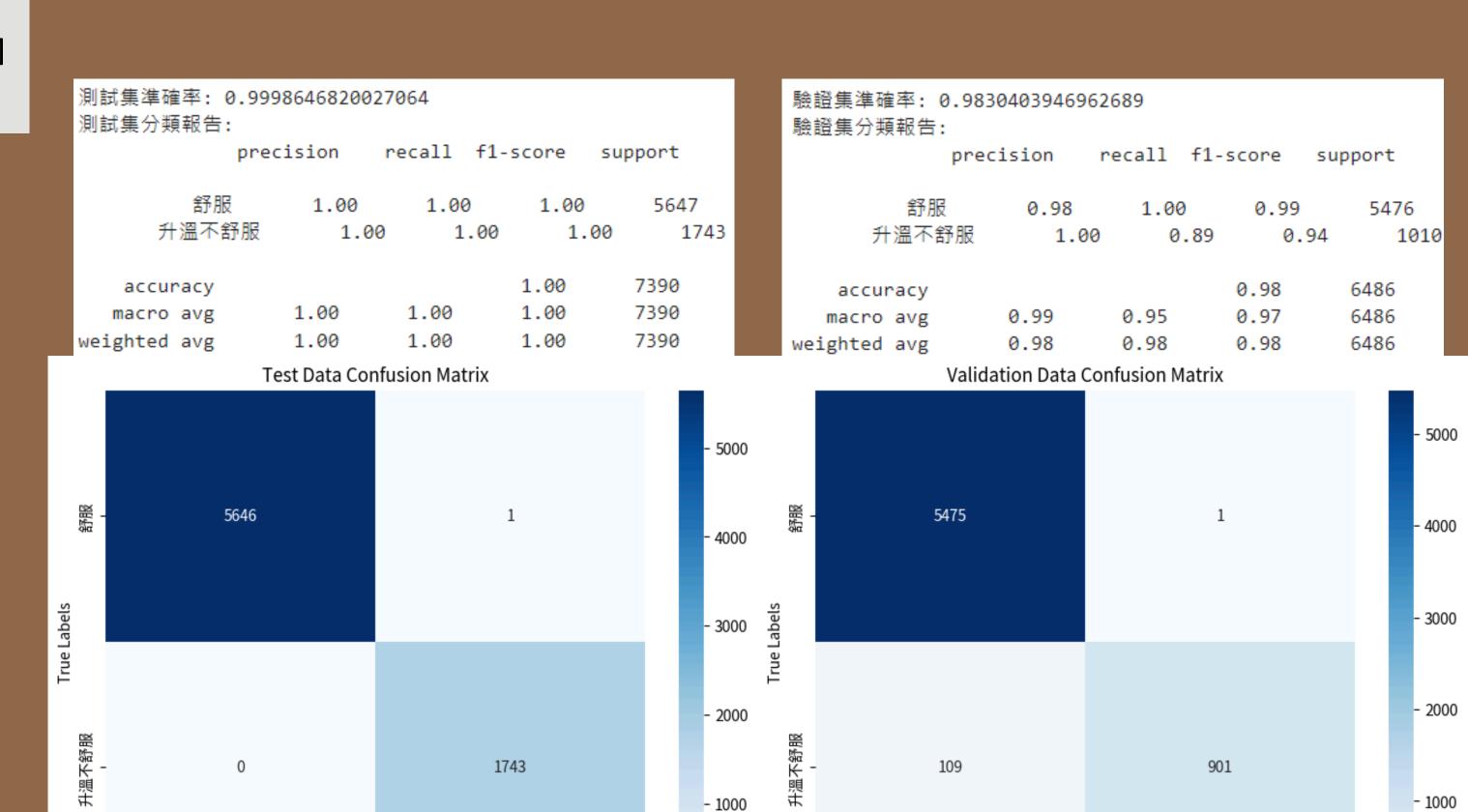
Validation: ['OJH']

Fz 邏輯回歸 THETA ALPHA GAMMA

舒服

升溫不舒服

Predicted Labels



升溫不舒服

Predicted Labels

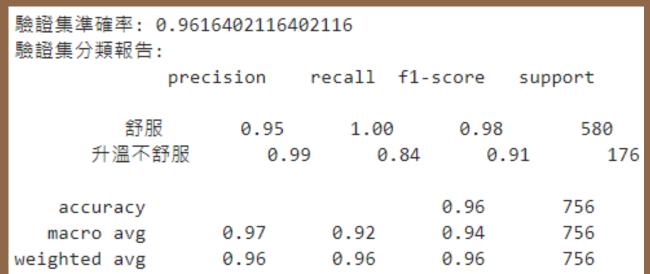
Train: ['xubo', 'rong']

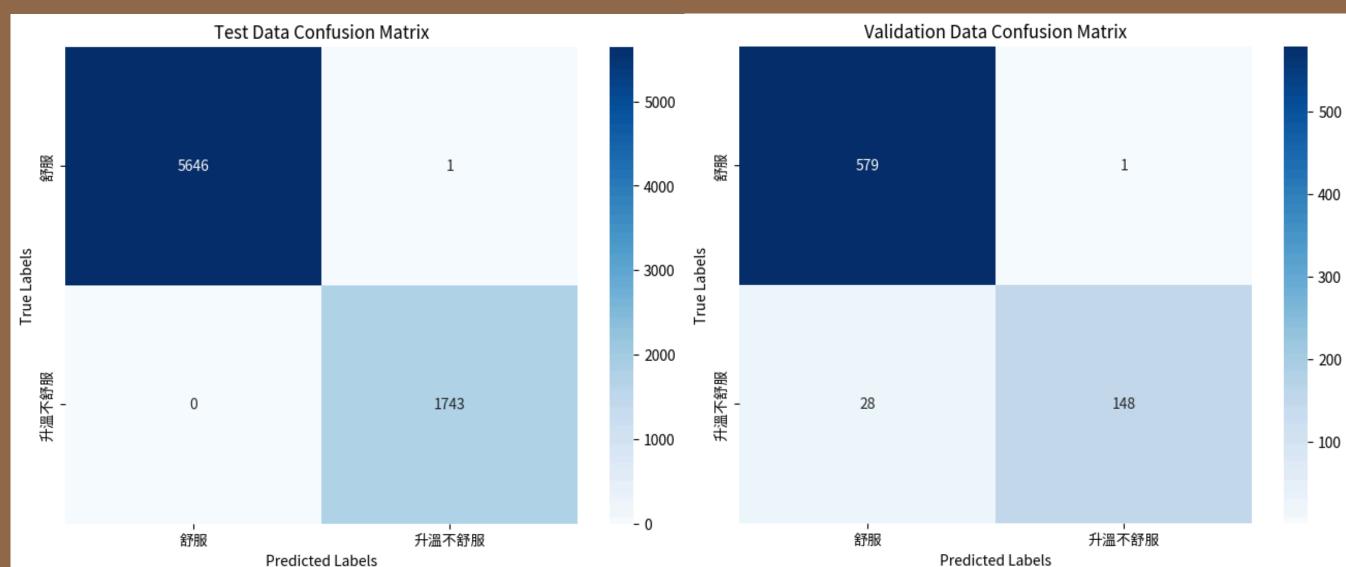
Test: ['yxy', 'kingcloser']

Validation: ['OJH']

Fz 邏輯回歸 THETA ALPHA GAMMA 驗證:KINGCLOSER2

測試集準確率: 0.9998646820027064 測試集分類報告:							
precision recall f1-score support							
	予服 不舒服	1.00	1.00	1.00	5647 1743		
accurac	у			1.00	7390		
macro av	g	1.00	1.00	1.00	7390		
weighted av	g	1.00	1.00	1.00	7390		



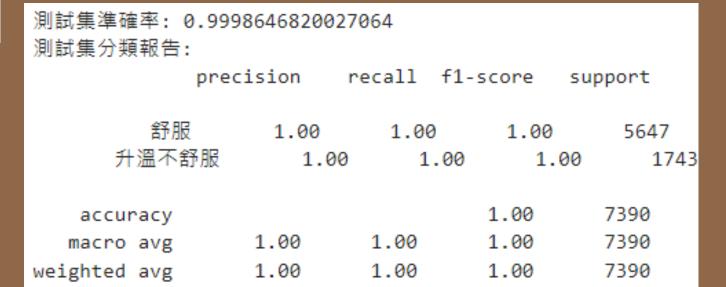


Train: ['xubo', 'rong']

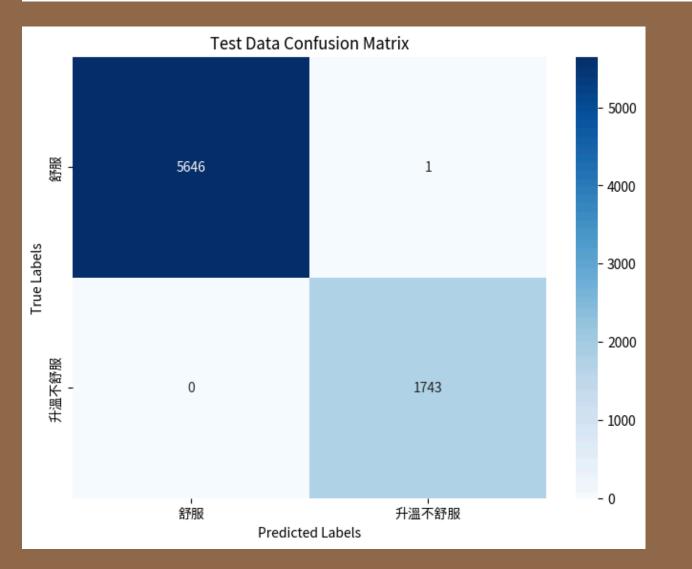
Test: ['yxy', 'kingcloser']

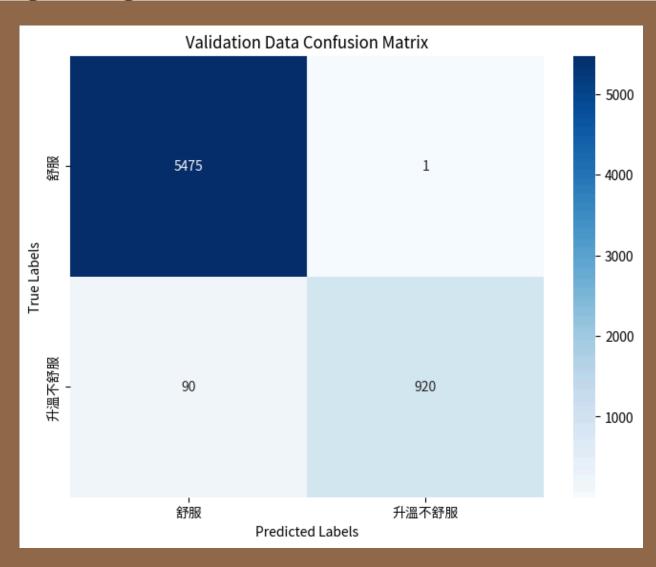
Validation: ['OJH']

