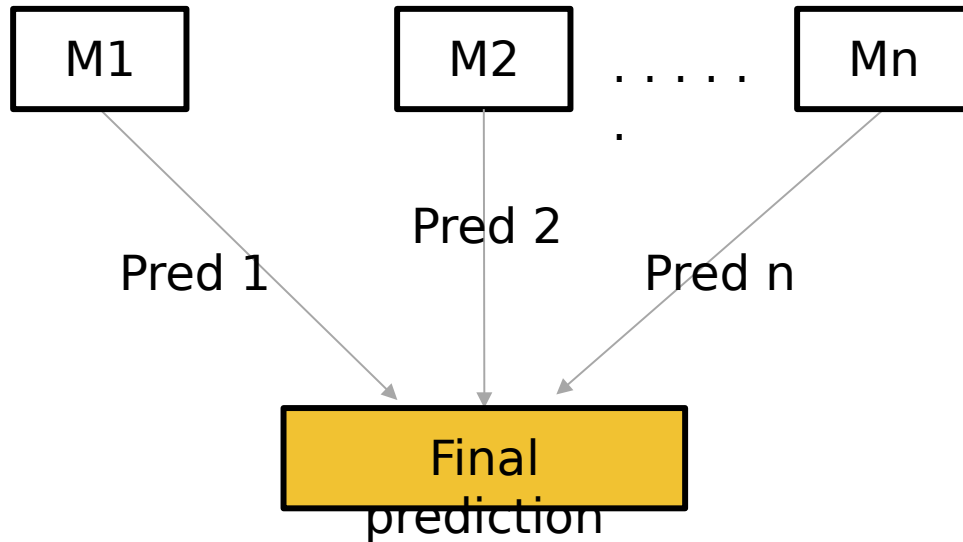


# Basic Ensemble Techniques

# Ensemble Model



# Basic Ensemble Techniques

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

# Basic Ensemble Techniques

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

# Basic Ensemble Techniques

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

M1	M2	M3
Pred 1	Pred 2	Pred 3
0	1	0
0	1	1
1	1	0
1	0	1
0	0	0

# Basic Ensemble Techniques

M1	M2	M3
----	----	----

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

Pred 1	Pred 2	Pred 3	Final Pred
0	1	0	?
0	1	1	?
1	1	0	?
1	0	1	?
0	0	0	?

# Max Voting

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

M1

M2

M3

Pred 1	Pred 2	Pred 3	Final Pred
0	1	0	
0	1	1	?
1	1	0	?
1	0	0	?
0	0	0	?

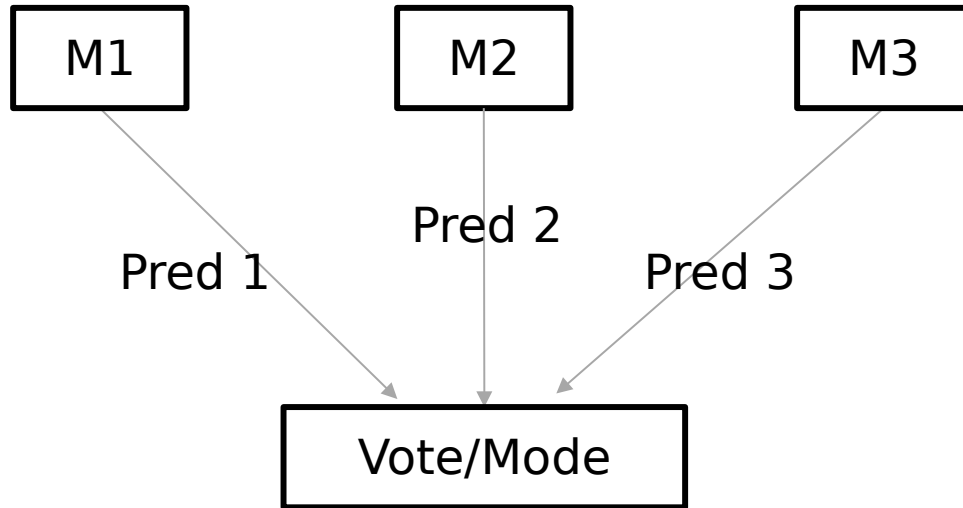
# Max Voting

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

M1	M2	M3	Vote
Pred 1	Pred 2	Pred 3	Final Pred
0	1	0	0
0	1	1	1
1	1	0	1
1	0	0	0
0	0	0	0



