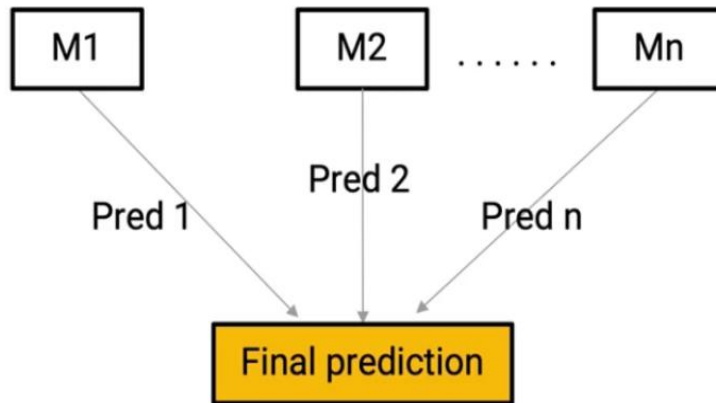


# Ensemble Model



PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch
1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0
2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0
3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0
4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0
5	0	3	Allen, Mr. William Henry	male	35.0	0	0

M1

M2

M3

M1

M2

M3

PassengerId	Survived
1	0
2	1
3	1
4	1
5	0

Pred 1	Pred 2	Pred 3
0	1	0
0	1	1
1	1	0
1	0	1
0	0	0

## Ensemble Technique: Max Voting

		M1	M2	M3		
PassengerId	Survived	Pred 1	Pred 2	Pred 3	Final Pred	
1	0	0	1	0	?	
2	1	0	1	1	?	
3	1	1	1	0	?	
4	1	1	0	1	?	
5	0	0	0	0	?	

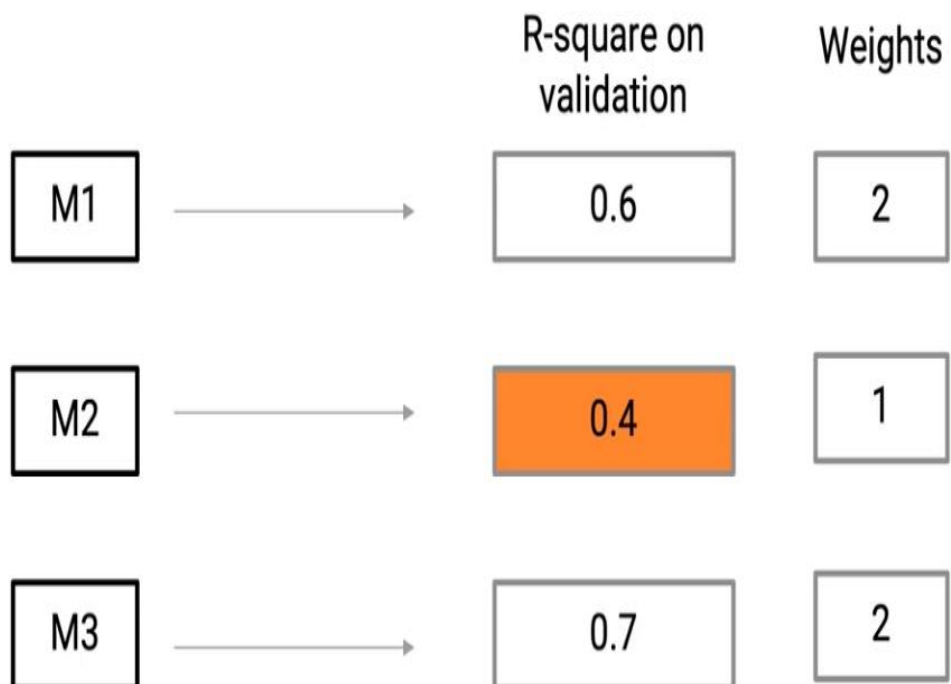
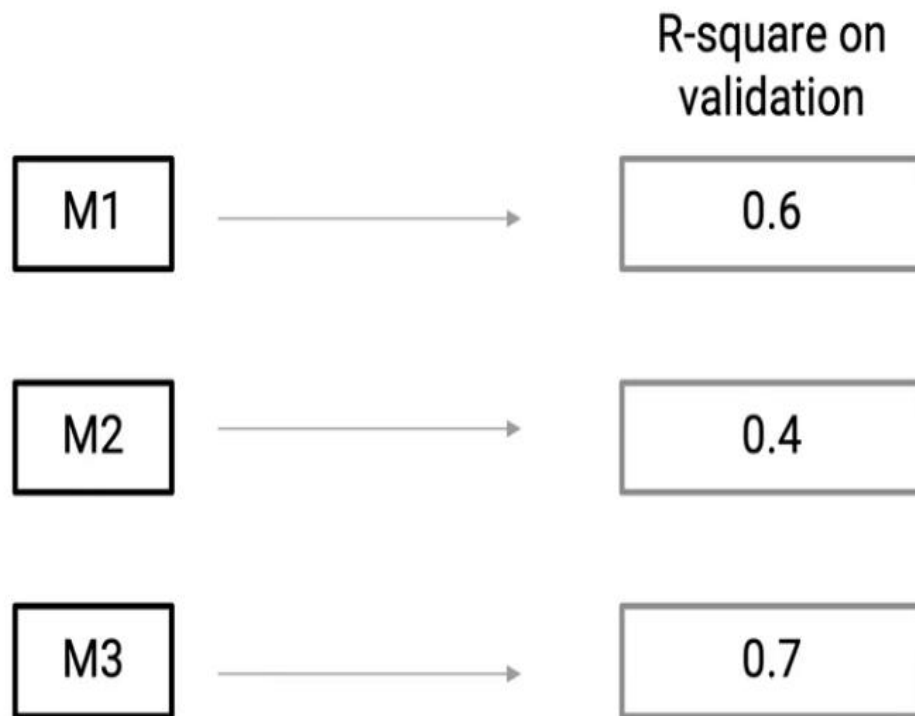
		M1	M2	M3	Vote
PassengerId	Survived	Pred 1	Pred 2	Pred 3	Final Pred
1	0	0	1	0	0
2	1	0	1	1	1
3	1	1	1	0	1
4	1	1	0	0	<b>0</b>
5	0	0	0	0	0

