

Server

1. Project structure in Server

```
.
├── AAB
│   ├── asgi.py
│   ├── settings.py
│   ├── urls.py
│   └── wsgi.py
├── apps
│   └── graphs
│       ├── Services
│       │   └── graphService.py
│       ├── admin.py
│       ├── apps.py
│       ├── migrations
│       ├── models.py
│       ├── serializers.py
│       ├── tests
│       │   ├── test_urls.py
│       │   └── test_views.py
│       ├── urls.py
│       └── views.py
├── utils
│   ├── images
│   ├── plGraphs
│   ├── plot.py
│   └── sample.py
```

The above structure shows the main files and folders used in the server.

- **1.1 Project setting:**

AAB/settings.py :

The setting of this project includes the database setting.

AAB/urls.py :

The url configuration of this project.

- **1.2 Apps:**

an app "graphs" is used to deal with the result and graph management.

graphs/models.py :

Each model maps to a single database table. The Django provide ORM for database. To edit the table in the database, please following bellow steps :

1. Edit the models in models.py
2. Run the bellow commands to do the migrations of app "graphs" model . It will automatically synchronize the changes to the database

```
python manage.py makemigrations graphs
python manage.py migrate
```

3. Each time the migration is performed, the related migration record will be recorded in the

graphs/migrations

“

Please see the below Django documentation links to see details.

<https://docs.djangoproject.com/en/3.1/intro/tutorial02/>

graphs/serializers.py :

ModelSerializer of Django Rest Framework is used for serializers. The ResultSerializer use the Nested relationships with other serializers.

“

DRF documentation links: [Serializers](#), [Serializer fields](#) and [Serializer relations](#).

graphs/views.py :

Views are mainly responsible for processing related logic of requests.

“

DRF documentation links: [Class-based Views](#), [Generic views](#), [ViewSet](#)

Permissions are required for each views. Only the user who has permissions can use the views. In the current development stage, we use the following command line to quickly create a super user. The auth user will be store in the database table "auth_user". Each time create a new result, the request "user_id" will automatically be added into the result database table.

```
python manage.py createsuperuser
```

“

DRF documentation links: [Permissions](#)

However, only basic authentication and http request are used now in current development stage. For example, super user "root" and password "root". Basic authentication is generally only appropriate for testing and developing. At present, we have not added and used other security verification methods. So please use a safe authentication method in the production environment.

“

DRF documentation links: [Authentication](#)

graphs/graphService.py

Data processing before plotting graph

graphs/urls.py :

The url configuration of the app "graphs".

graphs/test :

This folder contains the tests used in development.

- **1.3 Utils:**

utils/plot.py :

Use processed data to plot the graph.

utils/plGraphs :

The folder contain the plotted graphs and is set as the MEDIA_ROOT. Then the local program get the graph from MEDIA_ROOT.

“

DRF documentation links: [Managing files](#)

utils/images :

Contain the static images which are used for plotting.

2. API documentation

Run the server in local and use below url to open API documentation which is built with **drf_yasg**

<http://127.0.0.1:8000/swagger/>

Below shows the examples of api request. Authorization is basic authorization with username = "root" and password = "root"

• 2.1 results

GET /graphs/results/

list all results

```
GET /graphs/results/ HTTP/1.1
Host: 127.0.0.1:8000
Authorization: Basic cm9vdDpyb290
```