Cz Fz 邏輯回歸 THETA ALPHA GAMMA



驗證集準確率: 0.9859697810669134							
驗證集分類報告:							
	precision	recall f1	l-score	support			
舒服	0.98	1.00	0.99	5476			
升溫不舍	予服 1.0	0.91	l 0.	95 1010			
				6406			
accuracy			0.99	6486			
macro avg	0.99	0.96	0.97	6486			
weighted avg	0.99	0.99	0.99	6486			





Train: ['xubo', 'rong']

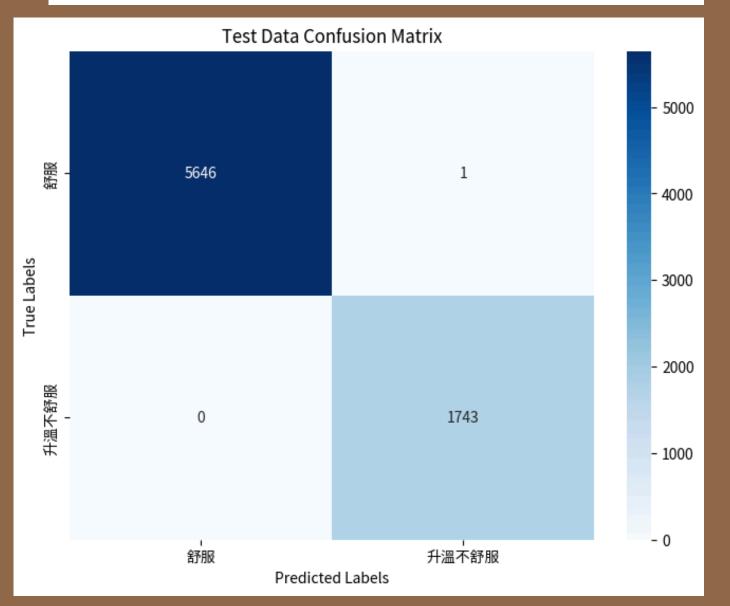
Test: ['yxy', 'kingcloser']

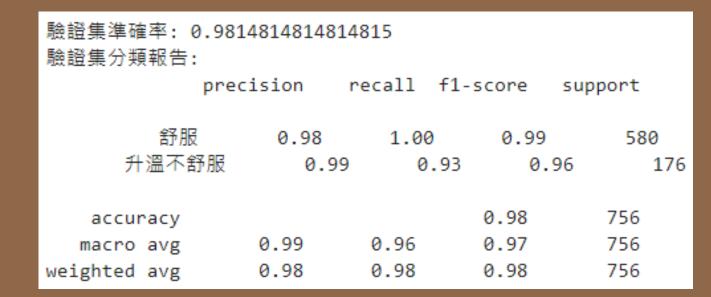
Validation: ['OJH']

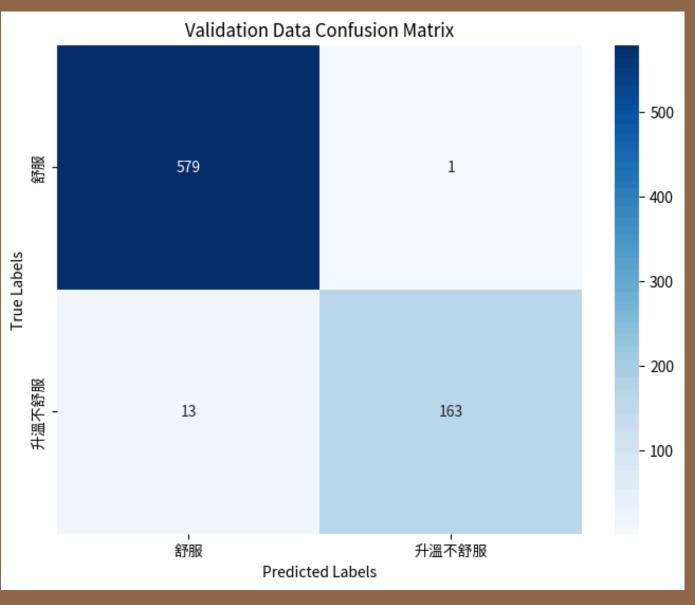
Cz Fz

THETA ALPHA GAMMA

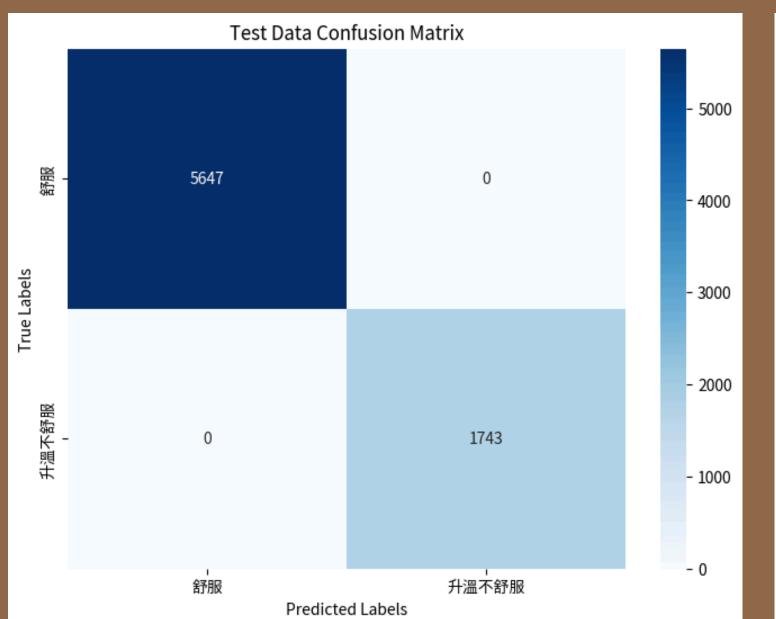
測試集準確率: 0.9998646820027064 測試集分類報告:							
/X1 RAV DTC /11 XX T	пх — •						
	preci	ision re	ecall f1-	score su	pport		
	舒服	1.00	1.00	1.00	5647		
升溫	20不舒服	1.00	1.00	1.00	1743		
accura	асу			1.00	7390		
macro a	avg	1.00	1.00	1.00	7390		
weighted a	avg	1.00	1.00	1.00	7390		



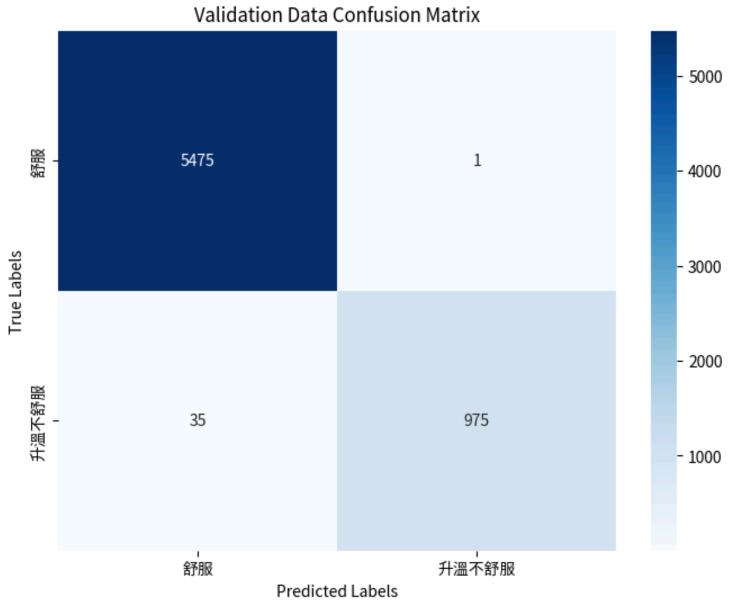




測試集準確率: 1.0 測試集分類報告:							
	precis	sion re	call f1-s	core sup	port		
	服	1.00	1.00	1.00	5647		
】 ・	下舒服	1.00	1.00	1.00	1743		
accuracy	/			1.00	7390		
macro ava	g 1	L.00	1.00	1.00	7390		
weighted av	g 1	1.00	1.00	1.00	7390		



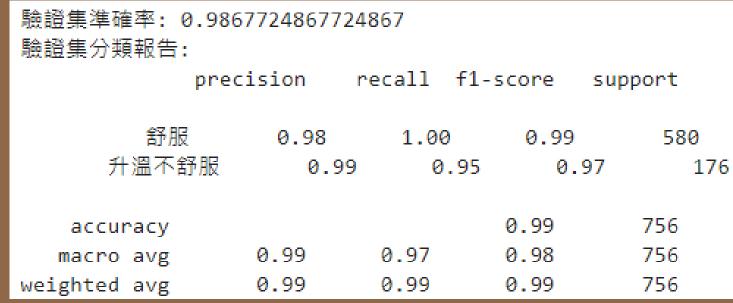
驗證集準確	摩: 0.994	449583718	7789			
驗證集分類	報告:					
	prec	ision	recall	f1-score	support	
	舒服	0.99	1.00	1.0	0 5476	5
升	溫不舒服	1.00	0	.97 (0.98 1	010
accur	racy			0.99	6486	
macro	avg	1.00	0.98	0.99	6486	
weighted	avg	0.99	0.99	0.99	6486	

