1. I recommend using MongoDB for this scenario because it can easily handle the complex, hierarchical data structure of sensor measurements, offers better scalability, and provides more flexibility than a relational model. MongoDB's querying capabilities also make analyzing and retrieving data more efficient.
2. a. IoT:
   Recommended: MongoDB
   Schema: Device data with nested sensor readings.
   Justification: Scalability, flexibility, and support for nested data structures.
   b. E-commerce:
   Recommended: Relational Model
   Schema: Users, Products, Orders, and Order_Items tables.
   Justification: Complex relationships, data integrity, and transaction support.
   c. Gaming:
   Recommended: MongoDB
   Schema: Player data with nested stats and inventory.
   Justification: Flexible data structures and support for hierarchical data.
   d. Finance:
   Recommended: Relational Model
   Schema: Users, Accounts, and Transactions tables.
   Justification: Strong data consistency, ACID transactions, and data integrity.

3. Create and insert database then query.

Insert 13 information

```
university> db.university.find()
[
  {
    _id: ObjectId("642973e2e405f6dc9495c2b7"),
    name: 'Ramesh',
    subject: 'maths',
    marks: 87
  },
  {
    _id: ObjectId("642973f5e405f6dc9495c2b8"),
    name: 'Ramesh',
    subject: 'english',
    marks: 59
  },
  {
    _id: ObjectId("64297409e405f6dc9495c2b9"),
    name: 'Ramesh',
    subject: 'science',
    marks: 77
  },
  {
    _id: ObjectId("6429744be405f6dc9495c2ba"),
    name: 'Rav',
    subject: 'maths',
    marks: 62
  },
  {
    _id: ObjectId("64297484e405f6dc9495c2bb"),
    name: 'Rav',
    subject: 'english',
    marks: 83
  },
  {
    _id: ObjectId("64297494e405f6dc9495c2bc"),
    name: 'Rav',
    subject: 'science',
    marks: 71
  },
  {
    _id: ObjectId("642974a1e405f6dc9495c2bd"),
    name: 'Alison',
    subject: 'maths',
    marks: 84
  },
  {
    _id: ObjectId("642974b5e405f6dc9495c2be"),
    name: 'Alison',
    subject: 'english',
    marks: 82
  },
  {
    _id: ObjectId("642974c4e405f6dc9495c2bf"),
    name: 'Alison',
    subject: 'science',
```

```
  },
  {
    _id: ObjectId("642974c4e405f6dc9495c2bf"),
    name: 'Alison',
    subject: 'science',
    marks: 86
  },
  {
    _id: ObjectId("642974d2e405f6dc9495c2c0"),
    name: 'Steve',
    subject: 'maths',
    marks: 81
  },
  {
    _id: ObjectId("642974dde405f6dc9495c2c1"),
    name: 'Steve',
    subject: 'english',
    marks: 89
  },
  {
    _id: ObjectId("642974e9e405f6dc9495c2c2"),
    name: 'Steve',
    subject: 'science',
    marks: 77
  },
  {
    _id: ObjectId("642974f5e405f6dc9495c2c3"),
    name: 'Jan',
    subject: 'english',
    marks: 0,
    reason: 'absent'
  }
]
university>
```

• Find the total marks for each student across all subjects.

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

• **Find the maximum marks scored in each subject.**

```
university> db.university.aggregate([
...   { $group: { _id: "$subject", max_marks: { $max: "$marks" } } }
... ]);
[
  { _id: 'english', max_marks: 89 },
  { _id: 'science', max_marks: 86 },
  { _id: 'maths', max_marks: 87 }
]
university>
```

• **Find the minimum marks scored by each student.**

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

• **Find the top two subjects based on average marks.**

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