Ditthapong
6310545965

1) You're creating a database to contain information about students in a class (name and ID), and class projects done in pairs (two students and a project title). Should you use the relational model or MongoDB? Please justify your answer

Relational Database beave it is a simple data model and to be more appopriate.

2) You're creating a database to contain information about students in a class (name and ID), and class projects. Projects may include any combination of students; they have a title and optional additional information such as materials, approvals, and milestones. Should you use the relational model or MongoDB? Please justify your answer

MongoDB because we need to use the fexible schema

3) You're creating a database to contain a set of sensor measurements from a two-dimensional grid. Each measurement is a time-sequence of readings, and each reading contains ten labeled values. Should you use the relational model or MongoDB? Please justify your answer
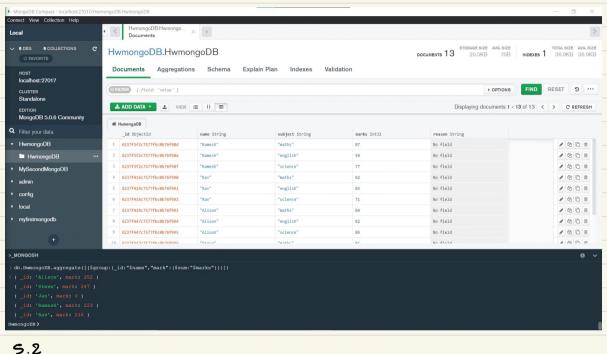
MongoDB because it would be eusier to collee by the mongo DB as a simple deuta.

4) Choose one of the following applications

    a.   IoT

    b.   E-commerce

    c.   Gaming

    d.   Finance

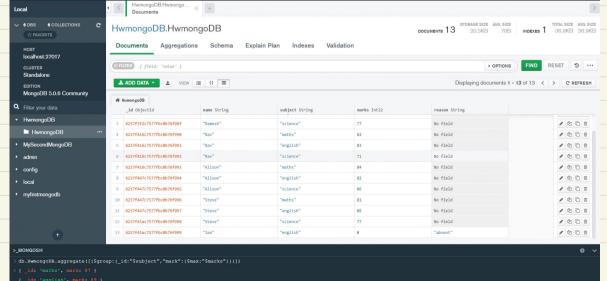Propose an appropriate Relational Model or MongoDB database schema

a. Mongo DB
b. Relational Model
c. Relational Model
c. Relational Model

S.1


```
MongoDB Compass - localhost:27017/HwmongoDB.HwmongoDB
Connect  View  Collection  Help
Local

⌄ 0 DBS    0 COLLECTIONS
  ☆ FAVORITE

HOST
localhost:27017

CLUSTER
Standalone

EDITION
MongoDB 5.0.6 Community

🔍 Filter your data

⌄ HwmongoDB
  ▪ HwmongoDB
▸ MySecondMongoDB
▸ admin
▸ config
▸ local
▸ myfirstmongodb

              +
```

HwmongoDB.Hwmongo… Documents

HwmongoDB.HwmongoDB

DOCUMENTS 13   STORAGE SIZE 20.5KB   AVG. SIZE 70B   INDEXES 1   TOTAL SIZE 36.9KB   AVG. SIZE 36.9KB

Documents | Aggregations | Schema | Explain Plan | Indexes | Validation

FILTER { field: 'value' }   ▸ OPTIONS   FIND   RESET

ADD DATA ▾   VIEW ≣ {} ▦   Displaying documents 1 - 13 of 13   REFRESH

	_id ObjectId	name String	subject String	marks Int32	reason String
1	6237f3f2c7577fbc0b76f98d	"Ramesh"	"maths"	87	No field
2	6237f3f2c7577fbc0b76f98e	"Ramesh"	"english"	59	No field
3	6237f3f2c7577fbc0b76f98f	"Ramesh"	"science"	77	No field
4	6237f416c7577fbc0b76f990	"Rav"	"maths"	62	No field
5	6237f416c7577fbc0b76f991	"Rav"	"english"	83	No field
6	6237f416c7577fbc0b76f992	"Rav"	"science"	71	No field
7	6237f416c7577fbc0b76f993	"Alison"	"maths"	84	No field
8	6237f447c7577fbc0b76f994	"Alison"	"english"	82	No field
9	6237f447c7577fbc0b76f995	"Alison"	"science"	86	No field
10	6237f447c7577fbc0b76f996	"Steve"	"maths"	81	No field

```
>_MONGOSH
> db.HwmongoDB.aggregate([{$group:{_id:"$name","mark":{$sum:"$marks"}}}])
< { _id: 'Alison', mark: 252 }
  { _id: 'Steve', mark: 247 }
  { _id: 'Jan', mark: 0 }
  { _id: 'Ramesh', mark: 223 }
  { _id: 'Rav', mark: 216 }
HwmongoDB >
```

S.2


```
MongoDB Compass - localhost:27017/HwmongoDB.HwmongoDB
Connect  View  Collection  Help
Local

⌄ 0 DBS    0 COLLECTIONS
  ☆ FAVORITE

HOST
localhost:27017

CLUSTER
Standalone

EDITION
MongoDB 5.0.6 Community

🔍 Filter your data

⌄ HwmongoDB
  ▪ HwmongoDB
  MySecondMongoDB
▸ admin
▸ config
▸ local
▸ myfirstmongodb

              +
```

