

## Setup

```
In [1]: import sys
        from pathlib import Path

        project_dir = Path(".")
        config_path = project_dir / "config"
        services_path = project_dir / "services"
        sys.path.append(str(config_path))
        sys.path.append(str(services_path))

        from connection import Connection
        from mongoServices import MongoServices

        conn = Connection()
        db = conn.connect()

        services = MongoServices(db)
        reviews_collection = db.get_collection("reviews")
```

Connected to MongoDB database: amazon\_reviews

## Document(s) insertion

```
In [31]: document = {
        'AVpe7AsMilAPnD_bDAGEG': {
            "id": "AVpe7AsMilAPnD_bDAGEG",
            "asins": "B08VJ5VJZX",
            "brand": "Amazon",
            "categories": "Amazon Devices, Amazon.com",
            "colors": "",
            "dateAdded": "2023-08-22T14:21:53Z",
            "dateUpdated": "2024-01-10T16:52:58Z",
            "dimension": "135 mm x 170 mm x 20 mm",
            "ean": "",
            "keys": "kindleshd/b08vj5vjzx",
            "manufacturer": "Amazon",
            "manufacturerNumber": "",
            "name": "Kindle Oasis",
            "prices": "[{\"amountMax\":249.99,\"amountMin\":249.99,\"currency\":\"$\"}",
            "reviews_date": '',
            "reviews_doRecommend": '',
            "reviews_numHelpful": '',
            "reviews_rating": 4,
            "reviews_sourceURLs": 'http://www.amazon.ca/product-reviews/B00QJDU3',
            "reviews_text": "Trs heureux que les livres soient sur iCloud. Aprs",
            "reviews_title": '',
            "reviews_userCity": '',
            "reviews_userProvince": '',
            "reviews_username": 'Shepherd',
            "sizes": '',
            "upc": '',
            "weight": '300 grams'
        }
```

```
},
'BXi9sdjXj0lwK9vsaA2GZ5': {
  "id": "BXi9sdjXj0lwK9vsaA2GZ5",
  "asins": "B09G8LPJ8Z",
  "brand": "Amazon",
  "categories": "Amazon Devices, Amazon.com",
  "colors": "",
  "dateAdded": "2023-09-01T15:30:00Z",
  "dateUpdated": "2024-01-09T10:12:00Z",
  "dimension": "130 mm x 170 mm x 18 mm",
  "ean": "",
  "keys": "kindletouch/b09g8lpj8z",
  "manufacturer": "Amazon",
  "manufacturerNumber": "",
  "name": "Kindle Paperwhite 11th Gen",
  "prices": "[{\"amountMax\":139.99,\"amountMin\":139.99,\"currency\":\"$\"}",
  "reviews_date": '',
  "reviews_doRecommend": '',
  "reviews_numHelpful": '',
  "reviews_rating": 4,
  "reviews_sourceURLs": 'http://www.amazon.ca/product-reviews/B00QJDU3',
  "reviews_text": "Trs heureux que les livres soient sur Icloud. Aprs",
  "reviews_title": '',
  "reviews_userCity": '',
  "reviews_userProvince": '',
  "reviews_username": 'Shepherd',
  "sizes": '',
  "upc": '',
  "weight": '300 grams'
},
's0IjfgmNl2apL7w_MSKLx': {
  "id": "s0IjfgmNl2apL7w_MSKLx",
  "asins": "B07VJYZF59",
  "brand": "Amazon",
  "categories": "Amazon Devices, Amazon.com",
  "colors": "",
  "dateAdded": "2022-11-15T18:30:00Z",
  "dateUpdated": "2023-12-20T11:22:00Z",
  "dimension": "140 mm x 160 mm x 20 mm",
  "ean": "",
  "keys": "kindlehd10/b07vjyzt59",
  "manufacturer": "Amazon",
  "manufacturerNumber": "",
  "name": "Kindle HD 10",
  "prices": "[{\"amountMax\":179.99,\"amountMin\":179.99,\"currency\":\"$\"}",
  "reviews_date": '',
  "reviews_doRecommend": '',
  "reviews_numHelpful": '',
  "reviews_rating": 4,
  "reviews_sourceURLs": 'http://www.amazon.ca/product-reviews/B00QJDU3',
  "reviews_text": "Trs heureux que les livres soient sur Icloud. Aprs",
  "reviews_title": '',
  "reviews_userCity": '',
  "reviews_userProvince": '',
  "reviews_username": 'Shepherd',
  "sizes": ''
},
```

```
    "upc": '',
    "weight": '300 grams'
  },
  'v50IjT6C1Jxl72kj5Zl5Vg': {
    "id": "v50IjT6C1Jxl72kj5Zl5Vg",
    "asins": "B08VJM2Z8X",
    "brand": "Amazon",
    "categories": "Amazon Devices, Amazon.com",
    "colors": "",
    "dateAdded": "2023-12-01T14:55:00Z",
    "dateUpdated": "2024-01-10T10:30:00Z",
    "dimension": "150 mm x 170 mm x 22 mm",
    "ean": "",
    "keys": "kindlehd10/b08vjm2z8x",
    "manufacturer": "Amazon",
    "manufacturerNumber": "",
    "name": "Kindle Fire HD 8",
    "prices": "[{\"amountMax\":129.99,\"amountMin\":129.99,\"currency\":\"$\"}",
    "reviews_date": '',
    "reviews_doRecommend": '',
    "reviews_numHelpful": '',
    "reviews_rating": 4,
    "reviews_sourceURLs": 'http://www.amazon.ca/product-reviews/B00QJDU3',
    "reviews_text": "Trs heureux que les livres soient sur Icloud. Aprs",
    "reviews_title": '',
    "reviews_userCity": '',
    "reviews_userProvince": '',
    "reviews_username": 'Shepherd',
    "sizes": '',
    "upc": '',
    "weight": '300 grams'
  },
  'HgLp9jK2e6Kt54Lq9V6Cj5': {
    "id": "HgLp9jK2e6Kt54Lq9V6Cj5",
    "asins": "B06XFG96Q5",
    "brand": "Amazon",
    "categories": "Amazon Devices, Amazon.com",
    "colors": "",
    "dateAdded": "2022-10-10T12:40:00Z",
    "dateUpdated": "2023-11-15T16:50:00Z",
    "dimension": "155 mm x 185 mm x 25 mm",
    "ean": "",
    "keys": "kindlehd10/b06xfg96q5",
    "manufacturer": "Amazon",
    "manufacturerNumber": "",
    "name": "Fire HD 10 Plus",
    "prices": "[{\"amountMax\":189.99,\"amountMin\":189.99,\"currency\":\"$\"}",
    "reviews_date": '',
    "reviews_doRecommend": '',
    "reviews_numHelpful": '',
    "reviews_rating": 4,
    "reviews_sourceURLs": 'http://www.amazon.ca/product-reviews/B00QJDU3',
    "reviews_text": "Trs heureux que les livres soient sur Icloud. Aprs",
    "reviews_title": '',
    "reviews_userCity": '',
    "reviews_userProvince": '',
```

```

        "reviews_username": 'Shepherd',
        "sizes": '',
        "upc": '',
        "weight": '300 grams'
    }
}

services.insert_document(reviews_collection, document)

