SVM_Classification

1.What is the percentage of correct classification of both (Purchased and Not Purchased) to the total input of test set?

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The confusion Matrix:
 [[80  5]
 [ 7 42]]
```

	purchased	Not Purchased	
Purchased	80 TP	5 FP	
Not_Purchased	7 F_Np	42 T_Np	

Accuracy = T(Purchased)+T(Not Purchased)÷T(Purchased)+T(Not Purchased)+F(Purchased)+F(Not Purchased)

=80+42÷80+42+5+7= 122÷134=0.910

Recall:

What Is the percentage of correct Classification Of Purchased to the total input of Purchased in the test set?

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The confusion Matrix:
 [[80  5]
 [ 7 42]]
```

	Purchased	Not Purchased	
Purchased	80 TP	5 FP	
Not_Purchased	7 F_Np	42 T_Np	

Recall=T(Purchased)÷T(Purchased)+F(Purchased)

=80÷80+5=80÷85=0.941

What Is the percentage of correct Classification Of Not Purchased to the total input of NotPurchased in the test set?

The Confusion Matrix:

Tp Fp

p [[80 5]
N_p [7 42]
fnP TNp

Recall= T(Not_Purchased) ÷T(Not_Purchased) +F(Not_Purchased)

=42÷42+7=42÷49=0.857

Precision:

What is the percentage of correct Classification of (Purchased) to sum of correctly Classified as (Purchased) and wrongly classified as (Purchased) in the test set?

The Confusion Matrix:

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The confusion Matrix:
 [[80  5]
 [ 7 42]]
```

	purchased		Not Purchased		
Purchased	80	TP	5	FP	
Not_Purchased	7	F_Np	42	T_Np	

Precision=T(Purchased)÷T(Purchased)+F(Purchased)

= 80÷80+7=80÷87=0.91

What is the percentage of correct Classification of (Not_Purchased) to sum of correctly Classified as (Not_Purchased) and wrongly classified as (Not_Purchased) in the test set?

The Confusion Matrix:

	purchased		Not Purchased		
Purchased	80	TP	5	FP	
Not_Purchased	7	F_Np	42	T_Np	

Tp Fp

p [[80 5]
N_p [7 42]
fnP TNp

Precision= T (Not_ Purchased) ÷T(Not_ Purchased)+F(Not_ Purchased)

=42÷42+5=42÷47= 0.89

F1_Measure:

What is the overall performance of Purchased?

The Confusion Matrix:

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The confusion Matrix:
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The confusion Matrix:
[[80  5]
[ 7 42]]
```

	purchased		Not Purchased		
Purchased	80	TP	5	FP	
Not_Purchased	7	F_Np	42	T_Np	

F1_Measure=2*0.94*0.91

÷0.94+0.91=1.7108÷1.85= 0.924

What is the overall performance of Not_Purchased?

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The confusion Matrix:
[[80  5]
[ 7 42]]
```

	purchased		Not Purchased		
Purchased	80	TP	5	FP	
Not_Purchased	7	F_Np	42	T_Np	

F1_Measure=2*0.85 *0.89
÷0.85+0.89=1.513 ÷1.74 =0.869

Macro _Average:

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The confusion Matrix:
[[80  5]
[ 7 42]]
```

	purchased		Not Purchased		
Purchased	80	TP	5	FP	
Not_Purchased	7	F_Np	42	T_Np	

Precision:

What is the average performance of Precision(correctly and wrongly classified)?

Precision(Purchased)+Precision(Not_Purchased)÷2

=0.91+0.89÷2=1.8÷2
Precision=0.9

Recall:

What is the average performance of Recall(correctly classified)?

Recall(Purchased)+Recall(Not_Purchased)÷2

=0.941+ 0.857÷2=1.798÷2

=0.899

Which is the average performance of F1_Measure(overall_performance)?

=F1(Purchased)+F2(Not_Purchased)÷2

= 0.924+0.869÷2=1.793÷2

=0.89

Weighted_ Average:

```
The confusion Matrix:
 [[80  5]
 [ 7 42]]
```

	purchased		Not Purchased		
Purchased	80	TP	5	FP	
Not_Purchased	7	F_Np	42	T_Np	

Precision:

Total count in the test set = 134

Total count of Purchased in the test set = 123

Total count of Not_Purchased in the test set = 11

What is the sum of Product of proportion rate weight of each class?

Precision(Purchased)*123÷134+Precision(Not_ Purchased)*11÷134

Precision=0.91*123÷134+0.89*11÷134

=111.93÷134+9.79÷134

=0.8352+0.073=0.90

Recall:

What is the sum of product of proportion rate weight of each class?

Recall(Purchased)*123÷134+Recall(Not_Purchased)*11÷134

Recall=0.941*123÷134+0.857*11÷134

=115.743÷134+9.427÷134

=0.8637+0.0703

=0.934

F1_Measure

What is the sum of product of proportion rate weight of each class?

F1_Measure=f1(Purchased)*123÷134+F2(Not_Purchased)*11÷134

=0.924*123÷134+0.869*11÷134

=113.65÷134+9.559÷134=0.8481+0.0713
=0.919