01 - Backend Optimisation: List & Search

Imagine the B2B Saas Dashboard from hello again. Businesses use it as a CRM, communication/newsletter tool and also manage their loyalty assets.
One main use case of such a CRM is listing, searching & filtering for contacts.

Take the following data model, consisting of 3 tables as given:

```
Unset
AppUser
      id
      first_name
      last_name
      gender
      customer_id
      phone_number
      created
      address_id (FK)
      birthday
      last_updated

Address
      id
      street
      street_number
      city_code
      city
      country

CustomerRelationship
      id
      appuser_id (FK)
      points
      created
      last_activity
```

Task

- Set up a Django project that reflects that data structure
- Write a script to insert ~3 Mio data entries (AppUser, Address and a Customer Relationship) - you can use random values
- For the Database feel free to use your personal preference (Sqlite, Postgresql, etc.)
- Implement a View for the data structure that lists your entries. It should join all 3 tables, since the response should include attributes from all 3 tables
- The view should be able to sort, filter and list by any field
- The view should also come with pagination support
- Benchmark your view with certain queries (measure how long it takes to return results)
    - E.g. Filter by a name
    - Sort by attribute
    - Load initial list including pagination
- Now think about performance optimisations, implement them and compare them with your initial benchmarks