```

INFO:root:Inserting data into 'reviews'

INFO:root:Data inserted into 'reviews' successfully.

Out[31]: InsertManyResult([ObjectId('67903984bcb8c6317213f0f4'), ObjectId('67903984bcb8c6317213f0f5'), ObjectId('67903984bcb8c6317213f0f6'), ObjectId('67903984bcb8c6317213f0f7'), ObjectId('67903984bcb8c6317213f0f8')], acknowledged=True)

## Document(s) update

```

In [3]: ### 1 -----

filter = { 'name': 'Kindle Paperwhite' }
new_data = { 'weight': '300 grams' }

result = services.update_document(reviews_collection, filter, new_data)

if result:
    print(f"Matched: {result.matched_count}, Updated: {result.modified_count}")

### 2 -----

filter = { 'manufacturer': 'Amazon' }
new_data = { 'manufacturer': 'Azamon Co.' }

result = services.update_document(reviews_collection, filter, new_data)

if result:
    print(f"Matched: {result.matched_count}, Updated: {result.modified_count}")

### 3 -----

filter = { 'reviews_date': '' }
new_data = { 'reviews_title': '' }

result = services.update_document(reviews_collection, filter, new_data)

if result:
    print(f"Matched: {result.matched_count}, Updated: {result.modified_count}")

### 4 -----

filter = { 'manufacturerNumber': 'D01101' }
new_data = { 'manufacturerNumber': 'EEEE11' }

result = services.update_document(reviews_collection, filter, new_data)

```

```

if result:
    print(f"Matched: {result.matched_count}, Updated: {result.modified_count}")

### 5 -----

filter = { 'reviews_rating': { '$gt': 4 } }
new_data = { 'reviews_doRecommend': 'TRUE' }

result = services.update_document(reviews_collection, filter, new_data)

if result:
    print(f"Matched: {result.matched_count}, Updated: {result.modified_count}")

```

```

INFO:root:Updating document(s) matching filter {'name': 'Kindle Paperwhite'} in 'reviews'
INFO:root:Matched 39 document(s), updated 39 document(s).
INFO:root:Updating document(s) matching filter {'manufacturer': 'Amazon'} in 'reviews'
Matched: 39, Updated: 39
INFO:root:Matched 837 document(s), updated 837 document(s).
INFO:root:Updating document(s) matching filter {'reviews_date': ''} in 'reviews'
INFO:root:Matched 385 document(s), updated 380 document(s).
INFO:root:Updating document(s) matching filter {'manufacturerNumber': 'D01101'} in 'reviews'
INFO:root:Matched 32 document(s), updated 32 document(s).
INFO:root:Updating document(s) matching filter {'reviews_rating': {'$gt': 4}} in 'reviews'
INFO:root:Matched 741 document(s), updated 387 document(s).
Matched: 837, Updated: 837
Matched: 385, Updated: 380
Matched: 32, Updated: 32
Matched: 741, Updated: 387

```

## Document(s) read (all)

```

In [4]: documents = services.read_all(reviews_collection)

print(f"Total documents fetched: {len(documents)}")
for doc in documents[:3]:
    print(f"{doc} \n\n")

