Table 1

Value	Input			Output	
	Media	User	Party	Output	
GlobalAggregate				amount	Sum of Bids across Parties, Users and Media
GlobalUserAggregate		√		amount	Sum of Bids across Parties and Media for given User
GlobalMediaAggregate	√			amount	Sum of Bids across Parties and Users for given Media
GlobalUserMediaAggregate	√	√		amount	Sum of Bids across Parties for given User and Media
PartyAggregate			√	amount	Sum of Bids across Users and Media for given Party
PartyUserAggregate		√	√	amount	Sum of Bids for given Party and User
PartyMediaAggregate	√		√	amount	Sum of Bids for given Party and Media
PartyUserMediaAggregate	√	√	√	amount	Sum of Bids for given Party, User and Media
GlobalBidTop				Amount, Party, User, Media	Highest Bid amount across Parties, Users and Media
GlobalAggregateTop				Amount, Party, User, Media	Highest Aggregate amount across Parties, Users and Media
GlobalUserBidTop		√		Amount, Party, Media	Highest Bid amount across Parties and Media for given User
GlobalUserAggregateTop		√		Amount, Party, Media	Highest Aggregate amount across Parties and Media for given User
GlobalUserMediaBidTop	√	√		Amount, Party	Highest Bid amount across Parties for given User and Media
GlobalUserMediaAggregateTop	√	√		Amount	Highest Aggregate amount across Parties for given User and Media
PartyBidTop			√	Amount, User, Media	Highest Bid amount across Users and Media for given Party
PartyAggregateTop			√	Amount, User, Media	Highest Aggregate amount across Users and Media for given Party
PartyUserBidTop		√	√	Amount, Media	Highest Bid amount across media for given Party and User
PartyUserAggregateTop		√	√	Amount, Media	Highest Aggregate amount across media for given Party and User
PartyMediaBidTop	√		√	Amount, User	Highest Bid amount across Users for given Party and Media
PartyMediaAggregateTop	√		√	Amount, User	Highest Aggregate amount across Users for given Party and Media
PartyUserMediaBidTop	√	√	√	Amount	Highest Bid amount for given Party, User and Media
GlobalBidAvg				Amount	Average Bid across Parties, Users and Media
GlobalAggregateAvg				Amount	Average Aggregate across Parties, Users and Media
GlobalUserBidAvg		√		Amount	Average Bid across Parties and Media for given User
GlobalUserAggregateAvg		√		Amount	Average Aggregate across Parties and Media for given User
GlobalUserMediaBidAvg	√	√		Amount	Average Bid across Parties for given User and Media
GlobalUserMediaAggregateAvg	√	√		Amount	Average Aggregate across Parties for given User and Media
GlobalMediaBidAvg	√			Amount	Average Bid across Parties and Users for given Media
GlobalMediaAggregateAvg	√			Amount	Average Aggregate across Parties and Users for given Media
PartyBidAvg			√	Amount	Average Bid across Users and Media for given Party
PartyAggregateAvg			√	Amount	Average Aggregate across Users and Media for given Party

	Input					
Value	**Media**	**User**	**Party**	**Output**		
PartyUserBidAvg		√	√	Amount	Average Bid across Media for given Party and User	
PartyUserAggregateAvg		√	√	Amount	Average Aggregate across Media for given Party and User	
PartyUserMediaBidAvg	√	√	√	Amount	Average Bid for given Party, User and Media	
PartyMediaBidAvg	√		√	Amount	Average bid across Users for given Party and Media	
PartyMediaAggregateAvg	√		√	Amount	Average Aggregate across Users for given Party and Media	
GlobalBidRank				Order		
GlobalAggregateRank				Order		
GlobalUserAggregateRank		√		Order		
GlobalUserMediaAggregateRank	√	√		Order		
PartyUserAggregateRank		√	√	Order		
PartyUserMediaAggregateRank		√	√	Order		
GlobalUserBidRank		√		Order		
GlobalUserAggregateRank		√		Order		
GlobalUserMediaBidRank	√	√		Order		
GlobalUserMediaAggregateRank	√	√		Order		
PartyUserBidRank		√	√	Order		
PartyUserAggregateRank		√	√	Order		
PartyUserMediaBidRank	√	√	√	Order		
GlobalUserBidAvgRank		√		Order		
GlobalUserAggregateAvgRank		√		Order		
GlobalUserMediaBidAvgRank	√	√		Order		
GlobalUserMediaAggregateAvgRank	√	√		Order		
PartyUserBidAvgRank		√	√	Order		
PartyUserAggregateAvgRank		√	√	Order		
PartyUserMediaBidAvgRank	√	√	√	Order		

Value					
GlobalAggregate					
GlobalUserAggregate					
GlobalMediaAggregate					
GlobalUserMediaAggregate					
PartyAggregate					
PartyUserAggregate					
PartyMediaAggregate					
PartyUserMediaAggregate					
GlobalBidTop					
GlobalAggregateTop					
GlobalUserBidTop					
GlobalUserAggregateTop					
GlobalUserMediaBidTop					
GlobalUserMediaAggregateTop					
PartyBidTop					
PartyAggregateTop					
PartyUserBidTop					
PartyUserAggregateTop					
PartyMediaBidTop					
PartyMediaAggregateTop					
PartyUserMediaBidTop					
GlobalBidAvg					
GlobalAggregateAvg					
GlobalUserBidAvg					
GlobalUserAggregateAvg					
GlobalUserMediaBidAvg					
GlobalUserMediaAggregateAvg					
GlobalMediaBidAvg					
GlobalMediaAggregateAvg					
PartyBidAvg					
PartyAggregateAvg					

Value					
PartyUserBidAvg					
PartyUserAggregateAvg					
PartyUserMediaBidAvg					
PartyMediaBidAvg			4		
PartyMediaAggregateAvg					
GlobalBidRank					
GlobalAggregateRank					
GlobalUserAggregateRank					
GlobalUserMediaAggregateRank					
PartyUserAggregateRank					
PartyUserMediaAggregateRank					
GlobalUserBidRank					
GlobalUserAggregateRank					
GlobalUserMediaBidRank					
GlobalUserMediaAggregateRank					
PartyUserBidRank					
PartyUserAggregateRank					
PartyUserMediaBidRank					
GlobalUserBidAvgRank					
GlobalUserAggregateAvgRank					
GlobalUserMediaBidAvgRank					
GlobalUserMediaAggregateAvgRank					
PartyUserBidAvgRank					
PartyUserAggregateAvgRank					
PartyUserMediaBidAvgRank					

Value		
GlobalAggregate		
GlobalUserAggregate		
GlobalMediaAggregate		
GlobalUserMediaAggregate		
PartyAggregate		
PartyUserAggregate		
PartyMediaAggregate		
PartyUserMediaAggregate		
GlobalBidTop		
GlobalAggregateTop		
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GlobalUserBidAvg		
GlobalUserAggregateAvg		
GlobalUserMediaBidAvg		
GlobalUserMediaAggregateAvg		
GlobalMediaBidAvg		
GlobalMediaAggregateAvg		
PartyBidAvg		
PartyAggregateAvg		

Value		
PartyUserBidAvg		
PartyUserAggregateAvg		
PartyUserMediaBidAvg		
PartyMediaBidAvg		
PartyMediaAggregateAvg		
GlobalBidRank		
GlobalAggregateRank		
GlobalUserAggregateRank		
GlobalUserMediaAggregateRank		
PartyUserAggregateRank		
PartyUserMediaAggregateRank		
GlobalUserBidRank		
GlobalUserAggregateRank		
GlobalUserMediaBidRank		
GlobalUserMediaAggregateRank		
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PartyUserAggregateRank		
PartyUserMediaBidRank		
GlobalUserBidAvgRank		
GlobalUserAggregateAvgRank		
GlobalUserMediaBidAvgRank		
GlobalUserMediaAggregateAvgRank		
PartyUserBidAvgRank		
PartyUserAggregateAvgRank		
PartyUserMediaBidAvgRank		