# Max Voting



# Basic Ensemble Techniques

	Item_Identifier	Item_Weight	Item_Fat_Content	Item_Visibility	Item_Type	Item_MRP	Item_Outlet_Sales
0	FDA15	9.30	Low Fat	0.016047	Dairy	249.8092	3735.1380
1	DRC01	5.92	Regular	0.019278	Soft Drinks	48.2692	443.4228
2	FDN15	17.50	Low Fat	0.016760	Meat	141.6180	2097.2700
3	FDX07	19.20	Regular	0.000000	Fruits and Vegetables	182.0950	732.3800
4	NCD19	8.93	Low Fat	0.000000	Household	53.8614	994.7052

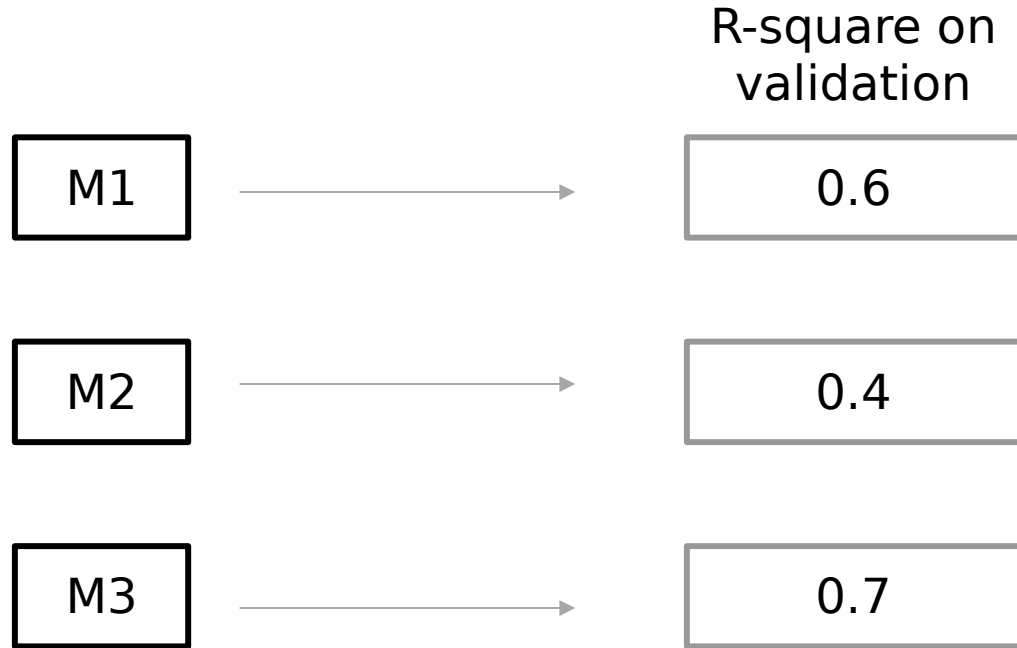
# Basic Ensemble Techniques

		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

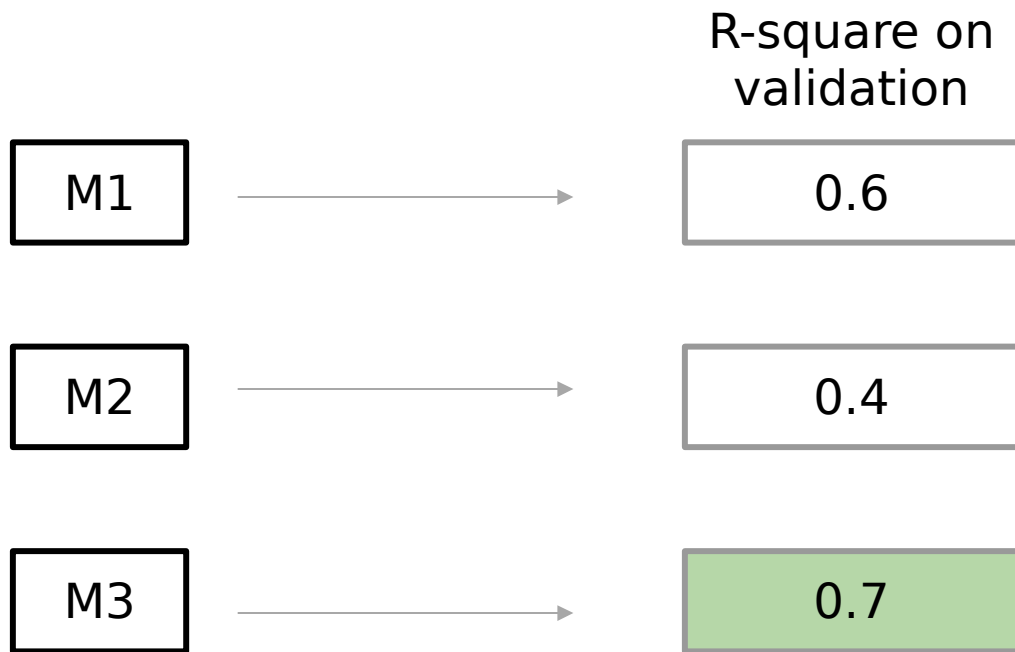
# Averaging

		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
2	2097.2700	2000	1900	2600	2166.66
3	732.3800	700	600	750	683.33
4	994.7052	950	800	1060	936.66