```

```

INFO:root:Reading all documents from collection 'reviews'

```

Total documents fetched: 1602

```
{'_id': ObjectId('67903405d7c049ac59cdd3d2'), 'id': 'AVpe7AsMilAPnD_xQ78G',
'asins': 'B00QJDU3KY', 'brand': 'Amazon', 'categories': 'Amazon Devices,mazo
n.co.uk', 'colors': '', 'dateAdded': '2016-03-08T20:21:53Z', 'dateUpdated':
'2017-07-18T23:52:58Z', 'dimension': '169 mm x 117 mm x 9.1 mm', 'ean': '',
'keys': 'kindlepaperwhite/b00qjdu3ky', 'manufacturer': 'Azamon Co.', 'manufa
cturerNumber': '', 'name': 'Kindle Paperwhite', 'prices': '[{"amountMax":13
9.99,"amountMin":139.99,"currency":"USD","dateAdded":"2017-07-18T23:52:58
Z","dateSeen":["2017-07-15T18:10:23.807Z","2016-03-16T00:00:00Z"],"isSal
e":"false","merchant":"Amazon.com","shipping":"FREE Shipping.","sourceURLs":
["https://www.amazon.com/Kindle-Paperwhite-High-Resolution-Display-Built/dp/
B00QJDU3KY/ref=lp_6669702011_1_7/132-1677641-8459202?s=amazon-devices&ie=UTF
8&qid=1498832761&sr=1-7","http://www.amazon.com/Kindle-Paperwhite-High-Resol
ution-Display-Built-/dp/B00QJDU3KY"]},{ "amountMax":119.99,"amountMin":119.9
9,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:21:53Z","dat
eSeen":["2016-01-29T00:00:00Z"],"isSale":"false","merchant":"Amazon EU Sar
l","shipping":"free","sourceURLs":["http://www.amazon.co.uk/Kindle-Paperwhit
e-Resolution-Display-Built-/dp/B00QJDU3KY"]},{ "amountMax":139.99,"amountMi
n":139.99,"condition":"new","currency":"CAD","dateAdded":"2016-03-08T20:21:5
3Z","dateSeen":["2016-01-11T00:00:00Z"],"isSale":"false","merchant":"Amazo
n","shipping":"free","sourceURLs":["http://www.amazon.ca/dp/B00QJDU3KY"]},
{ "amountMax":119.99,"amountMin":119.99,"currency":"USD","dateAdded":"2016-0
3-08T20:21:53Z","dateSeen":["2016-03-12T00:00:00Z"],"isSale":"true","merchan
t":"Amazon.com","sourceURLs":["http://www.amazon.com/Kindle-Paperwhite-High-
Resolution-Display-Built-/dp/B00QJDU3KY"]},{ "amountMax":119.99,"amountMin":1
19.99,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:21:53
Z","dateSeen":["2015-11-15T00:00:00Z"],"isSale":"false","merchant":"Amazo
n","shipping":"free","sourceURLs":["http://www.amazon.co.uk/All-New-Kindle-P
aperwhite-Resolution-Display/dp/B00QJDU3KY"]},{ "amountMax":17.99,"amountMi
n":17.99,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:21:53
Z","dateSeen":["2016-01-29T00:00:00Z"],"isSale":"false","merchant":"Amazon E
U Sarl","shipping":"free","sourceURLs":["http://www.amazon.co.uk/Kindle-Pape
rwhite-Resolution-Display-Built-/dp/B00QJDU3KY"]},{ "amountMax":17.99,"amount
Min":17.99,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:2
1:53Z","dateSeen":["2015-11-15T00:00:00Z"],"isSale":"false","merchant":"Amaz
on","shipping":"free","sourceURLs":["http://www.amazon.co.uk/All-New-Kindle-
Paperwhite-Resolution-Display/dp/B00QJDU3KY"]},{ "amountMax":139.00,"amountMi
n":139.00,"condition":"new","currency":"CAD","dateAdded":"2016-03-08T20:21:5
3Z","dateSeen":["2015-07-06T05:00:00Z"],"isSale":"false","merchant":"Amazo
n.ca","shipping":"free","sourceURLs":["http://www.amazon.ca/dp/B00QJDU3K
Y"]}]', 'reviews_date': '2015-08-08T00:00:00.000Z', 'reviews_doRecommend': '
TRUE', 'reviews_numHelpful': 139, 'reviews_rating': 5, 'reviews_sourceURLs':
'https://www.amazon.com/Kindle-Paperwhite-High-Resolution-Display-Built/dp/B
00QJDU3KY/ref=lp_6669702011_1_7/132-1677641-8459202?s=amazon-devices&ie=UTF8
&qid=1498832761&sr=1-7', 'reviews_text': "I initially had trouble deciding b
etween the paperwhite and the voyage because reviews more or less said the s
ame thing: the paperwhite is great, but if you have spending money, go for t
he voyage.Fortunately, I had friends who owned each, so I ended up buying th
e paperwhite on this basis: both models now have 300 ppi, so the 80 dollar j
ump turns out pricey the voyage's page press isn't always sensitive, and if
you are fine with a specific setting, you don't need auto light adjustmen
t).It's been a week and I am loving my paperwhite, no regrets! The touch scr
een is receptive and easy to use, and I keep the light at a specific setting
regardless of the time of day. (In any case, it's not hard to change the set
ting either, as you'll only be changing the light level at a certain time of
day, not every now and then while reading).Also glad that I went for the int
```