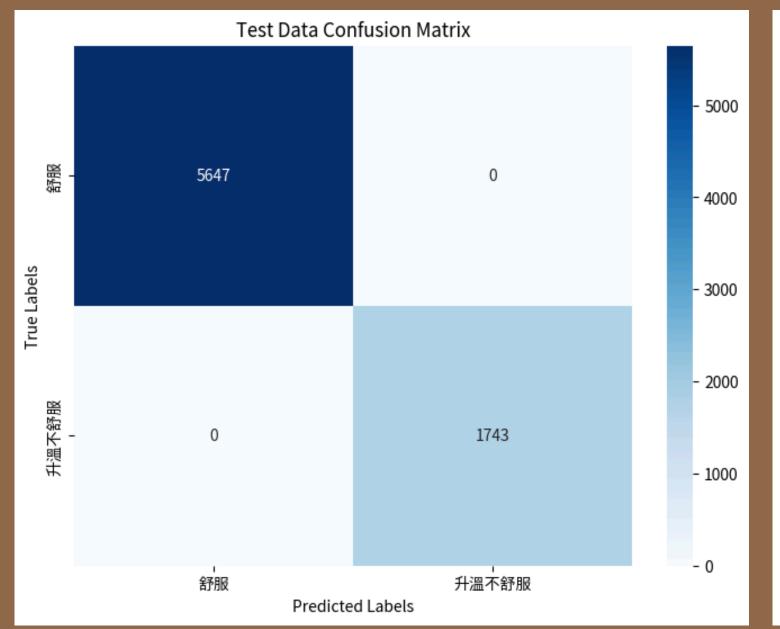


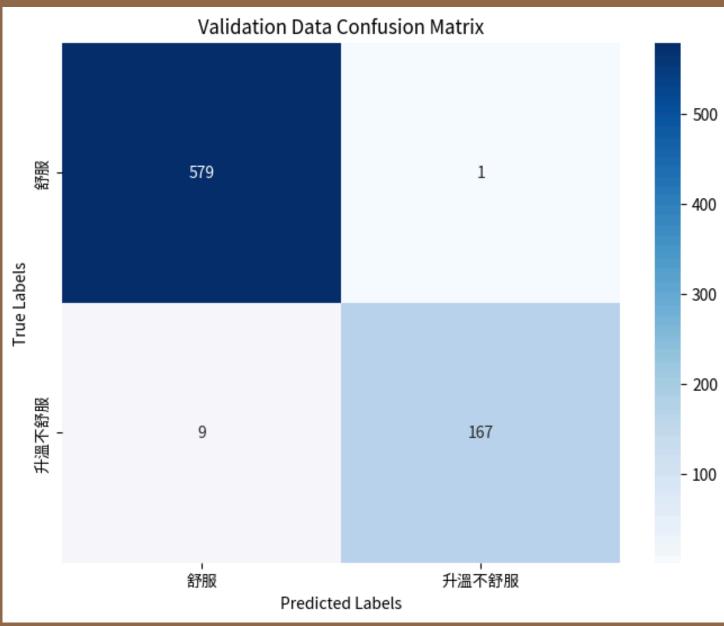
Cz

THETA ALPHA GAMMA

測試集準確率: 1.0 測試集分類報告:				
pre	ecision	recall f1	-score	support
47.00				
舒服	1.00	1.00	1.00	5647
升溫不舒服	1.0	0 1.00	1.6	00 1743
accuracy			1.00	7390
macro avg	1.00	1.00	1.00	7390
weighted avg	1.00	1.00	1.00	7390

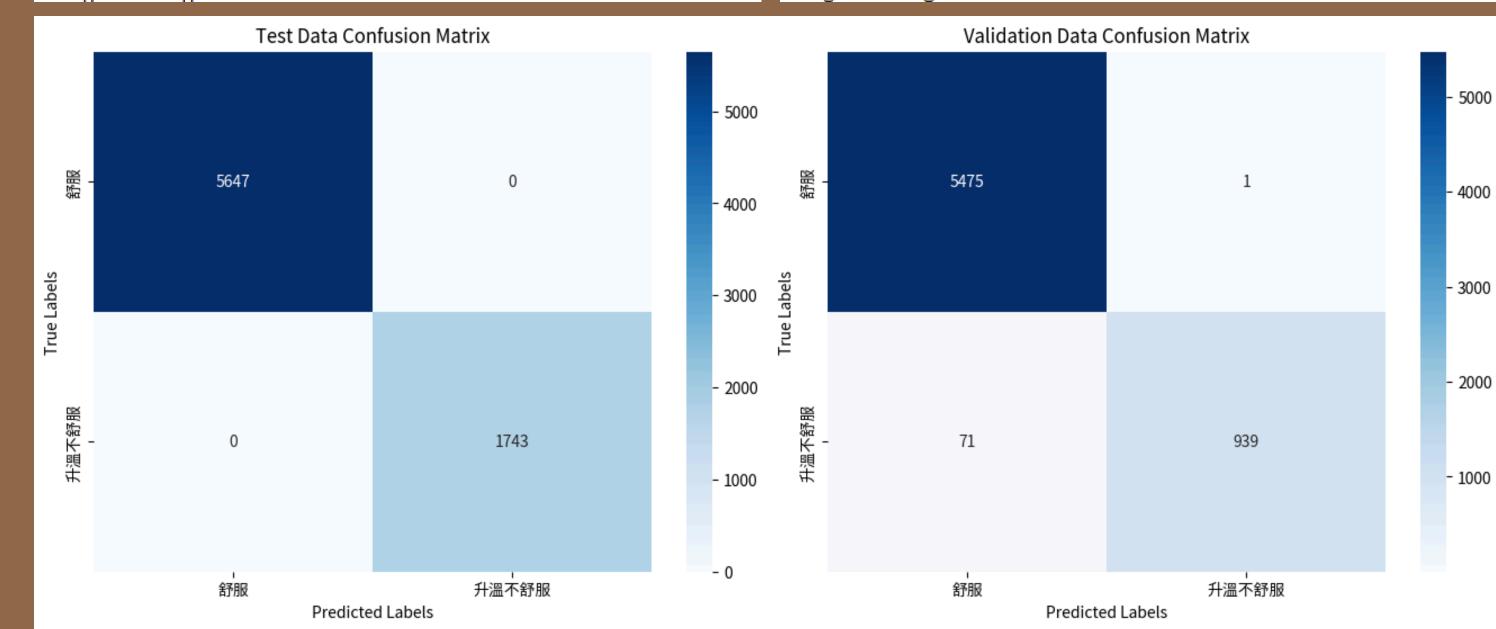






測試集準確率: 1.0 測試集分類報告:							
precision recall f1-score support							
舒服	•			5647			
升溫不	57/NQ 1	.00 1	.00 1.	00 1743			
accuracy			1.00	7390			
macro avg	1.00	1.00	1.00	7390			
weighted avg	1.00	1.00	1.00	7390			

驗證集準確率: 0.9888991674375578 驗證集分類報告:							
precision recall f1-score support							
舒. 升溫不		.99 1.0 1.00 (9 5476).96 1010			
/////////////////////////////////////	`	1.00	0.55	7.50 1010			
accuracy			0.99	6486			
macro avg	0.99	9 0.96	0.98	6486			
weighted avg	0.99	9 0.99	0.99	6486			

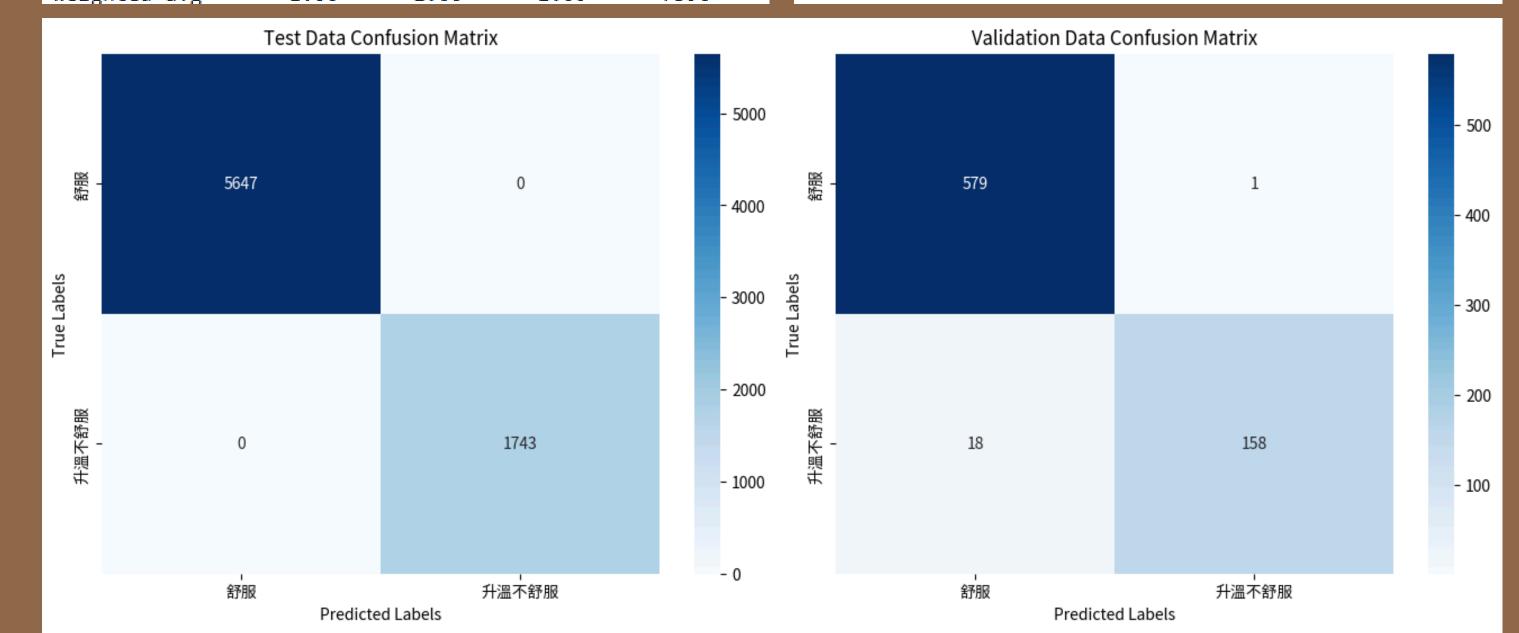


^{幾森林} Fz

THETA ALPHA GAMMA

測試集準確率: 1.0 測試集分類報告:							
р	recision	recall f1-	score s	upport			
舒服	1.00	1.00	1.00	5647			
升溫不舒朋	₹ 1.00	1.00	1.00	1743			
accuracy			1.00	7390			
macro avg	1.00	1.00	1.00	7390			
weighted avg	1.00	1.00	1.00	7390			

