

Qn:1

```
db.Weather.aggregate([
{
$group:
{ _id:{},
Average_Temp:{$avg:"$airTemperature.value"}
}}
])
```

```
> db.Weather.aggregate([
  {
    $group:
      { _id:{},
        Average_Temp:{$avg:"$airTemperature.value"}
      }
  })
< {
  _id: {},
  Average_Temp: 70.63205
}
```

Qn:2

```
db.Weather.aggregate([
{
$group:
{ _id:"$wind.direction.angle",
max_speed:{$max:"$wind.speed.rate"}
}}
]).toArray()
```

```

> db.Weather.aggregate([
  {
    $group:
    { _id:"$wind.direction.angle",
      max_speed:{$max:"$wind.speed.rate"}
    }
  }
]).toArray()
< [
  { _id: 250, max_speed: 29.8 },
  { _id: 120, max_speed: 40.1 },
  { _id: 999, max_speed: 999.9 },
  { _id: 320, max_speed: 23.1 },
  { _id: 190, max_speed: 23 },
  { _id: 150, max_speed: 22.6 },
  { _id: 350, max_speed: 44.2 },
  { _id: 180, max_speed: 24 },
  { _id: 220, max_speed: 18 },
  { _id: 100, max_speed: 24 },
  { _id: 40, max_speed: 41.6 },
  { _id: 160, max_speed: 21.1 },
  { _id: 230, max_speed: 49.9 },
  { _id: 30, max_speed: 46.3 },

```

Qn:3

```

db.Weather.aggregate([
  {
    $group:
    { _id:null,
      total_depth:{$sum:"$precipitationEstimatedObservation.estimatedWaterDepth"}
    }
  }
])

```

```

> db.Weather.aggregate([
  {
    $group:
    { _id:null,
      total_depth:{$sum:"$precipitationEstimatedObservation.estimatedWaterDepth"}
    }
  }
])
< {
  _id: null,
  total_depth: 1943529
}

```

Qn:4

```

db.Weather.aggregate(
[

```

```
{
  $group:
  {
    _id:"$waveMeasurement.seaState.code",
    common_code:{$count:{}}
  }
},{$sort:{common_code:-1}},{$limit:1}]);
```

```
> db.Weather.aggregate(
  [
    {
      $group:
      {
        _id:"$waveMeasurement.seaState.code",
        common_code:{$count:{}}
      }
    },
    {$sort:{common_code:-1}},{$limit:1}]);
< {
  _id: '99',
  common_code: 7411
}
```

Qn: 5

```
db.Weather.aggregate([{$group:{
  _id: {$month:"$ts"},
  averageAir_Temperature:{$avg:"$airTemperature.value"},
  average_Sea_Temperature:{$avg:"$seaSurfaceTemperature.value"},
  average_dewpoint:{$avg:"$dewPoint.value"}
}}])
```

```
> db.Weather.aggregate([{$group:{
  _id: {$month:"$ts"},
  averageAir_Temperature:{$avg:"$airTemperature.value"},
  average_Sea_Temperature:{$avg:"$seaSurfaceTemperature.value"},
  average_dewpoint:{$avg:"$dewPoint.value"}
}}])
< {
  _id: 3,
  averageAir_Temperature: 70.63205,
  average_Sea_Temperature: 15.86576419213974,
  average_dewpoint: 517.18629
}
```

Qn:6

```
db.Weather.aggregate([
  {
    $group:{
      _id:"$skyCondition.ceilingHeight.quality",
      Average_elevation:{$avg:"$elevation"},
      Maximum_wind_Speed:{$max:"$wind.speed.rate"}
    }
  }
])
```

```
> db.Weather.aggregate([
  {
    $group:{
      _id:"$skyCondition.ceilingHeight.quality",
      Average_elevation:{$avg:"$elevation"},
      Maximum_wind_Speed:{$max:"$wind.speed.rate"}
    }
  }
])
< {
  _id: '1',
  Average_elevation: 9999,
  Maximum_wind_Speed: 999.9
}
{
  _id: '9',
  Average_elevation: 9999,
  Maximum_wind_Speed: 999.9
}
ch22>
```