ernational shipping option with Amazon. Extra expense, but delivery was on time, with tracking, and I didnt need to worry about customs, which I may have if I used a third party shipping service.", 'reviews\_title': 'Paperwhite voyage, no regrets!', 'reviews\_userCity': '', 'reviews\_userProvince': '', 'reviews\_username': 'Cristina M', 'sizes': '', 'upc': '', 'weight': '300 grams'}

```
{'_id': ObjectId('67903405d7c049ac59cdd3d3'), 'id': 'AVpe7AsMilAPnD_xQ78G',
'asins': 'B00QJDU3KY', 'brand': 'Amazon', 'categories': 'Amazon Devices,mazon.co.uk', 'colors': '', 'dateAdded': '2016-03-08T20:21:53Z', 'dateUpdated': '2017-07-18T23:52:58Z', 'dimension': '169 mm x 117 mm x 9.1 mm', 'ean': '', 'keys': 'kindlepaperwhite/b00qjdu3ky', 'manufacturer': 'Azamon Co.', 'manufacturerNumber': '', 'name': 'Kindle Paperwhite', 'prices': '[{"amountMax":139.99,"amountMin":139.99,"currency":"USD","dateAdded":"2017-07-18T23:52:58Z","dateSeen":["2017-07-15T18:10:23.807Z","2016-03-16T00:00:00Z"],"isSale":"false","merchant":"Amazon.com","shipping":"FREE Shipping.", "sourceURLs":["https://www.amazon.com/Kindle-Paperwhite-High-Resolution-Display-Built/dp/B00QJDU3KY/ref=lp_6669702011_1_7/132-1677641-8459202?s=amazon-devices&ie=UTF8&qid=1498832761&sr=1-7","http://www.amazon.com/Kindle-Paperwhite-High-Resolution-Display-Built-/dp/B00QJDU3KY"]}],{"amountMax":119.99,"amountMin":119.99,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2016-01-29T00:00:00Z"],"isSale":"false","merchant":"Amazon EU Sarl","shipping":"free","sourceURLs":["http://www.amazon.co.uk/Kindle-Paperwhite-Resolution-Display-Built-/dp/B00QJDU3KY"]}],{"amountMax":139.99,"amountMin":139.99,"condition":"new","currency":"CAD","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2016-01-11T00:00:00Z"],"isSale":"false","merchant":"Amazon","shipping":"free","sourceURLs":["http://www.amazon.ca/dp/B00QJDU3KY"]}],{"amountMax":119.99,"amountMin":119.99,"currency":"USD","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2016-03-12T00:00:00Z"],"isSale":"true","merchant":"Amazon.com","sourceURLs":["http://www.amazon.com/Kindle-Paperwhite-High-Resolution-Display-Built-/dp/B00QJDU3KY"]}],{"amountMax":119.99,"amountMin":119.99,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2015-11-15T00:00:00Z"],"isSale":"false","merchant":"Amazon","shipping":"free","sourceURLs":["http://www.amazon.co.uk/All-New-Kindle-Paperwhite-Resolution-Display/dp/B00QJDU3KY"]}],{"amountMax":17.99,"amountMin":17.99,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2016-01-29T00:00:00Z"],"isSale":"false","merchant":"Amazon EU Sarl","shipping":"free","sourceURLs":["http://www.amazon.co.uk/Kindle-Paperwhite-Resolution-Display-Built-/dp/B00QJDU3KY"]}],{"amountMax":17.99,"amountMin":17.99,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2015-11-15T00:00:00Z"],"isSale":"false","merchant":"Amazon","shipping":"free","sourceURLs":["http://www.amazon.co.uk/All-New-Kindle-Paperwhite-Resolution-Display/dp/B00QJDU3KY"]}],{"amountMax":139.00,"amountMin":139.00,"condition":"new","currency":"CAD","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2015-07-06T05:00:00Z"],"isSale":"false","merchant":"Amazon.ca","shipping":"free","sourceURLs":["http://www.amazon.ca/dp/B00QJDU3KY"]}]'], 'reviews_date': '2015-09-01T00:00:00.000Z', 'reviews_doRecommend': 'TRUE', 'reviews_numHelpful': 126, 'reviews_rating': 5, 'reviews_sourceURLs': 'https://www.amazon.com/Kindle-Paperwhite-High-Resolution-Display-Built/dp/B00QJDU3KY/ref=lp_6669702011_1_7/132-1677641-8459202?s=amazon-devices&ie=UTF8&qid=1498832761&sr=1-7', 'reviews_text': "Allow me to preface this with a little history. I am (was) a casual reader who owned a Nook Simple Touch from 2011. I've read the Harry Potter series, Girl with the Dragon Tattoo series, 1984, Brave New World, and a few other key titles. Fair to say my Nook did not get as much use as many others may have gotten from theirs.Fast forward t
```