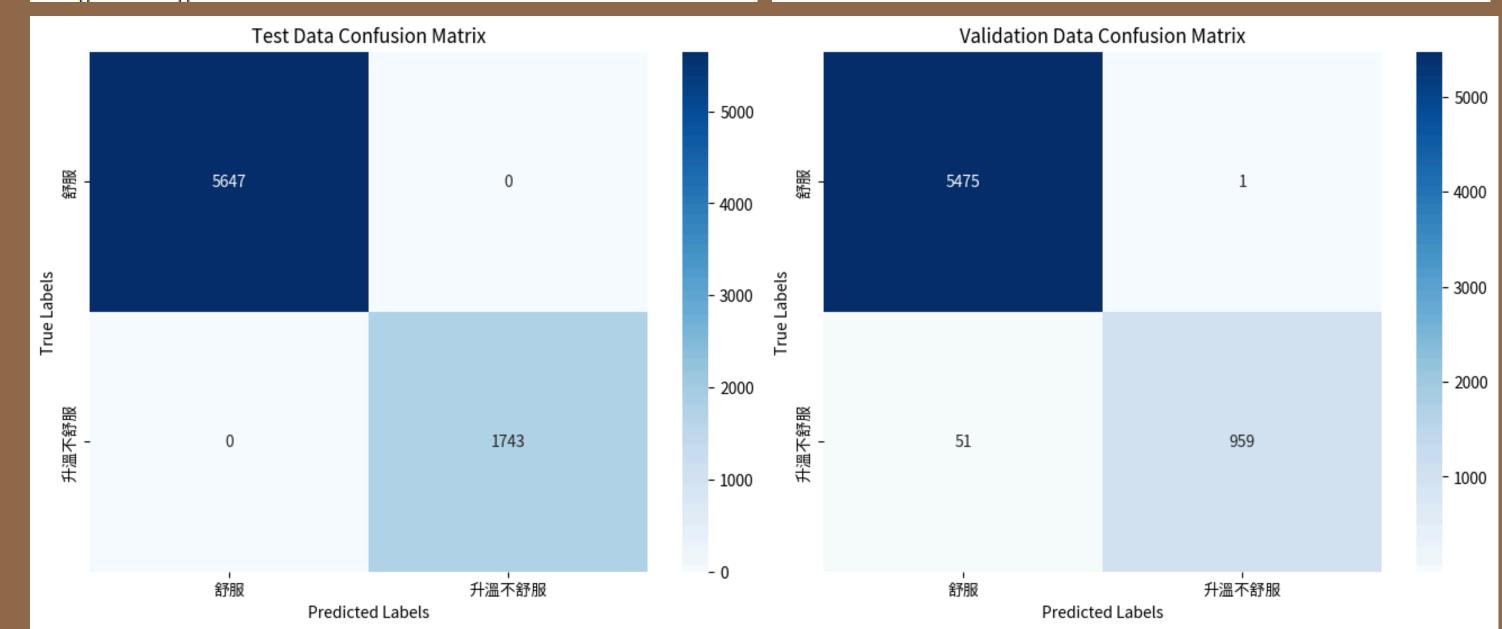
驗證集準確率: 0.9748677248677249 驗證集分類報告:								
	prec	ision r	recall	f1-score	support			
	舒服	0.97	1.00	0.98	580			
升	溫不舒服	0.99	0	.90 0.	94 176			
accur	racy			0.97	756			
macro	avg	0.98	0.95	0.96	756			
weighted	avg	0.98	0.97	0.97	756			



隨機森林 CzFz

測試集準確率: 1.0 測試集分類報告:							
precision recall f1-score support							
舒服	•			5647			
升溫不	57/NQ 1	.00 1	.00 1.	00 1743			
accuracy			1.00	7390			
macro avg	1.00	1.00	1.00	7390			
weighted avg	1.00	1.00	1.00	7390			

驗證集準確率: 0.9919827320382362 驗證集分類報告:								
precision recall f1-score support								
-11	舒服	0.99	1.00	1.00	5476			
л	溫不舒服	1.00	0.95	0.97	1010			
accur	acy			0.99	6486			
macro	avg	0.99	0.97	0.98	6486			
weighted	avg	0.99	0.99	0.99	6486			

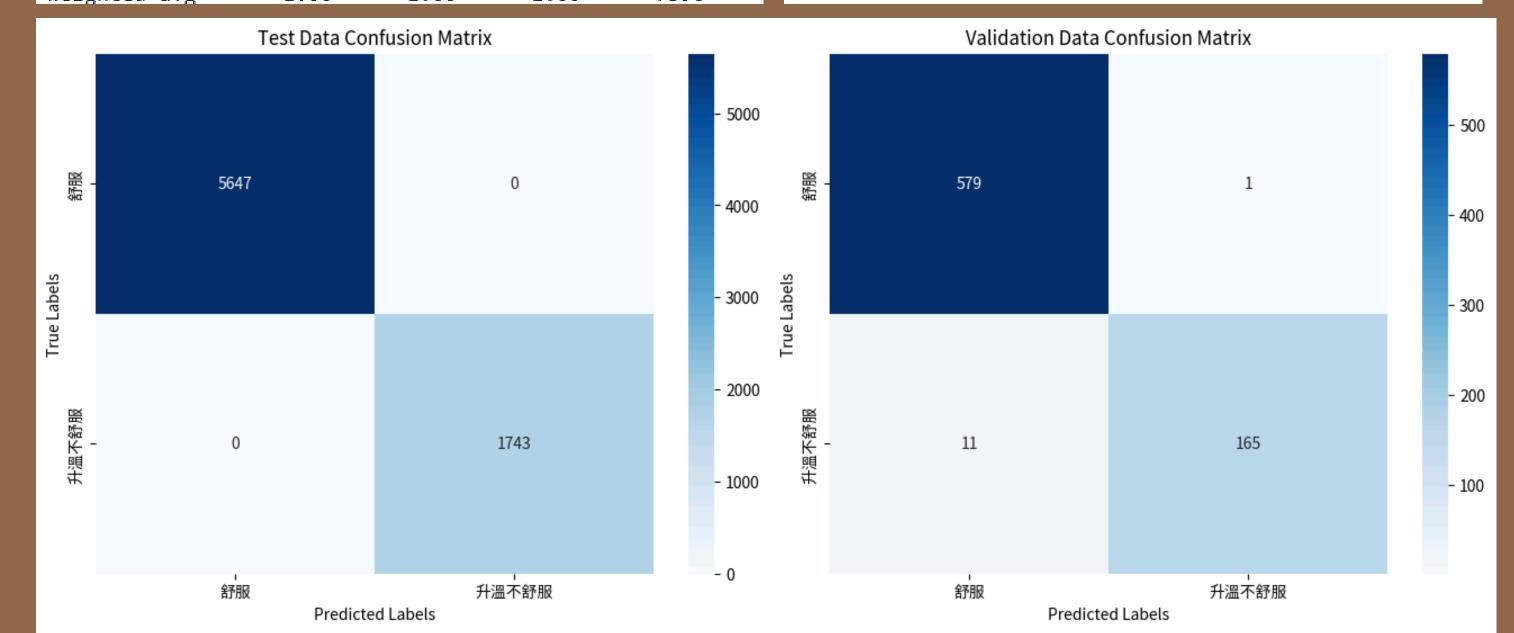


隨機森林 CzFz

THETA ALPHA GAMMA

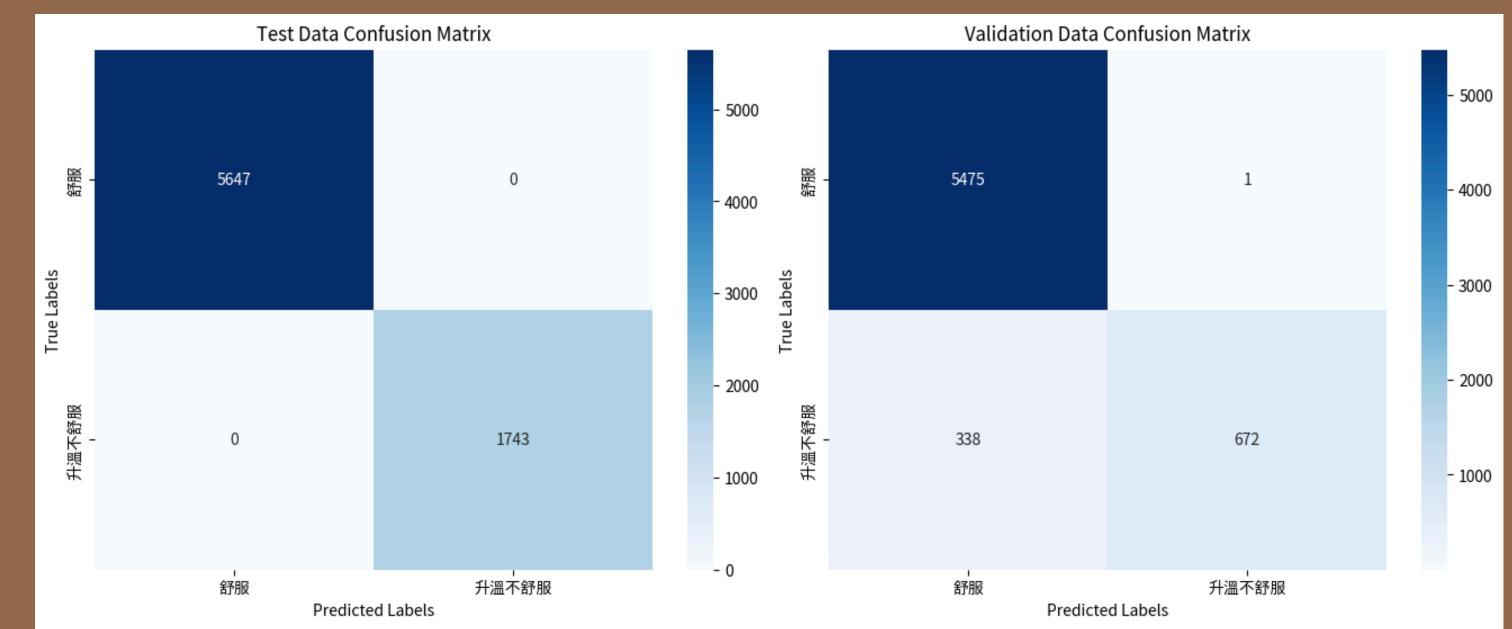
測試集準確率: 1.0 測試集分類報告:									
р	recision	recall f1-	score s	upport					
舒服	1.00	1.00	1.00	5647					
升溫不舒服	版 1.00	1.00	1.00	1743					
accuracy			1.00	7390					
macro avg	1.00	1.00	1.00	7390					
weighted avg	1.00	1.00	1.00	7390					

驗證集準確率: 0.9841269841269841 驗證集分類報告:									
	precision	recall f1-	score	support					
舒服 升溫不舒		1.00 0.94	0.99 0.	580 96 176					
accuracy			0.98	756					
macro avg	0.99	0.97	0.98	756					
weighted avg	0.98	0.98	0.98	756					



測試集準確率: 1.0 測試集分類報告:									
	precision recall f1-score support								
舒服 升溫不	•		1.00 00 1.	5647 00 1743					
accuracy macro avg	1.00	1.00	1.00 1.00	7390 7390					
weighted avg	1.00	1.00	1.00	7390					

驗證集準確率: 0.9477335800185014 驗證集分類報告:									
precision recall f1-score support									
舒	服 0.9	94 1.0	0 0.97	7 5476					
升溫不	「舒服	1.00 0).67 0	.80 1010					
accuracy	,		0.95	6486					
macro avg		0.83	0.88	6486					
weighted avg	•	0.95	0.94	6486					