Qn: 7

```
db.Weather.aggregate([
  {$group:{_id:{}, "TotalNumberOfDocuments":{$count:{}}}}
])
```

```
> db.Weather.aggregate([
  {$group:{_id:{}, "TotalNumberOfDocuments":{$count:{}}}}
])
< {
  _id: {},
  TotalNumberOfDocuments: 10000
}
ch22>
```

Qn: 8

```

db.Weather.aggregate([
  {$match:{$and:[{"airTemperature.value":{$gt:25}},{"visibility.distance.value":{$gt:1000}}]},
  {$project:{$_id:1,type:1} }
]).toArray()

```

```

> db.Weather.aggregate([
  {
    $match:{$
      $and:[{"airTemperature.value":{$gt:25}},{"visibility.distance.value":{$gt:1000}}]}
    },{
      $project:{$_id:1,type:1}
    }
  ]
}).toArray()
[
  { _id: ObjectId("5553a998e4b02cf7151190c4"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190cb"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190cc"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190cf"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190d5"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190d8"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190d9"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190dc"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190df"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190e5"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190e6"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190e7"), type: 'FM-13' },

```

Qn:9

```

db.Weather.aggregate([{$
  $match:{"visibility.distance.value":{$gt:1000}}
},{$
  $group:{$_id:null,count:{$count:{}}}
])

```

```

> db.Weather.aggregate([
  $match:{"visibility.distance.value":{$gt:1000}}
},{
  $group: {_id:null, count:{$count: {}}}
]})
< {
  _id: null,
  count: 9680
}

```

Qn:10:

```

db.Weather.aggregate([
  {$match:{"precipitationEstimatedObservation.discrepancy":"2"}},
  {$group: {_id:null, count:{$count: {}}}
])

```

```

> db.Weather.aggregate([
  {$match:{"precipitationEstimatedObservation.discrepancy":"2"}},
  {$group: {_id:null, count:{$count: {}}}
]})
< {
  _id: null,
  count: 5489
}

```

Qn:11

```

db.Weather.aggregate([
  $match:{"skyCondition.ceilingHeight.quality":{$eq:"9"}},
  {$project: {_id:0, type:1}}
]).toArray()

```

Qn:12

```
> db.Weather.aggregate([
  $match: {"airTemperature.quality": "1", "dewPoint.quality": "1"}], { $project: { _id: 1, type: 1 }
}]).toArray();

< [
  { _id: ObjectId("5553a998e4b02cf7151190ba"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190be"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190c1"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190c2"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190c6"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190c7"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190c9"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190cf"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190d1"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190d7"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190da"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190dd"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190de"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190e0"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190e1"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190e2"), type: 'FM-13' },
  { _id: ObjectId("5553a998e4b02cf7151190e5"), type: 'FM-13' },
```

Qn:13

```
db.Weather.aggregate([
  {
    $match: { $or: [{"waveMeasurement.seaState.code": "99"}, {"visibility.distance.value": { $gt: 5000 }}]}
  },
  { $project: { _id: 0, type: 1 } }
]).toArray()
```

[illegible]

Qn:14

```
db.Weather.aggregate([{$unwind:"$sections",
    {$group:{_id:{distinctSections:"$sections"}}}
]).toArray()
```



```
> db.Weather.aggregate([{$unwind:"$sections"},
  {$group: {_id: {distinctSections: "$sections"}}}
]).toArray()
```

```
< [
  { _id: { distinctSections: 'UG1' } },
  { _id: { distinctSections: 'SA1' } },
  { _id: { distinctSections: 'WD1' } },
  { _id: { distinctSections: 'MW1' } },
  { _id: { distinctSections: 'UG2' } },
  { _id: { distinctSections: 'GF1' } },
  { _id: { distinctSections: 'AG1' } },
  { _id: { distinctSections: 'GA3' } },
  { _id: { distinctSections: 'MD1' } },
  { _id: { distinctSections: 'WA1' } },
  { _id: { distinctSections: 'GA1' } },
  { _id: { distinctSections: 'AA1' } },
  { _id: { distinctSections: 'UA1' } },
```