o today. I have had a full week with my new Kindle Paperwhite and I have to admit, I'm in love. Not just with the Kindle, but with reading all over again! Now let me relate this review, love, and reading all back to the Kindle. The investment of 139.00 is in the experience you will receive when you buy a Kindle. You are not simply paying for a screen there is an entire experience included in buying from Amazon. I have been reading The Hunger Games trilogy and shall be moving onto the Divergent series soon after. Here is the thing with the Nook that hindered me for the past 4 years: I was never inspired to pick it up, get it into my hands, and just dive in. There was never that feeling of oh man, reading on this thing is so awesome. However, with my Paperwhite, I now have that feeling! That desire is back and I simply adore my Kindle. If you are considering purchasing one, stop thinking about it simply go for it. After a full week, 3 downloaded books, and a ton of reading, I still have half of my battery left as well. Make yourself happy. Inspire the reader inside of you.", 'reviews\_title': 'One Simply Could Not Ask For More', 'reviews\_userCity': '', 'reviews\_userProvince': '', 'reviews\_username': 'Ricky', 'sizes': '', 'upc': '', 'weight': '300 grams'}

```
{'_id': ObjectId('67903405d7c049ac59cdd3d4'), 'id': 'AVpe7AsMilAPnD_xQ78G',
'asins': 'B00QJDU3KY', 'brand': 'Amazon', 'categories': 'Amazon Devices,mazon.co.uk', 'colors': '', 'dateAdded': '2016-03-08T20:21:53Z', 'dateUpdated': '2017-07-18T23:52:58Z', 'dimension': '169 mm x 117 mm x 9.1 mm', 'ean': '',
'keys': 'kindlepaperwhite/b00qjdu3ky', 'manufacturer': 'Azamon Co.', 'manufacturerNumber': '', 'name': 'Kindle Paperwhite', 'prices': '[{"amountMax":139.99,"amountMin":139.99,"currency":"USD","dateAdded":"2017-07-18T23:52:58Z","dateSeen":["2017-07-15T18:10:23.807Z","2016-03-16T00:00:00Z"],"isSale":"false","merchant":"Amazon.com","shipping":"FREE Shipping.","sourceURLs":["https://www.amazon.com/Kindle-Paperwhite-High-Resolution-Display-Built/dp/B00QJDU3KY/ref=lp_6669702011_1_7/132-1677641-8459202?s=amazon-devices&ie=UTF8&qid=1498832761&sr=1-7","http://www.amazon.com/Kindle-Paperwhite-High-Resolution-Display-Built-/dp/B00QJDU3KY"]}],{"amountMax":119.99,"amountMin":119.99,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2016-01-29T00:00:00Z"],"isSale":"false","merchant":"Amazon EU Sarl","shipping":"free","sourceURLs":["http://www.amazon.co.uk/Kindle-Paperwhite-Resolution-Display-Built-/dp/B00QJDU3KY"]}],{"amountMax":139.99,"amountMin":139.99,"condition":"new","currency":"CAD","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2016-01-11T00:00:00Z"],"isSale":"false","merchant":"Amazon","shipping":"free","sourceURLs":["http://www.amazon.ca/dp/B00QJDU3KY"]}],{"amountMax":119.99,"amountMin":119.99,"currency":"USD","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2016-03-12T00:00:00Z"],"isSale":"true","merchant":"Amazon.com","sourceURLs":["http://www.amazon.com/Kindle-Paperwhite-High-Resolution-Display-Built-/dp/B00QJDU3KY"]}],{"amountMax":119.99,"amountMin":119.99,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2015-11-15T00:00:00Z"],"isSale":"false","merchant":"Amazon","shipping":"free","sourceURLs":["http://www.amazon.co.uk/All-New-Kindle-Paperwhite-Resolution-Display/dp/B00QJDU3KY"]}],{"amountMax":17.99,"amountMin":17.99,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2016-01-29T00:00:00Z"],"isSale":"false","merchant":"Amazon EU Sarl","shipping":"free","sourceURLs":["http://www.amazon.co.uk/Kindle-Paperwhite-Resolution-Display-Built-/dp/B00QJDU3KY"]}],{"amountMax":17.99,"amountMin":17.99,"condition":"new","currency":"EUR","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2015-11-15T00:00:00Z"],"isSale":"false","merchant":"Amazon","shipping":"free","sourceURLs":["http://www.amazon.co.uk/All-New-Kindle-Paperwhite-Resolution-Display/dp/B00QJDU3KY"]}],{"amountMax":139.00,"amountMin":139.00,"condition":"new","currency":"CAD","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2015-11-15T00:00:00Z"],"isSale":"false","merchant":"Amazon","shipping":"free","sourceURLs":["http://www.amazon.co.uk/All-New-Kindle-Paperwhite-Resolution-Display/dp/B00QJDU3KY"]}],{"amountMax":139.00,"amountMin":139.00,"condition":"new","currency":"CAD","dateAdded":"2016-03-08T20:21:53Z","dateSeen":["2015-11-15T00:00:00Z"],"isSale":"false","merchant":"Amazon","shipping":"free","sourceURLs":["http://www.amazon.co.uk/All-New-Kindle-Paperwhite-Resolution-Display/dp/B00QJDU3KY"]}]
```



```
3Z", "dateSeen": ["2015-07-06T05:00:00Z"], "isSale": "false", "merchant": "Amazon.ca", "shipping": "free", "sourceURLs": ["http://www.amazon.ca/dp/B00QJDU3KY"]}], 'reviews_date': '2015-07-20T00:00:00.000Z', 'reviews_doRecommend': ' ', 'reviews_numHelpful': 69, 'reviews_rating': 4, 'reviews_sourceURLs': 'https://www.amazon.com/Kindle-Paperwhite-High-Resolution-Display-Built/dp/B00QJDU3KY/ref=lp_6669702011_1_7/132-1677641-8459202?s=amazon-devices&ie=UTF8&qid=1498832761&sr=1-7', 'reviews_text': "I am enjoying it so far. Great for reading. Had the original Fire since 2012. The Fire used to make my eyes hurt if I read too long. Haven't experienced that with the Paperwhite yet.", 'reviews_title': 'Great for those that just want an e-reader', 'reviews_userCity': '', 'reviews_userProvince': '', 'reviews_username': 'Tedd Gardiner', 'size': '', 'upc': '', 'weight': '300 grams'}
```