## Ensemble Technique: Averaging

		M1	M2	M3
	Item_Outlet_Sales	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.1380	3900	3000	3500
1	443.4228	390	340	500
2	2097.2700	2000	1900	2600
3	732.3800	700	600	750
4	994.7052	950	800	1060

		M1	M2	M3	
	Item_Outlet_Sales	Predicted Values 1	Predicted Values 2	Predicted Values 3	Average
0	3735.1380	3900	3000	3500	3466.66
1	443.4228	390	340	500	410.00
2	2097.2700	2000	1900	2600	2166.66
3	732.3800	700	600	750	683.33
4	994.7052	950	800	1060	936.66

## Ensemble Technique: Weighted Averaging

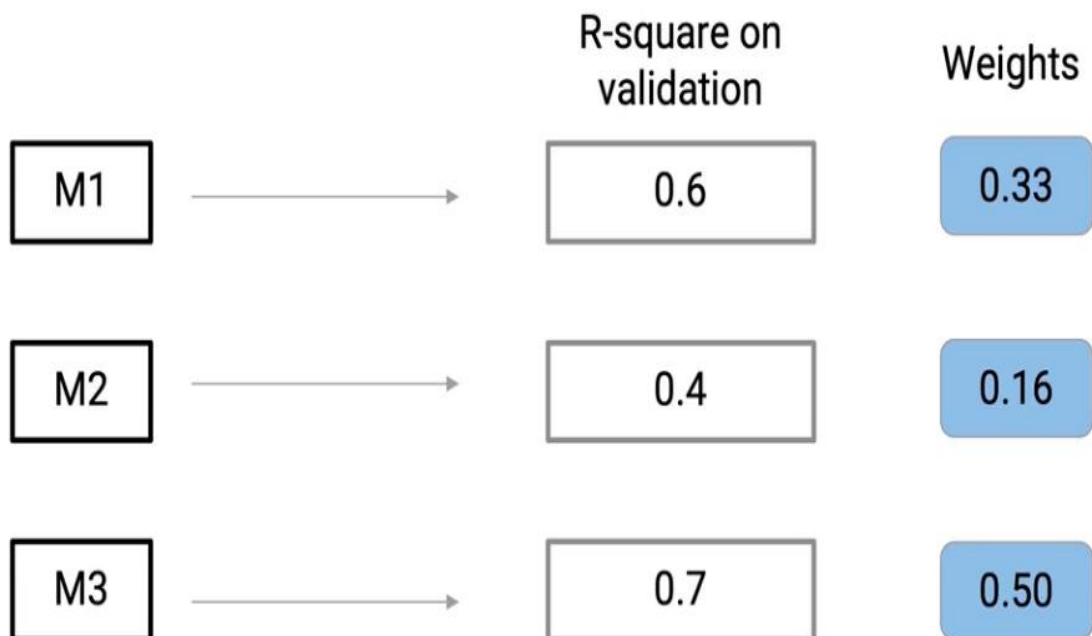
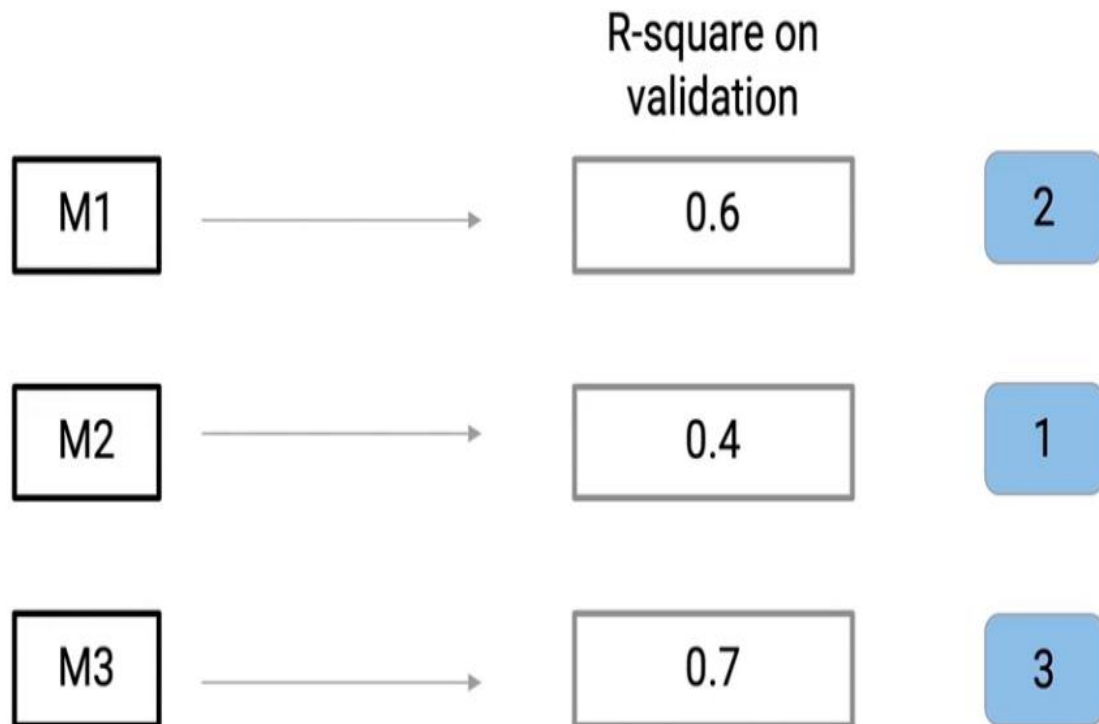


ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	7800	3000	7000
1	443.422	780	340	1000
2	2097.27	4000	1900	5200
3	732.380	1400	600	1500
4	994.705	1900	800	2120

now I take an average of all of these by dividing it by 5(2+1+2)-

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3	Average
0	3735.13	7800	3000	7000	3560
1	443.422	780	340	1000	424
2	2097.27	4000	1900	5200	2220
3	732.380	1400	600	1500	700
4	994.705	1900	800	2120	964

## Ensemble Technique: Rank Averaging



In the case of Model 2, we'll divide 1 by the sum of  $1+2+3 = 6$ . So the weight for Model 2 comes down to  $1/6 = 0.16$ . Similarly, I come up with weights for each of these models and then I multiply those weights by individual models.

0.33

0.16

0.50

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	1287	480	1750
1	443.422	128.7	54.4	250
2	2097.27	660	304	1300
3	732.380	231	96	375
4	994.705	313.5	128	530

0.33

0.16

0.50

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3	Sum
0	3735.13	1287	480	1750	3517
1	443.422	128.7	54.4	250	433.1
2	2097.27	660	304	1300	2264
3	732.380	231	96	375	702
4	994.705	313.5	128	530	971.5