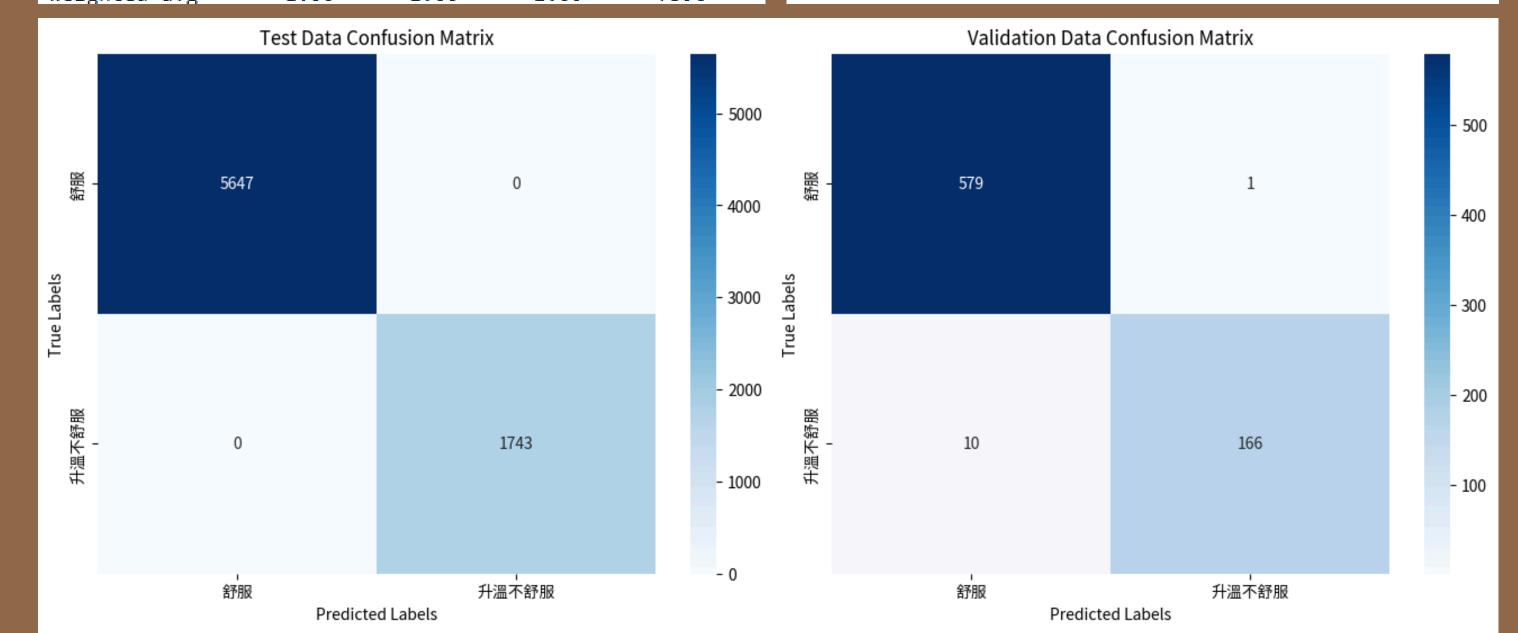


SVM Cz

THETA ALPHA GAMMA

測試集準確率: 1.0 測試集分類報告:										
	precision	recall f1-	score s	support						
舒服	1.00	1.00	1.00	5647						
升溫不舒	服 1.00	1.00	1.00	1743						
accuracy			1.00	7390						
macro avg	1.00	1.00	1.00	7390						
weighted avg	1.00	1.00	1.00	7390						

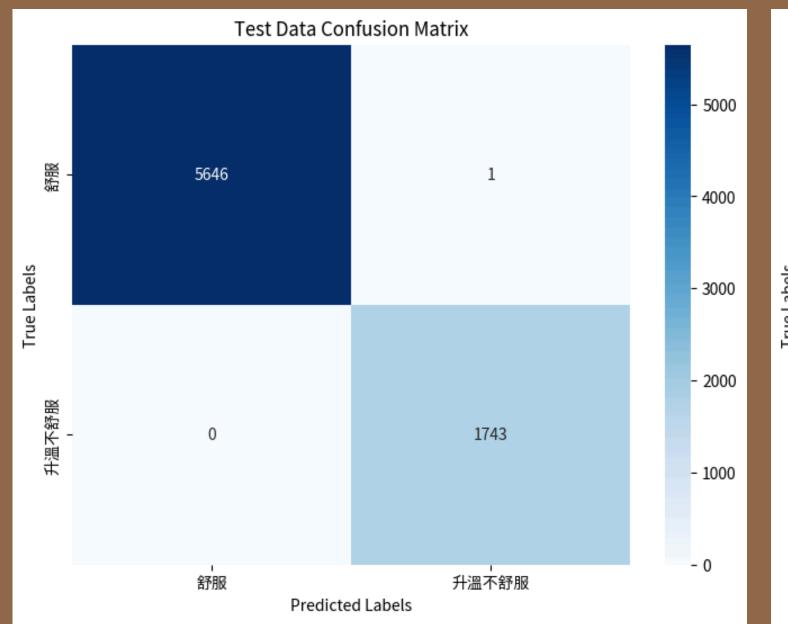
驗證集準確率: 0.9854497354497355 驗證集分類報告:									
	precision	recall f1	-score	support					
舒用	₹ 0.98	1.00	0.99	580					
升溫不	舒服 0.99	9 0.94	0.9	97 176					
accuracy			0.99	756					
macro avg	0.99	0.97	0.98	756					
weighted avg	0.99	0.99	0.99	756					

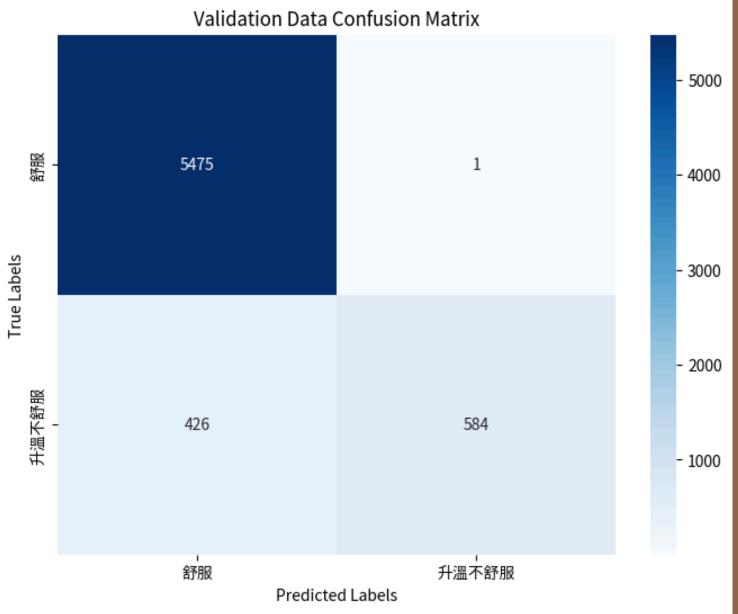


svm Fz

測試集準確率: 0.9998646820027064 測試集分類報告:									
	cision ı	recall f1-	score	support					
舒服	1.00	1.00	1.00	5647					
升溫不舒服	1.00	1.00	1.	00 1743					
accuracy			1.00	7390					
macro avg	1.00	1.00	1.00	7390					
weighted avg	1.00	1.00	1.00	7390					

	[率: 0.934	165895775	5165		
驗證集分類	(報告:				
	prec	ision	recall	f1-score	support
	舒服	0.93	1.00	0.96	5476
升	溫不舒服	1.00	0.	58 0.	73 1010
accur	racy			0.93	6486
macro	avg	0.96	0.79	0.85	6486
weighted	avg	0.94	0.93	0.93	6486