## Document(s) filtered read

```
In [32]: filter = { 'manufacturer': 'Azamon Co.' }
result = services.filtered_read(reviews_collection, filter)

# if result:
#     for doc in result:
#         print(f"{doc} \n\n")
```

```
INFO:root:Filtering document(s) matching filter '{"manufacturer": "Azamon Co."}' in 'reviews'
INFO:root:Found 801 document(s).
```

## Document(s) deletion

```
In [6]: filter = { 'id': 'AVpe7AsMilAPnD_bDAGEG' }

result = services.delete_document(reviews_collection, filter)

if result:
    print(f"Removed: {result.deleted_count}")

filter = { 'reviews_doRecommend': 'FALSE' }

result = services.delete_document(reviews_collection, filter)

if result:
    print(f"Removed: {result.deleted_count}")
```

```
INFO:root:Deleting document(s) matching filter '{"id": "AVpe7AsMilAPnD_bDAGEG"}' in 'reviews'
INFO:root:Removed 1 document(s).
INFO:root:Deleting document(s) matching filter '{"reviews_doRecommend": "FALSE"}' in 'reviews'
INFO:root:Removed 35 document(s).
Removed: 1
Removed: 35
```

## Query with operators

### Reviews with 980 or more 'Helpful' votes from other people

```
In [33]: filter = ( { 'reviews_numHelpful': { '$gt': 980 } } )
result = services.filtered_read(reviews_collection, filter)

# if result:
#     for doc in result:
#         print(f"{doc} \n\n")
```

INFO:root:Filtering document(s) matching filter '{"reviews\_numHelpful": {"\$gt": 980}}' in 'reviews'

INFO:root:Found 2 document(s).

### Reviews with rating equals to 5

```
In [8]: filter = ( { 'reviews_rating': { '$eq': 5 } } )
result = services.filtered_read(reviews_collection, filter)

# if result:
#     for doc in result:
#         print(f"{doc} \n\n")
```

INFO:root:Filtering document(s) matching filter '{"reviews\_rating": {"\$eq": 5}}' in 'reviews'

INFO:root:Found 741 document(s).

### Searching for reviews with ratings greater than 4 and lesser than 5

```
In [34]: filter = (
    {'$and':
        [
            { 'reviews_rating': { '$gt': 4 } },
            { 'reviews_rating': { '$lt': 5 } }
        ]
    })
result = services.filtered_read(reviews_collection, filter)

# if result:
#     for doc in result:
#         print(f"{doc} \n\n")
```

INFO:root:Filtering document(s) matching filter '{"\$and": [{"reviews\_rating": {"\$gt": 4}}, {"reviews\_rating": {"\$lt": 5}}]' in 'reviews'

INFO:root:Found 0 document(s).

### Finding all products with the manufacturer number in the description

```
In [35]: filter = ( { 'manufacturerNumber': { '$ne': '' } } )
result = services.filtered_read(reviews_collection, filter)
```

```
# if result:
#     for doc in result:
#         print(f"{doc} \n\n")
```

INFO:root:Filtering document(s) matching filter '{"manufacturerNumber': {'\$ne': ''}}' in 'reviews'

INFO:root:Found 867 document(s).

## Query with aggregation operators

### Searching for documents where reviewers do recommend it

```
In [21]: pipeline = ([
            { '$project': { 'reviews_doRecommend': 1 } },
            { '$match': { 'reviews_doRecommend': { '$eq': 'TRUE' } } }
        ])
result = services.aggregate(reviews_collection, pipeline)

# if result:
#     for doc in result:
#         print(f"{doc} \n\n")
```

INFO:root:Processing document(s) mathich pipeline ' [{ '\$project': { 'reviews\_doRecommend': 1 } }, { '\$match': { 'reviews\_doRecommend': { '\$eq': 'TRUE' } } } ]' in 'reviews'

INFO:root:Found 890 document(s).