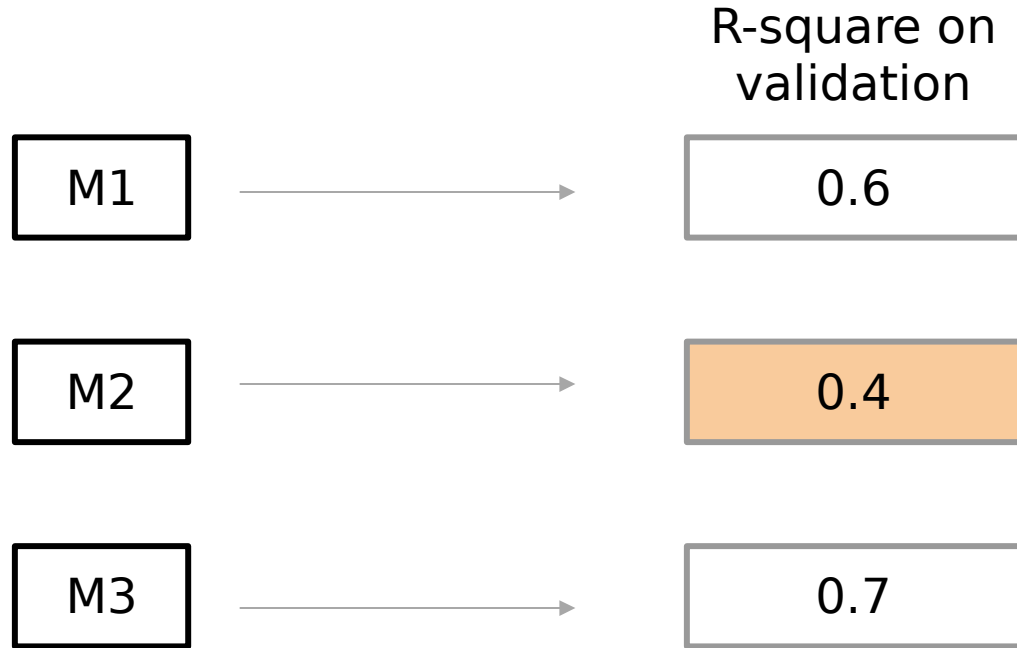
# Averaging



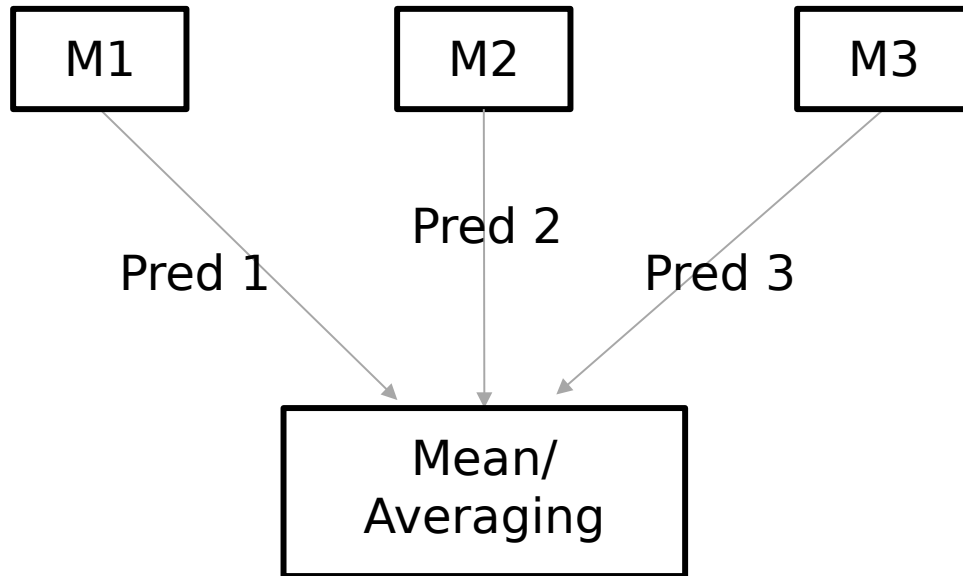
# Averaging



# Averaging



# Averaging

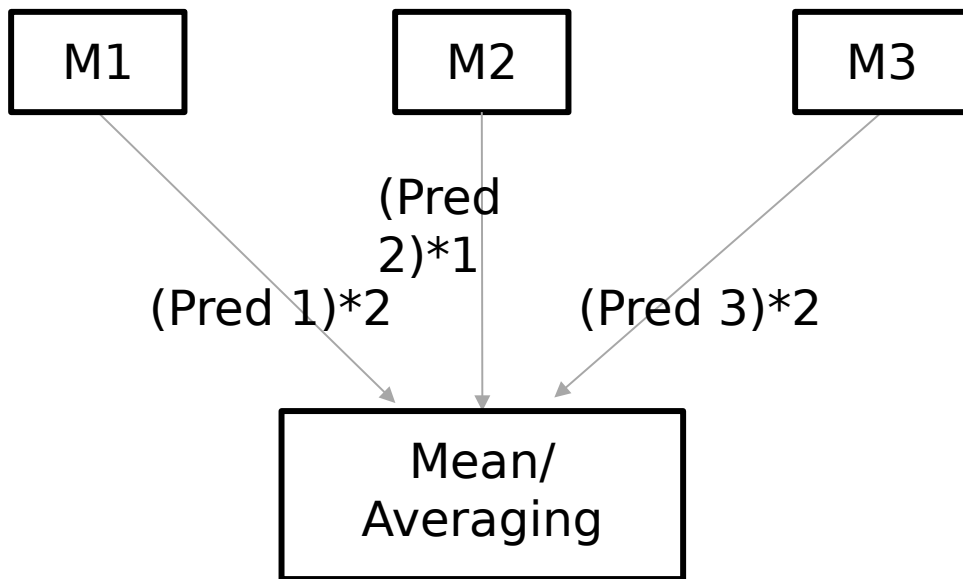




# Averaging

	R-square on validation	Weights
M1 →	0.6	2
M2 →	0.4	1
M3 →	0.7	2

# Weighted Averaging



# Weighted Averaging

2

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	3900	3000	3500
1	443.422	390	340	500
2	2097.27	2000	1900	2600
3	732.380	700	600	750
4	994.705	950	800	1060