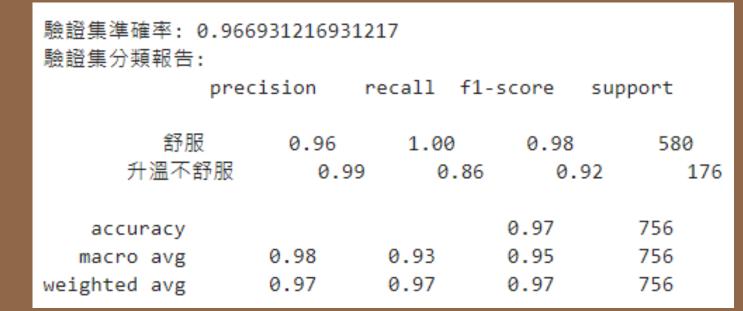


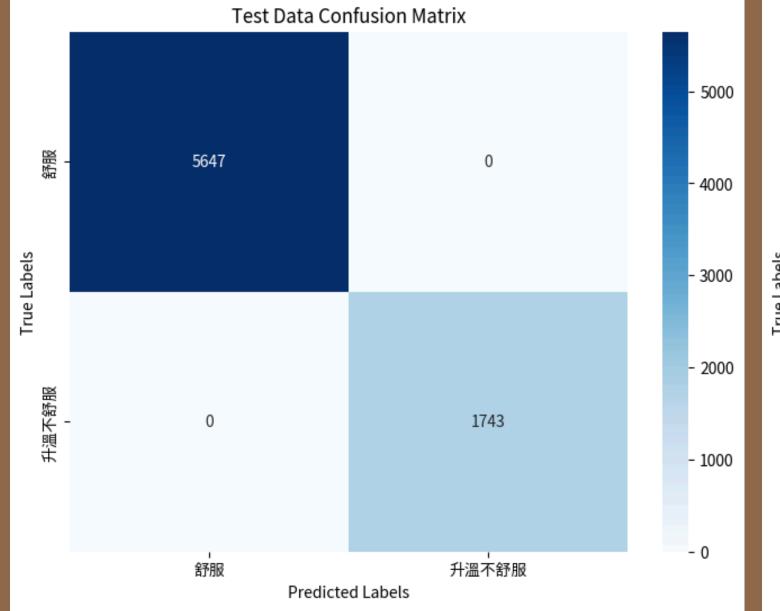


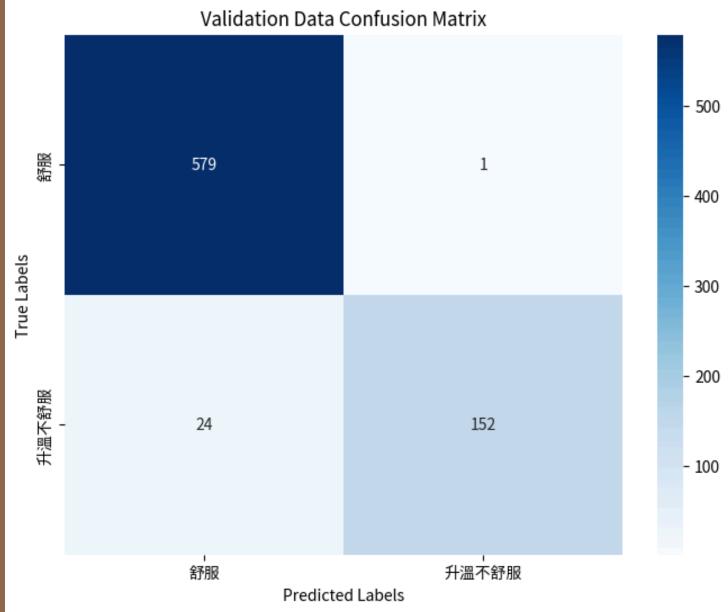
svm Fz

THETA ALPHA GAMMA

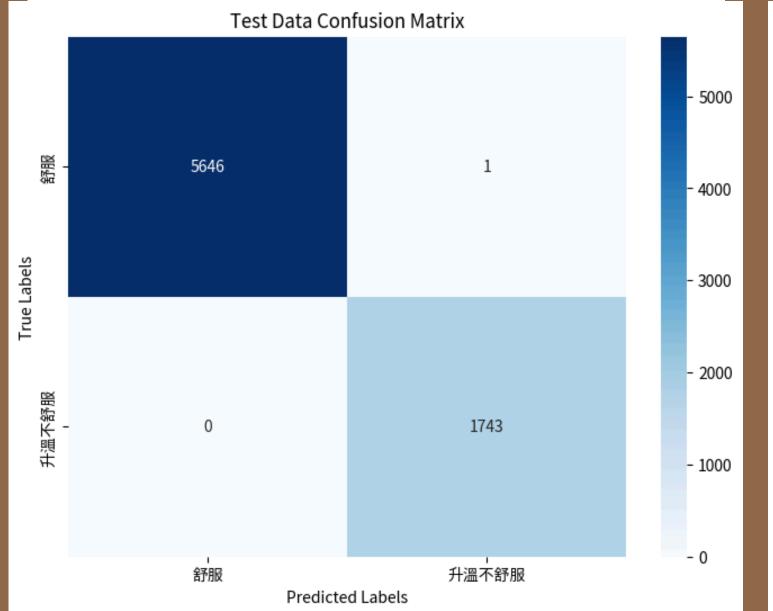
測試集準確 測試集分類幸	-				
	prec	ision r	ecall f1-	score su	pport
	舒服	1.00	1.00	1.00	5647
77.温	21不舒服	1.00	1.00	1.00	1743
accura	су			1.00	7390
macro a	vg	1.00	1.00	1.00	7390
weighted a	vg	1.00	1.00	1.00	7390



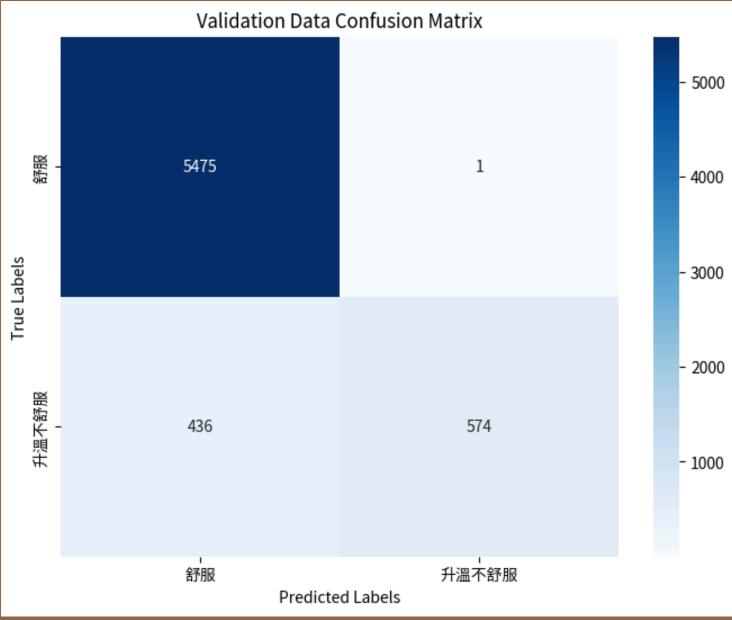




測試集準確率: 0.9998646820027064 測試集分類報告:											
	precisio	on recal	l f1-scor	e support	:						
舒	·服 1	.00 1.	.00 1.	.00 56	47						
升温る	下舒服	1.00	1.00	1.00	1743						
accuracy	/		1.0	0 7390)						
macro avg	g 1.6	30 1.0	0 1.0	0 7390)						
weighted ava	1.6	0 1.0	0 1.0	0 7390)						



驗證集準確	활率: 0.9∃	32624113475	1773			
驗證集分類	類報告:					
	pre	ecision	recall	f1-score	suppor	t
	舒服	0.93	1.00	9 0.	96 54	176
升	溫不舒服	1.00) 0	.57	0.72	1010
accur	racy			0.93	3 648	6
macro	avg	0.96	0.78	0.84	4 648	6
weighted	avg	0.94	0.93	0.92	2 648	6



測試集分類報告:

SVM CzFz THETA ALPHA GAMMA

驗證:KINGCLOSER2

測試集準確率: 0.9998646820027064

	pr	ecision	recall f1-	score s	upport				precision	recall	f1-score	support
	舒服 升溫不舒服	1.00	1.00 0 1.00	1.00 1.00	5647 1	7 743		舒服 升溫不舒		1.00 9 0		580 .96 176
	accuracy nacro avg ghted avg	1.00 1.00 Test Data Con	1.00 1.00 nfusion Matrix	1.00 1.00 1.00	7390 7390 7390			accuracy macro avg ghted avg	0.99 0.98 Validation Data	0.97 0.98 Confusion M	0.98 0.98 0.98 Matrix	756 756 756
舒服	5646			1		- 5000 - 4000	舒服		579		1	- 500 - 400
True Labels 所						- 3000 - 2000	True Labels 所					- 300 - 200
升溫不舒服 -	0		17	43		- 1000 - 0	升溫不舒服		12		164	- 100
	舒服	Predicte		- 下舒服		0			舒服 Predict	ed Labels	升溫不舒服	

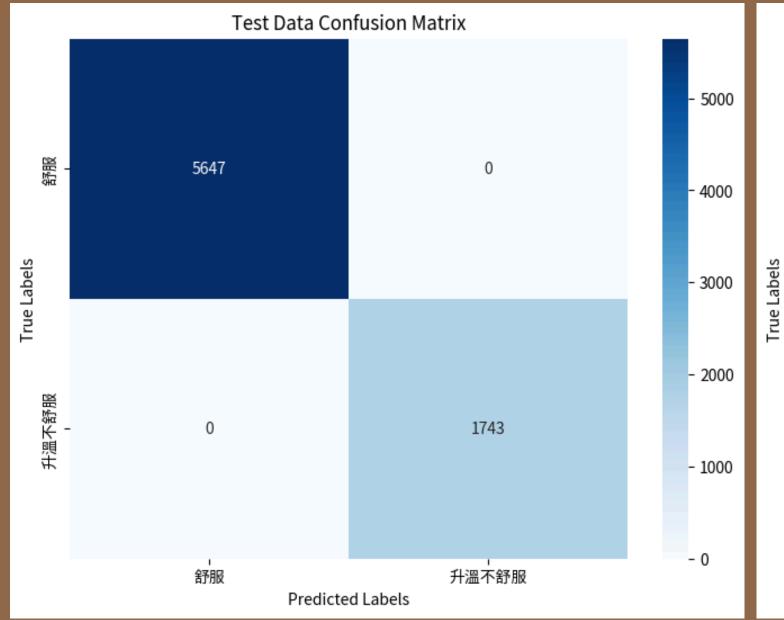
驗證集準確率: 0.9828042328042328

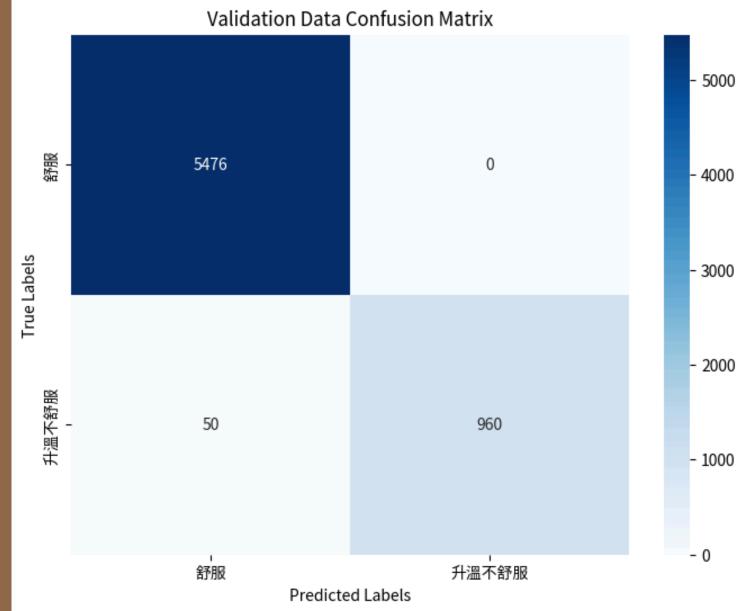
驗證集分類報告:

決策樹 **C**z

測試集準確率: 1.0 測試集分類報告:							
773473727377	preci	ision re	ecall f1-s	score sup	pport		
名	予服	1.00	1.00	1.00	5647		
升溫:	不舒服	1.00	1.00	1.00	1743		
accurac	y			1.00	7390		
macro av	g	1.00	1.00	1.00	7390		
weighted av	g	1.00	1.00	1.00	7390		

驗證集準確率: 0.992291088498304								
驗證集分類報告:								
	prec	ision r	ecall f1-	score su	pport			
	舒服	0.99	1.00	1.00	5476			
升	溫不舒服	1.00	0.95	0.97	1010			
accur	acy			0.99	6486			
macro	avg	1.00	0.98	0.99	6486			
weighted	avg	0.99	0.99	0.99	6486			