### Finding how many reviews recommending the product are in the database

```
In [22]: pipeline = ([
            { '$project': { 'reviews_doRecommend': 1 } },
            { '$match': { 'reviews_doRecommend': { '$eq': 'TRUE' } } },
            { '$group': { '_id': 'null', 'totalMatched': { '$sum': 1 } } }
        ])
result = services.aggregate(reviews_collection, pipeline)

if result:
    for doc in result:
        print(f"{doc} \n\n")
```

INFO:root:Processing document(s) mathich pipeline ' [{ '\$project': { 'reviews\_doRecommend': 1 } }, { '\$match': { 'reviews\_doRecommend': { '\$eq': 'TRUE' } } }, { '\$group': { '\_id': 'null', 'totalMatched': { '\$sum': 1 } } } ]' in 'reviews'

INFO:root:Found 1 document(s).

{ '\_id': 'null', 'totalMatched': 890 }

### Sorting reviews using number of Helpful votes

```
In [24]: pipeline = ([
            { '$project': { 'reviews_numHelpful': 1, 'reviews_rating': 1, 'reviews_title': 1 } },
            { '$match': { 'reviews_numHelpful': { '$ne': '' } } },
            { '$sort': { 'reviews_numHelpful': -1 } }
```

```
]
result = services.aggregate(reviews_collection, pipeline)

if result:
    for doc in result[:5]:
        print(f"{doc} \n\n")
```

INFO:root:Processing document(s) mathich pipeline '[\$project: {'reviews\_numHelpful': 1, 'reviews\_rating': 1, 'reviews\_title': 1}}, {\$match: {'reviews\_numHelpful': {'\$ne': ''}}}, {\$sort: {'reviews\_numHelpful': -1}}]' in 'reviews'

INFO:root:Found 865 document(s).

{'\_id': ObjectId('67903405d7c049ac59cdd690'), 'reviews\_numHelpful': 997, 'reviews\_rating': 4, 'reviews\_title': ''}

{'\_id': ObjectId('67903405d7c049ac59cdd6d9'), 'reviews\_numHelpful': 988, 'reviews\_rating': 5, 'reviews\_title': ''}

{'\_id': ObjectId('67903405d7c049ac59cdd601'), 'reviews\_numHelpful': 975, 'reviews\_rating': 5, 'reviews\_title': 'HD Fire 6 is great for the price! 3,'}

{'\_id': ObjectId('67903405d7c049ac59cdd6dd'), 'reviews\_numHelpful': 971, 'reviews\_rating': 5, 'reviews\_title': ''}

{'\_id': ObjectId('67903405d7c049ac59cdd6cf'), 'reviews\_numHelpful': 966, 'reviews\_rating': 5, 'reviews\_title': 'Best 50 I ever spent!!!! 1,'}

**Showing the quantity of products by year of addition to the site**

```
In [25]: pipeline = ([
    {
        '$project': {
            'yearAdded': { '$year': { '$dateFromString': { 'dateString': '$dateAdd
        }
    },
    {
        '$group': {
            '_id': '$yearAdded',
            'productCount': { '$sum': 1 }
        }
    },
    {
        '$sort': { '_id': 1 }
    }
])
result = services.aggregate(reviews_collection, pipeline)

if result:
    for doc in result:
        print(f"{doc} \n\n")
```

INFO:root:Processing document(s) mathich pipeline '[\$project: {'yearAdded': {'\$year': {'\$dateFromString': {'dateString': '\$dateAdded'}}}}, {'\$group': {'\_id': '\$yearAdded', 'productCount': {'\$sum': 1}}}, {'\$sort': {'\_id': 1}}]' in 'reviews'

INFO:root:Found 5 document(s).

{'\_id': 2015, 'productCount': 524}

{'\_id': 2016, 'productCount': 201}

{'\_id': 2017, 'productCount': 837}

{'\_id': 2022, 'productCount': 2}

{'\_id': 2023, 'productCount': 2}

## Data Analysis

### Setup

```
In [36]: import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import numpy as np

filter = {}
projection = { '_id': 0 }
```

```
data = list(services.filtered_read(reviews_collection, filter, projection))
df = pd.DataFrame(data)
```

INFO:root:Filtering document(s) matching filter '{}' in 'reviews'  
INFO:root:Found 1576 document(s).