POST /graphs/results/

create a new result

```
POST /graphs/results/ HTTP/1.1
Host: 127.0.0.1:8000
Authorization: Basic cm9vdDpyb290
Content-Type: application/json

{
  "AuditID": "4",
  "RevisionNumber": "5",
  "FacilityName": "Drever",
  "FacilityID": "3",
  "Auditor1": "3",
  "Auditor2": "3",
  "Auditor3": "3",
  "AuditDate": "2016-11-01",
  "RepDate": "3",
  "LinacModel": "3",
  "LinacManufacturer": "3",
  "PlanningSystemManufacturer": "3",
  "tps": "3",
  "Algorithm": "3",
  "kqFac": "3",
  "ACDS": "3",
  "Phantom": "3",
  "facilityOutput": [
```

```
        {"energy_6":1,
"energy_10":1,"energy_15":1,"energy_18":1,"energy_6FFF":1,"energy_10FFF":1}
    ],
    "TPR": [
        {"energy_6":1,
"energy_10":1,"energy_15":1,"energy_18":1,"energy_6FFF":1,"energy_10FFF":1}
    ],
    "Nds_3dcrt": [
        {
            "code_101106":0.01, "code_110106":0.01, "code_205106":0.01,
"code_208106":0.01, "code_205206":0.01,
            "code_208206":0.01, "code_205306":0.01, "code_208306":0.01,
"code_303106":0.01, "code_305106":0.01,
            "code_403106":0.01, "code_405106":0.01, "code_103110":0.01,
"code_110110":0.01, "code_303110":0.01,
            "code_305110":0.01, "code_403110":0.01, "code_405110":0.01,
"code_103115":0.01, "code_110115":0.01,
            "code_303115":0.01, "code_305115":0.01, "code_403115":0.01,
"code_405115":0.01, "code_103118":0.01,
            "code_303118":0.01, "code_305118":0.01, "code_403118":0.01,
"code_405118":0.01, "code_101105":0.01,
            "code_110105":0.01, "code_303105":0.01, "code_305105":0.01,
"code_103109":0.01, "code_110109":0.01,
            "code_303109":0.01, "code_305109":0.01, "code_110118":0.01}
        ],
    "Nds_3dcrt_misdelivery": [
        {
            "code_101106":0, "code_110106":0, "code_205106":0, "code_208106":0,
"code_205206":0,
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"code_305106":0,
            "code_403106":0, "code_405106":0, "code_103110":0, "code_110110":0,
"code_303110":0,
            "code_305110":0, "code_403110":0, "code_405110":1, "code_103115":1,
"code_110115":0,
            "code_303115":0, "code_305115":0, "code_403115":0, "code_405115":0,
"code_103118":0,
            "code_303118":0, "code_305118":0, "code_403118":0, "code_405118":0,
"code_101105":0,
            "code_110105":0, "code_303105":1, "code_305105":0, "code_103109":0,
"code_110109":0,
            "code_303109":0, "code_305109":0, "code_110118":0}
        ],
    "Nds_imrt": [
        {
```

```

        "code_c6_p11_6": 0.026, "code_c6_p12_6": 0.024, "code_c6_p13_6":
0.015, "code_c6_p14_6": -0.01, "code_c6_p15_6": 0.005,
        "code_c6_p16_6": 0.018, "code_c6_p17_6": 0.024,
        "code_c7_p11_6": 0.029, "code_c7_p12_6": 0.036, "code_c7_p13_6":
0.033, "code_c7_p14_6": -0.009, "code_c7_p15_6": 0.014,
        "code_c7_p16_6": 0.017, "code_c7_p17_6": 0.02,
        "code_c8_p11_6": 0.018, "code_c8_p12_6": 0.021, "code_c8_p13_6":
0.013, "code_c8_p14_6": 0.46, "code_c8_p15_6": 0.019,
        "code_c8_p17_6": 0.064, "code_c8_p18_6": 0.039,
        "code_c6_p11_10": null, "code_c6_p12_10": null, "code_c6_p13_10":
null, "code_c6_p14_10": null, "code_c6_p15_10": null,
        "code_c6_p16_10": null, "code_c6_p17_10": null,
        "code_c7_p11_10": null, "code_c7_p12_10": null, "code_c7_p13_10":
null, "code_c7_p14_10": null, "code_c7_p15_10": null,
        "code_c7_p16_10": null, "code_c7_p17_10": null,
        "code_c8_p11_10": null, "code_c8_p12_10": null, "code_c8_p13_10":
null, "code_c8_p14_10": null, "code_c8_p15_10": null,
        "code_c8_p17_10": null, "code_c8_p18_10": null
    }
],
    "Nds_imrt_misdelivery": [
        {
            "code_c6_p11_6": 1, "code_c6_p12_6": 0, "code_c6_p13_6": 0,
"code_c6_p14_6": 0, "code_c6_p15_6": 0,
            "code_c6_p16_6": 0, "code_c6_p17_6": 0,
            "code_c7_p11_6": 0, "code_c7_p12_6": 0, "code_c7_p13_6": 0,
"code_c7_p14_6": 0, "code_c7_p15_6": 0,
            "code_c7_p16_6": 0, "code_c7_p17_6": 0,
            "code_c8_p11_6": 0, "code_c8_p12_6": 0, "code_c8_p13_6": 0,
"code_c8_p14_6": 1, "code_c8_p15_6": 0,
            "code_c8_p17_6": 0, "code_c8_p18_6": 0,
            "code_c6_p11_10": 0, "code_c6_p12_10": 0, "code_c6_p13_10": 0,
"code_c6_p14_10": 0, "code_c6_p15_10": 0,
            "code_c6_p16_10": 0, "code_c6_p17_10": 0,
            "code_c7_p11_10": 0, "code_c7_p12_10": 0, "code_c7_p13_10": 0,
"code_c7_p14_10": 1, "code_c7_p15_10": 0,
            "code_c7_p16_10": 0, "code_c7_p17_10": 0,
            "code_c8_p11_10": 0, "code_c8_p12_10": 0, "code_c8_p13_10": 0,
"code_c8_p14_10": 0, "code_c8_p15_10": 0,
            "code_c8_p17_10": 0, "code_c8_p18_10": 0
        }
    ]
}