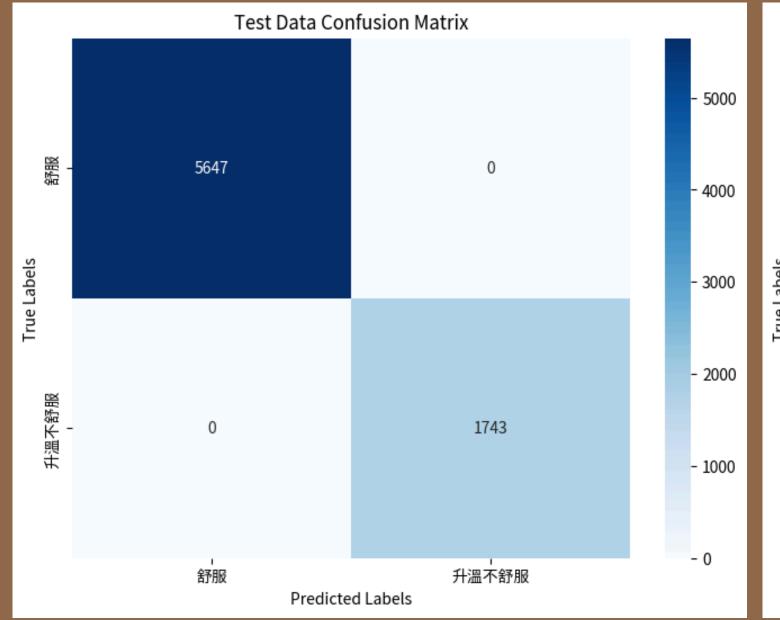


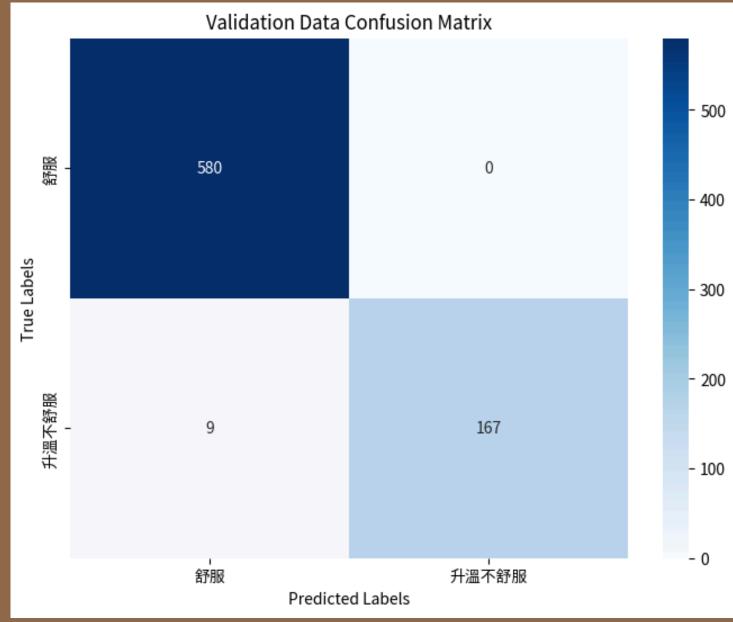
決策樹 **C**z

た。 Minicol Ocepa

測試集準確率: 1.0 測試集分類報告:							
р	recision	recall f1-	score s	upport			
舒服	1.00	1.00	1.00	5647			
升溫不舒服	艮 1.00	1.00	1.00	1743			
accuracy			1.00	7390			
macro avg	1.00	1.00	1.00	7390			
weighted avg	1.00	1.00	1.00	7390			

驗證集準確率: 0.9880952380952381								
驗證集分類報告:								
	preci	.sion r∈	ecall f1-	score supp	port			
i	舒服	0.98	1.00	0.99	580			
升溫	不舒服	1.00	0.95	0.97	176			
accura	су			0.99	756			
macro av	vg	0.99	0.97	0.98	756			
weighted a	vg	0.99	0.99	0.99	756			

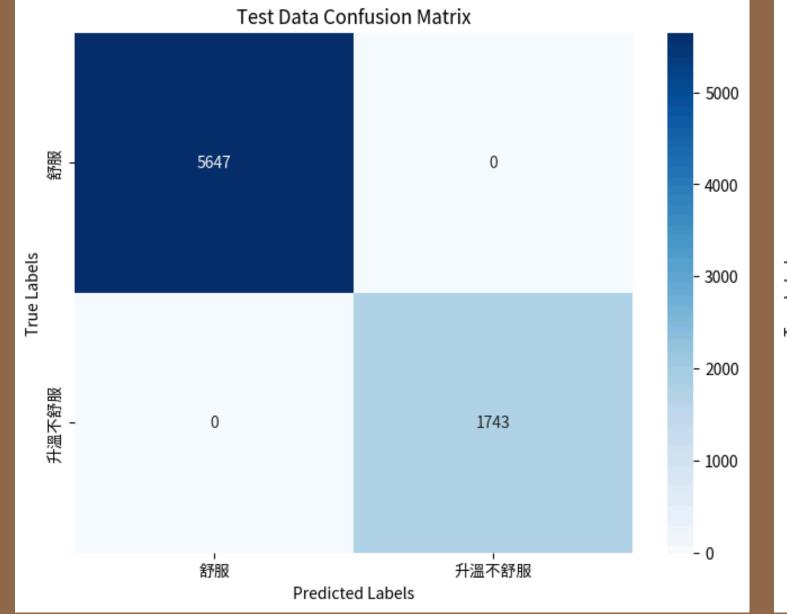


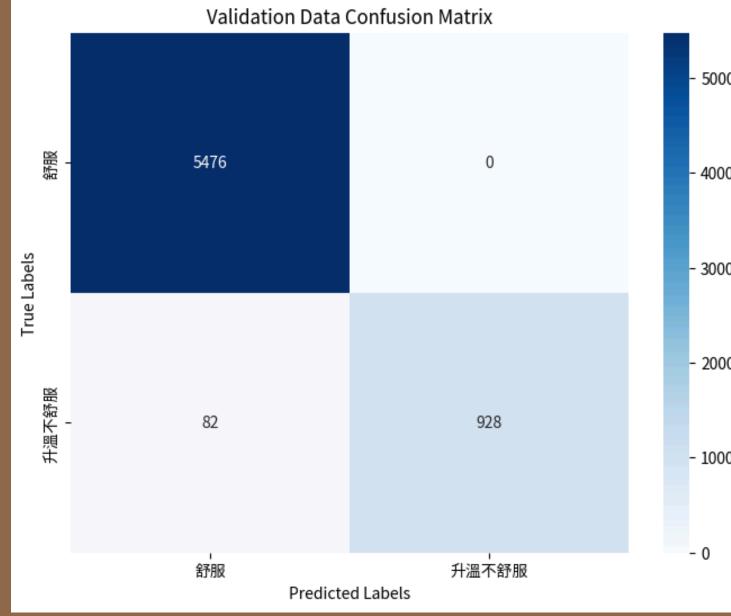


決策樹

測試集準確率: 1.0 測試集分類報告:								
	precision	recall f1-	score s	upport				
舒服	1.00	1.00	1.00	5647				
升溫不舒	服 1.00	1.00	1.00	1743				
accuracy			1.00	7390				
macro avg	1.00	1.00	1.00	7390				
weighted avg	1.00	1.00	1.00	7390				

驗證集準確率: 0.9873573851372186								
驗證集分類報告:								
	prec	ision r	ecall f1-	score su	pport			
	舒服	0.99	1.00	0.99	5476			
升	溫不舒服	1.00	0.92	0.96	1010			
accur	acy			0.99	6486			
macro	avg	0.99	0.96	0.98	6486			
weighted	avg	0.99	0.99	0.99	6486			





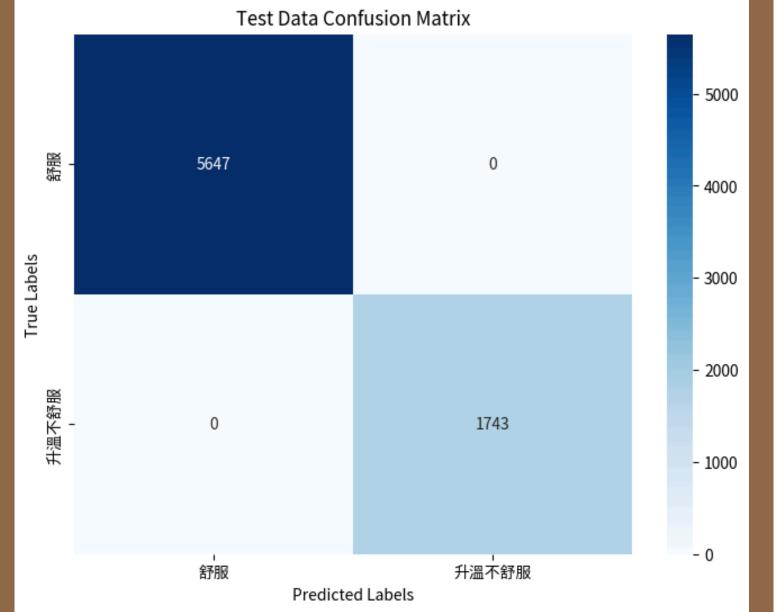
決策樹 Fz

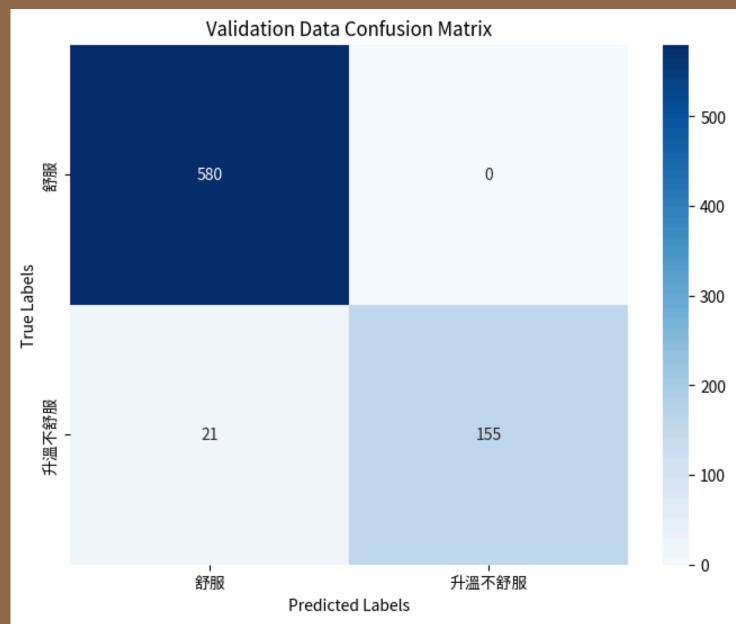
THETA ALPHA GAMMA

驗證·KINGCI OSFR2

測試集準確率: 1.0 測試集分類報告:							
precision recall f1-score support							
	舒服	1.00	1.00	1.00	5647		
Jl	·溫不舒服	1.00	1.00	1.00	1743		
accur	racy			1.00	7390		
macro	avg	1.00	1.00	1.00	7390		
weighted	avg	1.00	1.00	1.00	7390		