Qn:15

```
db.Weather.aggregate([{$group: {_id: {st: "$st", Datasource: "$dataSource"}}}]).toArray();
```

```
> db.Weather.aggregate([{$group: {_id: {st: "$st", Datasource: "$dataSource"}}}]).toArray();
```

```
< [
  { _id: { st: 'x+31900+132600', Datasource: '4' } },
  { _id: { st: 'x+19600-119900', Datasource: '4' } },
  { _id: { st: 'x+48900-138500', Datasource: '4' } },
  { _id: { st: 'x+39600+001700', Datasource: '4' } },
  { _id: { st: 'x+54900-165300', Datasource: '4' } },
  { _id: { st: 'x+35300-072300', Datasource: '4' } },
  { _id: { st: 'x+30400+157500', Datasource: '4' } },
  { _id: { st: 'x+44300-120200', Datasource: '4' } },
  { _id: { st: 'x+28700+136900', Datasource: '4' } },
  { _id: { st: 'x+48000-061700', Datasource: '4' } },
  { _id: { st: 'x-10100+089900', Datasource: '4' } },
  { _id: { st: 'x-16700+003800', Datasource: '4' } },
```

Qn: 16

```
db.Weather.aggregate([
  {$match: {"airTemperature.quality": "1"}}, {$group: {_id: "$ts"}}
]).toArray()
```

```

> db.Weather.aggregate([
    {$match:{"airTemperature.quality":"1"}},{$group:{"_id":"$ts"}}
]).toArray()
< [
  { _id: 1984-03-06T13:00:00.000Z },
  { _id: 1984-03-05T14:00:00.000Z },
  { _id: 1984-03-07T14:00:00.000Z },
  { _id: 1984-03-07T11:00:00.000Z },
  { _id: 1984-03-09T14:00:00.000Z },
  { _id: 1984-03-13T06:00:00.000Z },
  { _id: 1984-03-05T23:00:00.000Z },
  { _id: 1984-03-11T23:00:00.000Z },
  { _id: 1984-03-10T15:00:00.000Z },
  { _id: 1984-03-13T12:00:00.000Z },
  { _id: 1984-03-11T22:00:00.000Z },
  { _id: 1984-03-12T16:00:00.000Z },
  { _id: 1984-03-10T05:00:00.000Z },
  { _id: 1984-03-13T10:00:00.000Z },
  { _id: 1984-03-05T13:00:00.000Z },
  { _id: 1984-03-06T07:00:00.000Z },

```

Qn:17

```

db.Weather.aggregate([
  {$group:{"_id":{"value":"$airTemperature.value",Quality:"$airTemperature.quality"}
}}]
).toArray()

```

```
> db.Weather.aggregate([
  {$group:{_id:{value:"$airTemperature.value",Quality:"$airTemperature.quality"}}}
]).toArray()
< [
  { _id: { value: 27, Quality: '1' } },
  { _id: { value: -2.3, Quality: '1' } },
  { _id: { value: -26.7, Quality: '1' } },
  { _id: { value: 13.1, Quality: '1' } },
  { _id: { value: 30.2, Quality: '1' } },
  { _id: { value: 3.2, Quality: '1' } },
  { _id: { value: -3.9, Quality: '1' } },
  { _id: { value: 11.5, Quality: '1' } },
  { _id: { value: -9.4, Quality: '1' } },
  { _id: { value: 24.7, Quality: '1' } },
  { _id: { value: 23.5, Quality: '1' } },
  { _id: { value: 4.3, Quality: '1' } },
  { _id: { value: -4.2, Quality: '1' } },
  { _id: { value: -4.1, Quality: '1' } },
  { _id: { value: 27.4, Quality: '1' } },
  { _id: { value: 28.4, Quality: '1' } },
  { _id: { value: 6.9, Quality: '1' } },
  { _id: { value: -2.7, Quality: '1' } },
```