# Weighted Averaging

2

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	7800	3000	3500
1	443.422	780	340	500
2	2097.27	4000	1900	2600
3	732.380	1400	600	750
4	994.705	1900	800	1060

# Weighted Averaging

1

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	7800	3000	3500
1	443.422	780	340	500
2	2097.27	4000	1900	2600
3	732.380	1400	600	750
4	994.705	1900	800	1060

# Weighted Averaging

1

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	7800	3000	3500
1	443.422	780	340	500
2	2097.27	4000	1900	2600
3	732.380	1400	600	750
4	994.705	1900	800	1060

# Weighted Averaging

2

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	7800	3000	3500
1	443.422	780	340	500
2	2097.27	4000	1900	2600
3	732.380	1400	600	750
4	994.705	1900	800	1060

# Weighted Averaging

2

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

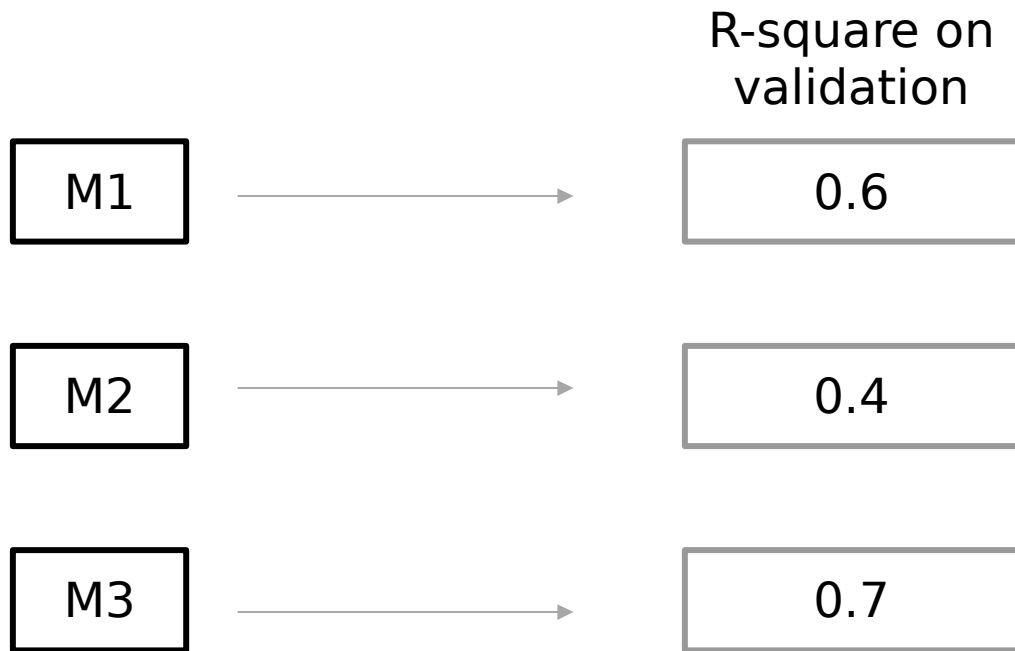


# Weighted Averaging

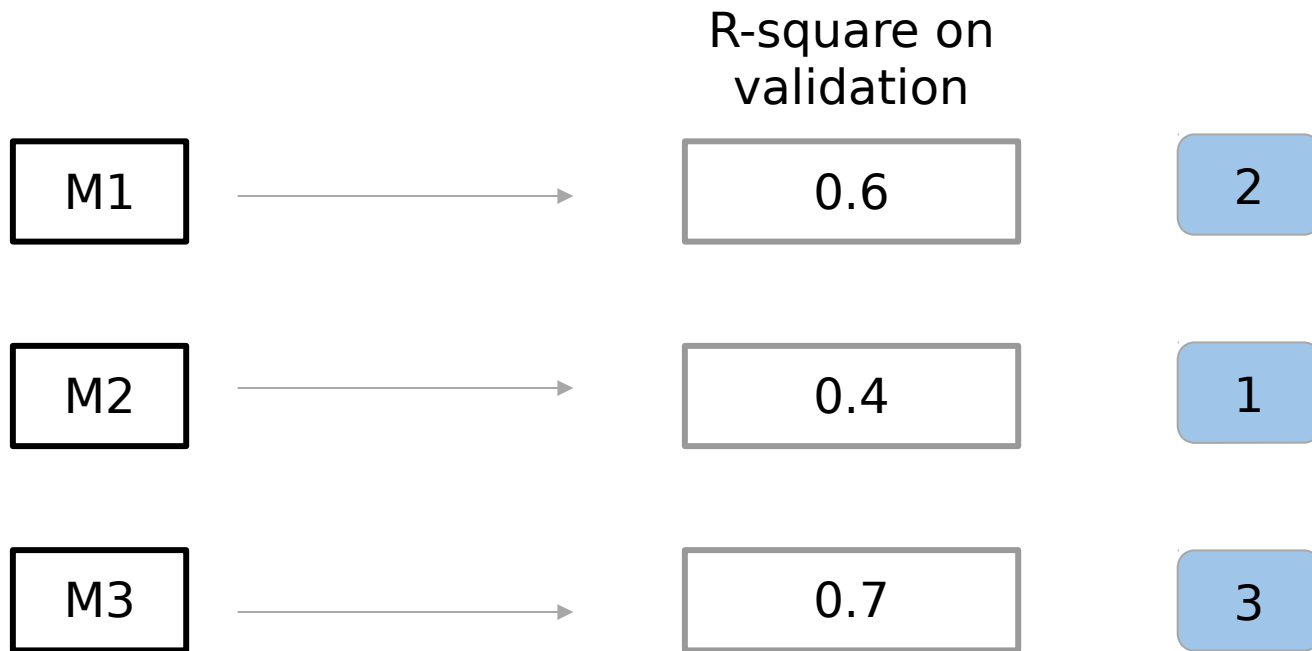
2

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

# Weighted Averaging



# Weighted Averaging



# Rank Averaging

		R-square on validation	Weight S
M1	→	0.6	0.33
M2	→	0.4	0.16
M3	→	0.7	0.50

# Rank Averaging

0.33

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	3900	3000	3500
1	443.422	390	340	500
2	2097.27	2000	1900	2600
3	732.380	700	600	750
4	994.705	950	800	1060

# Rank Averaging

0.33

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	1287	3000	3500
1	443.422	128.7	340	500
2	2097.27	660	1900	2600
3	732.380	231	600	750
4	994.705	313.5	800	1060

# Rank Averaging

0.16

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	1287	3000	3500
1	443.422	128.7	340	500
2	2097.27	660	1900	2600
3	732.380	231	600	750
4	994.705	313.5	800	1060

# Rank Averaging

0.16

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	1287	480	3500
1	443.422	128.7	54.4	500
2	2097.27	660	304	2600
3	732.380	231	96	750
4	994.705	313.5	128	1060



# Rank Averaging

0.50

ID	Actual Values	Predicted Values 1	Predicted Values 2	Predicted Values 3
0	3735.13	1287	480	3500
1	443.422	128.7	54.4	500
2	2097.27	660	304	2600
3	732.380	231	96	750
4	994.705	313.5	128	1060

# Rank Averaging

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

# Rank Averaging

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

# Rank Averaging

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