驗證集準確率: 0.9722222222222 驗證集分類報告:							
	precis	ion re	ecall	f1-score	support		
舍	矛服	0.97	1.00	0.98	580		
升溫	不舒服	1.00	0.	88 0.	94 176		
accurac	у			0.97	756		
macro av	g 0	.98	0.94	0.96	756		
weighted av	g 0	.97	0.97	0.97	756		

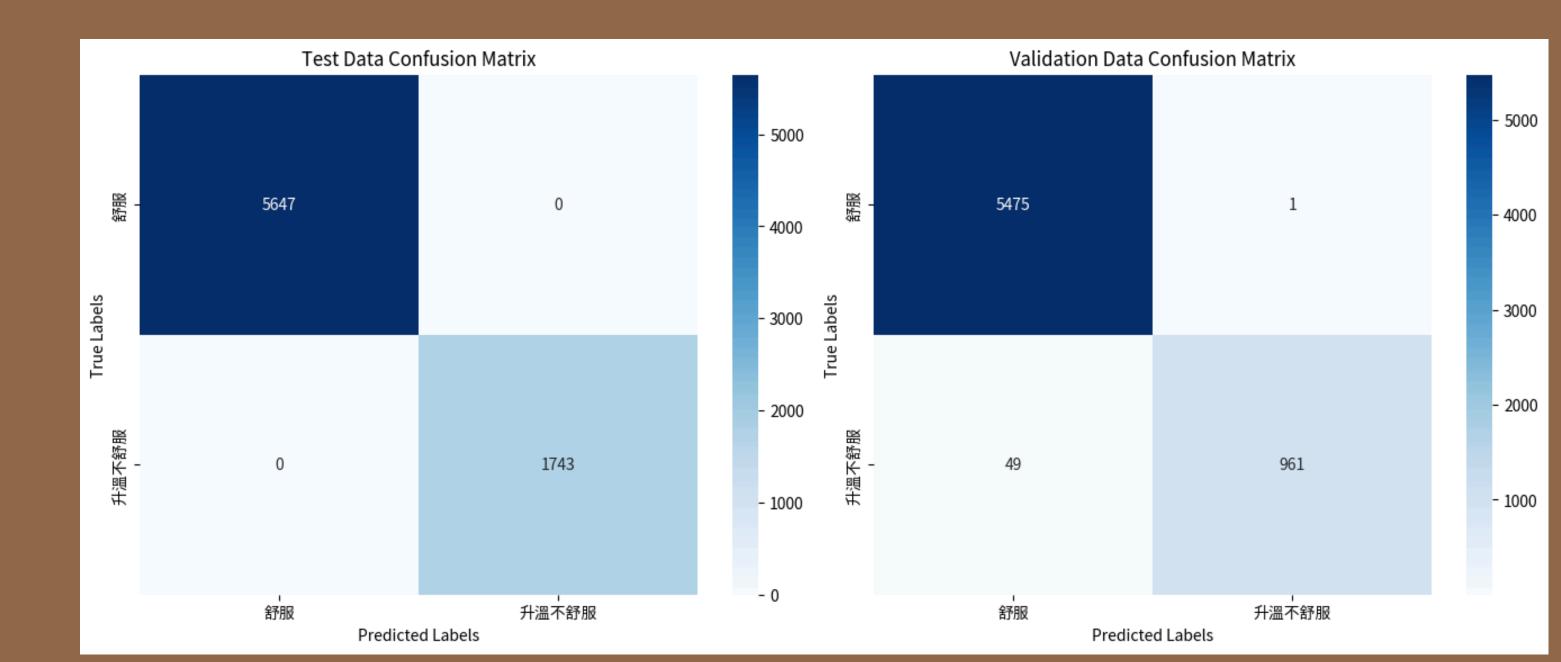




決策樹 CzFz

測試集準確率: 1.0 測試集分類報告:							
	prec	ision r	ecall f1-	score su	pport		
	舒服	1.00	1.00	1.00	5647		
升	·溫不舒服	1.00	1.00	1.00	1743		
accur	racy			1.00	7390		
macro	avg	1.00	1.00	1.00	7390		
weighted	avg	1.00	1.00	1.00	7390		

驗證集準確率: 0.992291088498304 驗證集分類報告:							
	precision recall f1-score support						
۷ ام	舒服	0.99	1.00	1.00	5476		
<u> </u>	温不舒服	1.00	0.95	0.97	1010		
accura	асу			0.99	6486		
macro a	avg	1.00	0.98	0.99	6486		
weighted a	avg	0.99	0.99	0.99	6486		

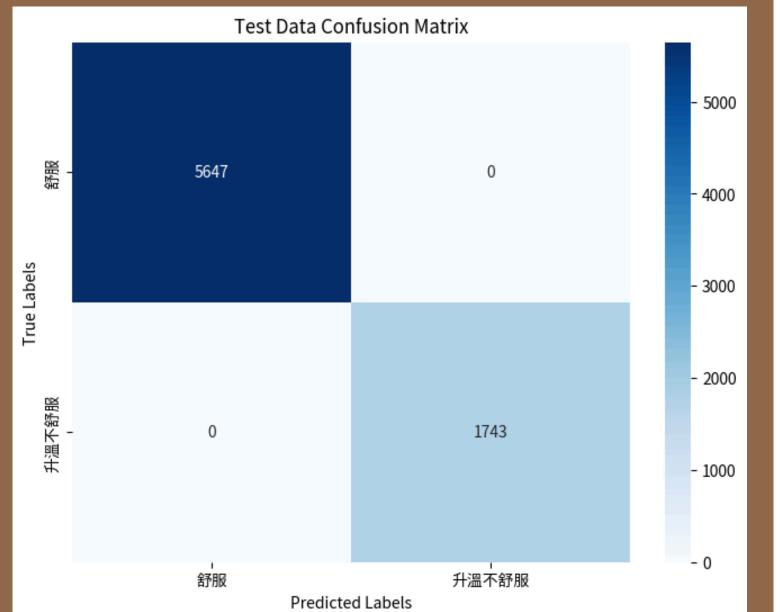


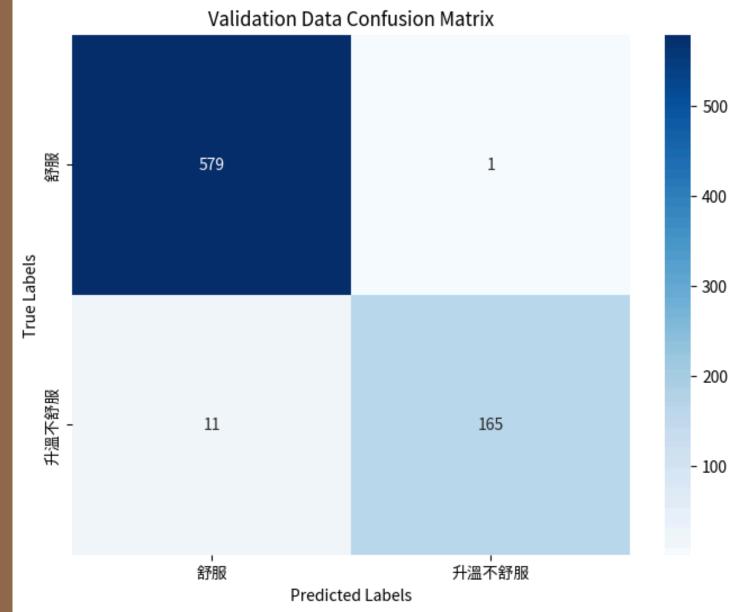
決策樹 CzFz

THETA ALPHA GAMMA

測試集準確率: 1.0							
測試集分類	段報告:						
	prec:	ision r	ecall f1-	score su	pport		
	舒服	1.00	1.00	1.00	5647		
升	·溫不舒服	1.00	1.00	1.00	1743		
accur	racy			1.00	7390		
macro	avg	1.00	1.00	1.00	7390		
weighted	avg	1.00	1.00	1.00	7390		

驗證集準確率: 0.9841269841269841 驗證集分類報告:						
	prec	ision	recall	f1-score	support	
升	舒服 溫不舒服	0.98 0.99	1.00		580 96 176	
accur	acy			0.98	756	
macro	avg	0.99	0.97	0.98	756	
weighted	avg	0.98	0.98	0.98	756	





theta alpha gamma特徵在兩個狀態下準確率

測試集準確率:

	邏輯迴歸	隨機森林	SVM	決策樹
CZ	0.99	1.0	1.0	1.0
Fz	0.99	1.0	1.0	1.0
CzFz	0.99	1.0	0.99	1.0

測試集準確率:

	邏輯迴歸	隨機森林	SVM	決策樹
CZ	0.99	1.0	1.0	1.0
Fz	0.99	1.0	1.0	1.0
CzFz	0.99	1.0	0.99	1.0

驗證集準確率:

	邏輯迴歸	隨機森林	SVM	決策樹
CZ	0.989	0.994	0.947	0.992
Fz	0.983	0.988	0.934	0.987
CzFz	0.985	0.991	0.932	0.992

驗證集準確率:

第二階段溫原	<u> </u>
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第一階段溫感

	邏輯迴歸	隨機森林	SVM	決策樹
CZ	0.985	0.986	0.985	0.988
Fz	0.961	0.974	0.966	0.972
CzFz	0.981	0.984	0.982	0.984

隨機森林和決策樹在測試準確率一樣,驗證集準確率不相上下, 因此去看驗證集在不同階段溫感實驗中不舒服狀態下混淆矩陣預測的準確率

	邏輯迴歸	隨機森林	SVM	決策樹
CZ	0.936	0.965	0.665	0.950
Fz	0.892	0.927	0.578	0.918
CzFz	0.910	0.949	0.568	0.951

	邏輯迴歸	隨機森林	SVM	決策樹
CZ	0.943	0.948	0.943	0.948
Fz	0.840	0.897	0.863	0.880
CzFz	0.926	0.937	0.931	0.937

第一階段溫感

Fz在第一階段實驗中預測的準確率最低 隨機森林在三個電位下準確率都最高(除cz&fz)

由此可見大部分下在哪一階段溫感實驗隨機森林效果都比決策樹好

第二階段溫感

討論隨機森林與決策樹前提下:

由於原模型是第一階段溫感實驗,並不能表示拿第二階段溫感實驗就不準確

題外話:

另外兩個模型去驗證的話的確第二階段實驗效果更好

Fz在第二階段實驗中普遍預測的準確率最低 隨機森林在三個電位下準確率都最高