

8. For the product named "Ultimate Laptop Pro," decrement (\$inc) the stock quantity by 1 and set (\$set) its details.brand to "TechCo Elite".

Query

```
db.products.updateOne(
  { name: "Ultimate Laptop Pro" },
  {
    $inc: { stock: -1 },
    $set: { "details.brand": "TechCo Elite" }
  }
);
```

Result

```
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

9. Add the tag "Sale" to the tags array of the product "Adventure Backpack" only if it's not already present

Query

```
db.products.updateOne(
  { name: "Adventure Backpack" },
  { $addToSet: { tags: "Sale" } }
);
```

Result

```
{
  acknowledged: true,
  insertedId: null,
  matchedCount: 1,
  modifiedCount: 1,
  upsertedCount: 0
}
```

10. Remove (\$pull) all instances of the tag "Sale" from the tags array for ALL documents in the collection.

Query

```
db.products.updateMany(  
  { tags: "Sale" },  
  { $pull: { tags: "Sale" } }  
);
```

Result

```
{  
  acknowledged: true,  
  insertedId: null,  
  matchedCount: 2,  
  modifiedCount: 2,  
  upsertedCount: 0  
}
```

11. Calculate the total inventory value (sum of price * stock) for each category. (Hint: use \$group, \$sum, and \$multiply).

Query

```
db.products.aggregate([  
  {  
    $group: {  
      _id: "$category",  
      totalInventoryValue: {  
        $sum: { $multiply: ["$price", "$stock"] }  
      }  
    }  
  },  
  {  
    $project: {  
      category: "$_id",  
      totalInventoryValue: { $round: ["$totalInventoryValue", 2] },  
      _id: 0  
    }  
  }  
]);
```

Result

```
{
  category: 'Books',
  totalInventoryValue: 900
}
{
  category: 'Apparel',
  totalInventoryValue: 486
}
{
  category: 'Electronics',
  totalInventoryValue: 26499.42
}
{
  category: 'Accessories',
  totalInventoryValue: 180
}
{
  category: 'Jewelry',
  totalInventoryValue: 499.9
}
{
  category: null,
  totalInventoryValue: 0
}
```

12. Count the total number of products supplied by each details.brand.

Query

```
db.products.aggregate([
  {
    $group: {
      _id: "$details.brand", productCount: { $sum: 1 }
    }
  },
  {
    $project: {
      brand: "$_id", productCount: 1, _id: 0
    }
  }
]);
```

Result

```
{
  productCount: 2,
  brand: 'EconomyBrand'
}
{
  productCount: 1,
  brand: 'TechCo Elite'
}
{
  productCount: 3,
  brand: null
}
{
  productCount: 2,
  brand: 'FashionInc'
}
{
  productCount: 1,
  brand: 'PublisherX'
}
{
  productCount: 1,
  brand: 'ShineCo'
}
{
  productCount: 1,
  brand: 'TechCo'
}
```