HwmongoDB.Hwmongo… Documents

HwmongoDB.HwmongoDB

DOCUMENTS 13   STORAGE SIZE 20.5KB   AVG. SIZE 70B   INDEXES 1   TOTAL SIZE 36.9KB   AVG. SIZE 36.9KB

Documents | Aggregations | Schema | Explain Plan | Indexes | Validation

FILTER { field: 'value' }   ▸ OPTIONS   FIND   RESET

ADD DATA ▾   VIEW ≣ {} ▦   Displaying documents 1 - 13 of 13   REFRESH

	_id ObjectId	name String	subject String	marks Int32	reason String
3	6237f3f2c7577fbc0b76f98f	"Ramesh"	"science"	77	No field
4	6237f416c7577fbc0b76f990	"Rav"	"maths"	62	No field
5	6237f416c7577fbc0b76f991	"Rav"	"english"	83	No field
6	6237f416c7577fbc0b76f992	"Rav"	"science"	71	No field
7	6237f416c7577fbc0b76f993	"Alison"	"maths"	84	No field
8	6237f447c7577fbc0b76f994	"Alison"	"english"	82	No field
9	6237f447c7577fbc0b76f995	"Alison"	"science"	86	No field
10	6237f447c7577fbc0b76f996	"Steve"	"maths"	81	No field
11	6237f447c7577fbc0b76f997	"Steve"	"english"	89	No field
12	6237f45ac7577fbc0b76f998	"Steve"	"science"	77	No field
13	6237f45ac7577fbc0b76f999	"Jan"	"english"	0	"absent"

```
>_MONGOSH
> db.HwmongoDB.aggregate([{$group:{_id:"$subject","mark":{$max:"$marks"}}}])
< { _id: 'maths', mark: 87 }
  { _id: 'english', mark: 89 }
  { _id: 'science', mark: 86 }
HwmongoDB >
```

S.3

Connect View Collection Help

Local

HwmongoDB.Hwmongo…
Documents

HwmongoDB.HwmongoDB

DOCUMENTS 13 | STORAGE SIZE 20.5KB | AVG. SIZE 70B | INDEXES 1 | TOTAL SIZE 36.9KB | AVG. SIZE 36.9KB

Local

∨ 6 DBS   6 COLLECTIONS   C
☆ FAVORITE

HOST
localhost:27017

CLUSTER
Standalone

EDITION
MongoDB 5.0.6 Community

Q Filter your data

∨ HwmongoDB
  ▪ HwmongoDB   ...
▸ MySecondMongoDB
▸ admin
▸ config
▸ local
▸ myfirstmongodb

          +

Documents   Aggregations   Schema   Explain Plan   Indexes   Validation

FILTER { field: 'value' }   ▸ OPTIONS   FIND   RESET   ↻   ⋯

± ADD DATA ▾   ↥   VIEW ☰ {} ▦   Displaying documents 1 - 13 of 13   ‹ ›   C REFRESH

🏠 HwmongoDB

_id ObjectId	name String	subject String	marks Int32	reason String
5 6237f416c7577fbc0b76f991	"Rav"	"english"	83	No field
6 6237f416c7577fbc0b76f992	"Rav"	"science"	71	No field
7 6237f416c7577fbc0b76f993	"Alison"	"maths"	84	No field
8 6237f447c7577fbc0b76f994	"Alison"	"english"	82	No field
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11 6237f447c7577fbc0b76f997	"Steve"	"english"	89	No field
12 6237f45ac7577fbc0b76f998	"Steve"	"science"	77	No field
13 6237f45ac7577fbc0b76f999	"Jan"	"english"	0	"absent"

```
>_MONGOSH
> db.HwmongoDB.aggregate([{$group:{_id:"$name","mark":{$min:"$marks"}}}])
< { _id: 'Alison', mark: 82 }
  { _id: 'Steve', mark: 77 }
  { _id: 'Jan', mark: 0 }
  { _id: 'Ramesh', mark: 59 }
  { _id: 'Rav', mark: 62 }
HwmongoDB >
```

S.4

Connect View Collection Help

Local

HwmongoDB.Hwmongo…
Documents

HwmongoDB.HwmongoDB

DOCUMENTS 13 | STORAGE SIZE 20.5KB | AVG. SIZE 70B | INDEXES 1 | TOTAL SIZE 36.9KB | AVG. SIZE 36.9KB

Local

∨ 6 DBS   6 COLLECTIONS   C
☆ FAVORITE

HOST
localhost:27017

CLUSTER
Standalone

EDITION
MongoDB 5.0.6 Community

Q Filter your data

∨ HwmongoDB
  ▪ HwmongoDB   ...
▸ MySecondMongoDB
▸ admin
▸ config
▸ local
▸ myfirstmongodb

          +

Documents   Aggregations   Schema   Explain Plan   Indexes   Validation

FILTER { field: 'value' }   ▸ OPTIONS   FIND   RESET   ↻   ⋯

± ADD DATA ▾   ↥   VIEW ☰ {} ▦   Displaying documents 1 - 13 of 13   ‹ ›   C REFRESH

🏠 HwmongoDB

_id ObjectId	name String	subject String	marks Int32	reason String
2 6237f3f2c7577fbc0b76f98e	"Ramesh"	"english"	59	No field
3 6237f3f2c7577fbc0b76f98f	"Ramesh"	"science"	77	No field
4 6237f416c7577fbc0b76f990	"Rav"	"maths"	62	No field
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8 6237f447c7577fbc0b76f994	"Alison"	"english"	82	No field
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12 6237f45ac7577fbc0b76f998	"Steve"	"science"	77	No field
13 6237f45ac7577fbc0b76f999	"Jan"	"english"	0	"absent"

```
>_MONGOSH
> db.HwmongoDB.aggregate([{$group:{_id:"$subject", average: {$avg:"$marks"}}}, {$sort:{average:-1}}, {$limit:2}])
< { _id: 'maths', average: 78.5 }
  { _id: 'science', average: 77.75 }
HwmongoDB >
```