

$$\text{Precision} = \frac{TP}{TP+FP}, \quad \text{Recall} = \frac{TP}{TP+FN}, \quad F_1\text{-score} = \frac{2 \times \text{Precision} \times \text{Recall}}{\text{Precision} + \text{Recall}}$$

(over predicted pos) (over true pos)

No	Actual	Predicted	Match
1	Airplane	Airplane	✓
2	Car	Boat	✗
3	Car	Car	✓
4	Car	Car	✓
5	Car	Boat	✗
6	Airplane	Boat	✗
7	Boat	Boat	✓
8	Car	Airplane	✗
9	Airplane	Airplane	✓
10	Car	Car	✓

For Airplane

		Predicted		
		Airplane	Boat	Car
Actual	Airplane	TP	FN	FN
	Boat	FP	TN	TN
	Car	FP	TN	TN

		Predicted		
		Airplane	Boat	Car
Actual	Airplane	2	1	0
	Boat	0	1	0
	Car	1	2	3

Label	TP	FP	FN	Precision	Recall	F1-score	macro F1-score	Weighted F1-score	Micro F1-score
Airplane	2	1	1	0.67	0.67	0.67	$\frac{0.67+0.4+0.67}{3} = 0.58$	$0.67 \times \frac{3}{10} + 0.4 \times \frac{1}{10} + 0.67 \times \frac{6}{10} = 0.64$	$\frac{TP}{TP + \frac{1}{2}(FP+FN)} = \frac{6}{6 + \frac{1}{2}(4+4)} = 0.6$
Boat	1	3	0	0.25	1	0.4			
Car	3	0	3	1	0.5	0.67			

Note: Micro-precision, Micro-recall, Micro-F1score share the same values with the accuracy.