### Rating values frequency distribution

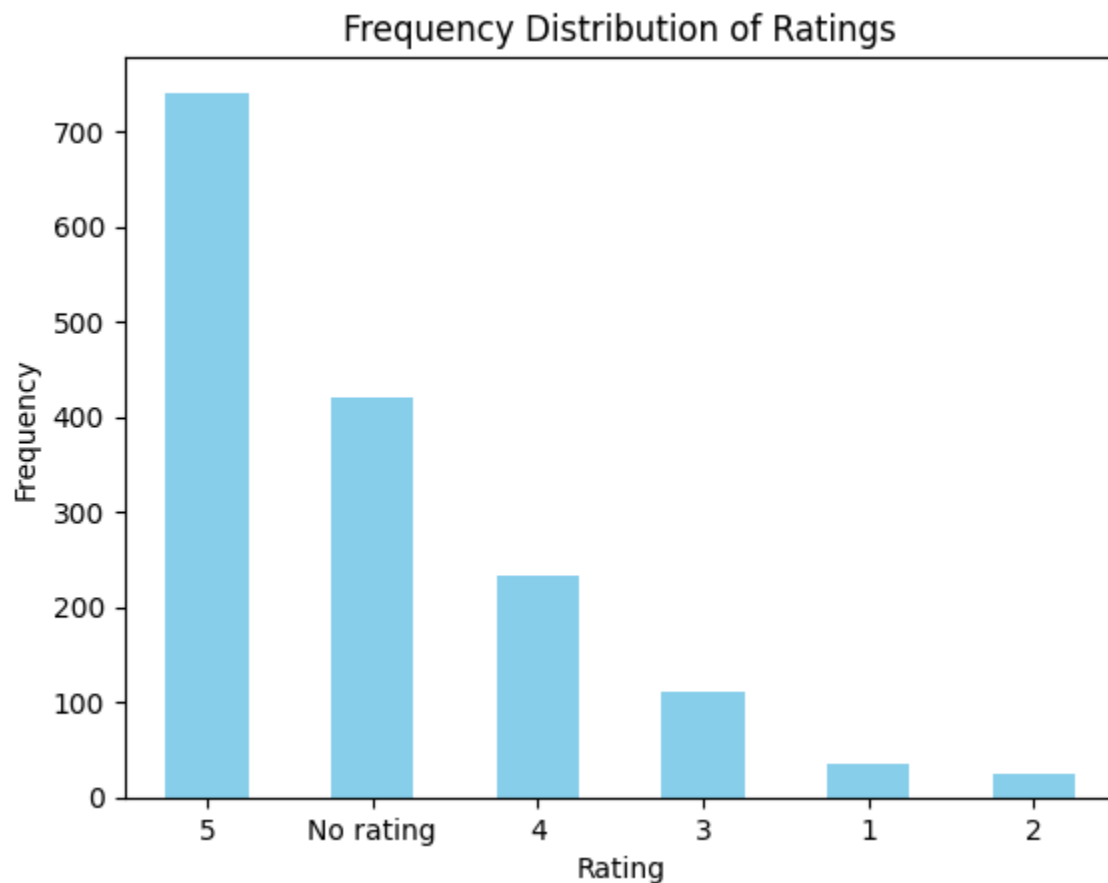
```
In [16]: df['reviews_rating'] = df['reviews_rating'].replace('', 'No rating')

rating_counts = df['reviews_rating'].value_counts()

print(rating_counts)

rating_counts.plot(kind='bar', title='Frequency Distribution of Ratings', co
plt.xlabel('Rating')
plt.ylabel('Frequency')
plt.xticks(rotation=0)
plt.show()
```

```
reviews_rating
5          741
No rating  420
4          233
3          112
1           35
2           25
Name: count, dtype: int64
```



## Overview of metrics and types

```
In [28]: pd.set_option('display.max_columns', 20)
pd.set_option('display.max_colwidth', 125)
pd.set_option('display.float_format', lambda x: f'{x:.2f}')

columns_of_interest = ['reviews_rating', 'dateAdded', 'dateUpdated', 'review

df['reviews_rating'] = pd.to_numeric(df['reviews_rating'], errors='coerce')
df['reviews_doRecommend'] = pd.to_numeric(df['reviews_doRecommend'], errors='c
df['reviews_numHelpful'] = pd.to_numeric(df['reviews_numHelpful'], errors='c

numeric_cols = df[columns_of_interest].select_dtypes(include=[np.number])

detailed_stats = pd.DataFrame({
    'avg (mean)': numeric_cols.mean(),
    'std (standard deviation)': numeric_cols.std(),
    '25% (1st quartile)': numeric_cols.quantile(0.25),
    '50% (median)': numeric_cols.median(),
    '75% (3rd quartile)': numeric_cols.quantile(0.75),
})

print("\nDetailed Numeric Statistics:")
print(detailed_stats)
```

Detailed Numeric Statistics:

	avg (mean)	std (standard deviation)	25% (1st quartil
e) \			
reviews_rating	4.41	0.97	4.0
0			
reviews_doRecommend	NaN	NaN	Na
N			
reviews_numHelpful	86.96	200.37	0.0
0			
	50% (median)	75% (3rd quartile)	
reviews_rating	5.00	5.00	
reviews_doRecommend	NaN	NaN	
reviews_numHelpful	0.00	36.00	

## Number of items added to amazon per year

```
In [29]: df['yearAdded'] = pd.to_datetime(df['dateAdded']).dt.year
item_year_distribution = df.groupby(['yearAdded', 'name']).size().unstack(fi

item_year_distribution = item_year_distribution.loc[:, (item_year_distributi
item_year_distribution = item_year_distribution[(item_year_distribution > 10

plt.figure(figsize=(16, 2))
sns.heatmap(item_year_distribution, annot=False, cmap='RdYlGn', cbar_kws={'l
plt.title('Heatmap of Item Sales Over Time')
plt.xlabel('Item')
plt.ylabel('Year')
plt.show()
```

In [ ]:

