GROUP C – QUERIES MONGO DB

FINANCE INDUSTRY

```
> db.finance.find({$and:[{slope_x1:{$lt:0}}, {slope_x2:{$lt:0}}, {sl
ope_x3: {$lt:0}}]}).count()
21
```

```
> db.finance.find({$and:[{slope_x1:{$lt:0}}, {slope_x2:{$lt:0}}, {sl
ope_x3: {$lt:0}}, {buy_sell_decision:1}, {prediction:1}]}).count()
21
```

```
> db.finance.find({$and:[{slope_x1:{$lt:0}}, {slope_x2:{$lt:0}}, {sl
ope_x3: {$lt:0}}, {buy_sell_decision:0}, {prediction:0}]}).count()
0
```

```
> db.finance.find({$and:[{slope_x1:{$gt:0}}, {slope_x2:{$gt:0}}, {sl
ope_x3: {$gt:0}}]}).count()
23
> db.finance.find({$and:[{slope_x1:{$gt:0}}, {slope_x2:{$gt:0}}, {sl
ope_x3: {$gt:0}}, {buy_sell_decision:0}, {prediction:0}]}).count()
23
```

```
> db.finance.find({$and:[{slope_x1:{$gt:0}}, {slope_x2:{$gt:0}}, {sl
ope_x3: {$gt:0}}, {buy_sell_decision:1}, {prediction:1}]}).count()
0
```

AIRLINE INDUSTRY

```
> db.airlines.find({$and:[{slope_x1:{$lt:0}}, {slope_x2:{$lt:0}}, {s
lope_x3: {$lt:0}}]}).count()
22
> db.airlines.find({$and:[{slope_x1:{$lt:0}}, {slope_x2:{$lt:0}}, {s
lope_x3: {$lt:0}}, {buy_sell_decision:1}, {prediction:1}]}).count()
3
```

```
> db.airlines.find({$and:[{slope_x1:{$lt:0}}, {slope_x2:{$lt:0}}, {s
lope_x3: {$lt:0}}, {buy_sell_decision:0}, {prediction:0}]}).count()
3
```

```
> db.airlines.find({$and:[{slope_x1:{$gt:0}}, {slope_x2:{$gt:0}}, {s
lope_x3: {$gt:0}}]}).count()
35
> db.airlines.find({$and:[{slope_x1:{$gt:0}}, {slope_x2:{$gt:0}}, {s
lope_x3: {$gt:0}}, {buy_sell_decision:0}, {prediction:0}]}).count()
8
> db.airlines.find({$and:[{slope_x1:{$gt:0}}, {slope_x2:{$gt:0}}, {s
lope_x3: {$gt:0}}, {buy_sell_decision:1}, {prediction:1}]}).count()
5
```

SUM OF SLOPE X1

```
> db.finance.aggregate([{$group:{_id: null, sum_slope_x1: {$sum: "$s
lope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.02054908575703629 }
> db.airlines.aggregate([{$group:{_id: null, sum_slope_x1: {$sum: "$
slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.034869169317393534 }
> db.automotive.aggregate([{$group:{_id: null, sum_slope_x1: {$sum:
"$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.06938424764706418 }
> db.energy.aggregate([{$group:{_id: null, sum_slope_x1: {$sum: "$sl
ope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.038970647679218956 }
> db.entertainment.aggregate([{$group:{_id: null, sum_slope_x1: {$su
m: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.02535941616392128 }
> db.tech.aggregate([{$group:{_id: null, sum_slope_x1: {$sum: "$slop
e_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.02657034821272041 }
```

```
> db.tech.aggregate([{$group:{_id: null, sum_slope_x1: {$sum:{$abs:
"$slope_x1"}}}}])
{ "_id" : null, "sum_slope_x1" : 0.1274312501939839 }
> db.finance.aggregate([{$group:{_id: null, sum_slope_x1: {$sum:{$ab
s: "$slope_x1"}}}}])
{ "_id" : null, "sum_slope_x1" : 0.14732535004488603 }
> db.airlines.aggregate([{$group:{_id: null, sum_slope_x1: {$sum:{$a
bs: "$slope_x1"}}}}])
{ "_id" : null, "sum_slope_x1" : 0.19597523740332404 }
> db.automotive.aggregate([{$group:{_id: null, sum_slope_x1: {$sum:{
$abs: "$slope_x1"}}}}])
{ "_id" : null, "sum_slope_x1" : 0.2951114340668924 }
> db.energy.aggregate([{$group:{_id: null, sum_slope_x1: {$sum:{$abs
: "$slope_x1"}}}}])
{ "_id" : null, "sum_slope_x1" : 0.14640097918165834 }
> db.entertainment.aggregate([{$group:{_id: null, sum_slope_x1: {$su
m:{$abs: "$slope_x1"}}}}])
{ "_id" : null, "sum_slope_x1" : 0.1565645025810838 }
```

VOLATILITY – STANDARD DEVIATION

```
> db.entertainment.aggregate([{$group:{_id: null, sum_slope_x1: {$st
dDevSamp: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.0010306681938790595 }
> db.finance.aggregate([{$group:{_id: null, sum_slope_x1: {$stdDevSa
mp: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.0009641827833697084 }
> db.energy.aggregate([{$group:{_id: null, sum_slope_x1: {$stdDevSam
p: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.001000455452900565 }
> db.tech.aggregate([{$group:{_id: null, sum_slope_x1: {$stdDevSamp:
 "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.0008367362663806663 }
> db.automotive.aggregate([{$group:{_id: null, sum_slope_x1: {$stdDe
vSamp: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.001993714949002053 }
> db.airlines.aggregate([{$group:{_id: null, sum_slope_x1: {$stdDevS
amp: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.0012769374631615496 }
```

MEAN AND MEDIAN

```
> db.finance.aggregate([ { "$group":{ "_id":null, "count":{ "$sum":1 }, "values":{ "$
push":"$slope_x1" } } }, { "$unwind":"$values" }, { "$sort":{ "values":1 } }, { "$pro
ject":{ "values":1, "count":1, "midpoint":{ "$divide":[ "$count", 2 ] } } }, { "$proj
ect":{ "values":1, "count":1, "midpoint":1, "high":{ "$floor":{ "$subtract":[ "$midpo
int", 0.5 ] } }, "low":{ "$floor":"$midpoint" } } }, { "$group":{ "_id":null, "values
":{ "$push":"$values" }, "high":{ "$avg":"$high" }, "low":{ "$avg":"$low" } } }, { "$
project":{ "values":1, "beginValue":{ "$arrayElemAt":[ "$values", "$high" ] }, "endVa
lue":{ "$arrayElemAt":[ "$values", "$low" ] } } }, { "$project":{ "median":{ "$cond":
{ "if":{ "$eq":[ { "$mod":[ { "$size":"$values" }, 2 ] }, 0 ] }, "then":{ "$avg":[ "$
beginValue", "$endValue" ] }, "else":"$endValue" } } } ]);
{ "_id" : null, "median" : 0.00009243903907503033 }
> db.finance.aggregate([{$group:{_id: null, sum_slope_x1: {$avg: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.00010023944271725019 }
```

```
> db.airlines.aggregate([ { "$group":{ "_id":null, "count":{ "$sum":1 }, "values":{ "$push":"$slope_x1" } } }, { "$unwind":"$values" }, { "$s
ort":{ "values":1 } }, { "$project":{ "values":1, "count":1, "midpoint":{ "$divide":[ "$count", 2 ] } } }, { "$project":{ "values":1, "count"
:1, "midpoint":1, "high":{ "$floor":{ "$subtract":[ "$midpoint", 0.5 ] } }, "low":{ "$floor":"$midpoint" } } }, { "$group":{ "_id":null, "val
ues":{ "$push":"$values" }, "high":{ "$avg":"$high" }, "low":{ "$avg":"$low" } } }, { "$project":{ "values":1, "beginValue":{ "$arrayElemAt":
[ "$values", "$high" ] }, "endValue":{ "$arrayElemAt":[ "$values", "$low" ] } } }, { "$project":{ "median":{ "$cond":{ "if":{ "$eq":[ { "$mod
":[ { "$size":"$values" }, 2 ] }, 0 ] }, "then":{ "$avg":[ "$beginValue", "$endValue" ] }, "else":"$endValue" } } } ])
{ "_id" : null, "median" : 0.00010571074752877826 }
> db.airlines.aggregate([{$group:{_id: null, sum_slope_x1: {$avg: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.00017009350886533432 }
```

```
> db.automotive.aggregate([ { "$group":{ "_id":null, "count":{ "$sum":1 }, "values":{ "$push":"$slope_x1" } } }, { "$unwind":"$values" }, { "
$sort":{ "values":1 } }, { "$project":{ "values":1, "count":1, "midpoint":{ "$divide":[ "$count", 2 ] } } }, { "$project":{ "values":1, "coun
t":1, "midpoint":1, "high":{ "$floor":{ "$subtract":[ "$midpoint", 0.5 ] } }, "low":{ "$floor":"$midpoint" } } }, { "$group":{ "_id":null, "v
alues":{ "$push":"$values" }, "high":{ "$avg":"$high" }, "low":{ "$avg":"$low" } } }, { "$project":{ "values":1, "beginValue":{ "$arrayElemAt
":[ "$values", "$high" ] }, "endValue":{ "$arrayElemAt":[ "$values", "$low" ] } } }, { "$project":{ "median":{ "$cond":{ "if":{ "$eq":[ { "$m
od":[ { "$size":"$values" }, 2 ] }, 0 ] }, "then":{ "$avg":[ "$beginValue", "$endValue" ] }, "else":"$endValue" } } } ])
{ "_id" : null, "median" : 0.00021234739860780892 }
> db.automotive.aggregate([{$group:{_id: null, sum_slope_x1: {$avg: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.00033845974461982526 }
```

```
> db.energy.aggregate([ { "$group":{ "_id":null, "count":{ "$sum":1 }, "values":{ "$push":"$slope_x1" } } }, { "$unwind":"$values" }, { "$sor
t":{ "values":1 } }, { "$project":{ "values":1, "count":1, "midpoint":{ "$divide":[ "$count", 2 ] } } }, { "$project":{ "values":1, "count":1
, "midpoint":1, "high":{ "$floor":{ "$subtract":[ "$midpoint", 0.5 ] } }, "low":{ "$floor":"$midpoint" } } }, { "$group":{ "_id":null, "value
s":{ "$push":"$values" }, "high":{ "$avg":"$high" }, "low":{ "$avg":"$low" } } }, { "$project":{ "values":1, "beginValue":{ "$arrayElemAt":[
"$values", "$high" ] }, "endValue":{ "$arrayElemAt":[ "$values", "$low" ] } } }, { "$project":{ "median":{ "$cond":{ "if":{ "$eq":[ { "$mod":
[ { "$size":"$values" }, 2 ] }, 0 ] }, "then":{ "$avg":[ "$beginValue", "$endValue" ] }, "else":"$endValue" } } } ])
{ "_id" : null, "median" : 0.0001373280562305874 }
> db.energy.aggregate([{$group:{_id: null, sum_slope_x1: {$avg: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.00019010072038643392 }
```

```
> db.entertainment.aggregate([ { "$group":{ "_id":null, "count":{ "$sum":1 }, "values":{ "$push":"$slope_x1" } } }, { "$unwind":"$values" },
{ "$sort":{ "values":1 } }, { "$project":{ "values":1, "count":1, "midpoint":{ "$divide":[ "$count", 2 ] } } }, { "$project":{ "values":1, "c
ount":1, "midpoint":1, "high":{ "$floor":{ "$subtract":[ "$midpoint", 0.5 ] } }, "low":{ "$floor":"$midpoint" } } }, { "$group":{ "_id":null,
 "values":{ "$push":"$values" }, "high":{ "$avg":"$high" }, "low":{ "$avg":"$low" } } }, { "$project":{ "values":1, "beginValue":{ "$arrayEle
mAt":[ "$values", "$high" ] }, "endValue":{ "$arrayElemAt":[ "$values", "$low" ] } } }, { "$project":{ "median":{ "$cond":{ "if":{ "$eq":[ {
"$mod":[ { "$size":"$values" }, 2 ] }, 0 ] }, "then":{ "$avg":[ "$beginValue", "$endValue" ] }, "else":"$endValue" } } } } ])
{ "_id" : null, "median" : 0.00007528508711353253 }
> db.entertainment.aggregate([{$group:{_id: null, sum_slope_x1: {$avg: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.00012370446909229892 }
> db.tech.aggregate([ { "$group":{ "_id":null, "count":{ "$sum":1 }, "values":{ "$push":"$slope_x1" } } }, { "$unwind":"$values" }, { "$sort"
:{ "values":1 } }, { "$project":{ "values":1, "count":1, "midpoint":{ "$divide":[ "$count", 2 ] } } }, { "$project":{ "values":1, "count":1,
"midpoint":1, "high":{ "$floor":{ "$subtract":[ "$midpoint", 0.5 ] } }, "low":{ "$floor":"$midpoint" } } }, { "$group":{ "_id":null, "values"
:{ "$push":"$values" }, "high":{ "$avg":"$high" }, "low":{ "$avg":"$low" } } }, { "$project":{ "values":1, "beginValue":{ "$arrayElemAt":[ "$
values", "$high" ] }, "endValue":{ "$arrayElemAt":[ "$values", "$low" ] } } }, { "$project":{ "median":{ "$cond":{ "if":{ "$eq":[ { "$mod":[
{ "$size":"$values" }, 2 ] }, 0 ] }, "then":{ "$avg":[ "$beginValue", "$endValue" ] }, "else":"$endValue" } } } } ])
{ "_id" : null, "median" : 0.00008871331833817687 }
> db.tech.aggregate([{$group:{_id: null, sum_slope_x1: {$avg: "$slope_x1"}}}])
{ "_id" : null, "sum_slope_x1" : 0.00012961145469619713 }
```