```

GET /results/{id}/

get the results which id=1

```
GET /graphs/results/1/ HTTP/1.1
Host: 127.0.0.1:8000
Authorization: Basic cm9vdDpyb290
```

PUT /results/{id}/

update the results which id=1

```
PUT /graphs/results/1/ HTTP/1.1
Host: 127.0.0.1:8000
Authorization: Basic cm9vdDpyb290
Content-Type: application/json

{
  "AuditID": "4",
  "RevisionNumber": "5",
  "FacilityName": "Drever",
  "FacilityID": "3",
  "Auditor1": "3",
  "Auditor2": "3",
  "Auditor3": "3",
  "AuditDate": "2016-11-01",
  "RepDate": "3",
  "LinacModel": "3",
  "LinacManufacturer": "3",
  "PlanningSystemManufacturer": "3",
  "tps": "3",
  "Algorithm": "3",
  "kqFac": "3",
  "ACDS": "3",
  "Phantom": "3",
  "facilityOutput": [
    {"energy_6":1,
"energy_10":1,"energy_15":1,"energy_18":1,"energy_6FFF":1,"energy_10FFF":1}
  ],
  "TPR": [
    {"energy_6":1,
"energy_10":1,"energy_15":1,"energy_18":1,"energy_6FFF":1,"energy_10FFF":1}
  ],
```



```
"Nds_3dcrt": [
  {
    "code_101106":0.02, "code_110106":0.01, "code_205106":0.01,
"code_208106":0.01, "code_205206":0.01,
    "code_208206":0.01, "code_205306":0.01, "code_208306":0.01,
"code_303106":0.01, "code_305106":0.01,
    "code_403106":0.01, "code_405106":0.01, "code_103110":0.01,
"code_110110":0.01, "code_303110":0.01,
    "code_305110":0.01, "code_403110":0.01, "code_405110":0.01,
"code_103115":0.01, "code_110115":0.01,
    "code_303115":0.01, "code_305115":0.01, "code_403115":0.01,
"code_405115":0.01, "code_103118":0.01,
    "code_303118":0.01, "code_305118":0.01, "code_403118":0.01,
"code_405118":0.01, "code_101105":0.01,
    "code_110105":0.01, "code_303105":0.01, "code_305105":0.01,
"code_103109":0.01, "code_110109":0.01,
    "code_303109":0.01, "code_305109":0.01, "code_110118":0.01}
],
"Nds_3dcrt_misdelivery": [
  {
    "code_101106":0, "code_110106":0, "code_205106":0, "code_208106":0,
"code_205206":0,
    "code_208206":0, "code_205306":1, "code_208306":0, "code_303106":0,
"code_305106":0,
    "code_403106":0, "code_405106":0, "code_103110":0, "code_110110":0,
"code_303110":0,
    "code_305110":0, "code_403110":0, "code_405110":1, "code_103115":1,
"code_110115":0,
    "code_303115":0, "code_305115":0, "code_403115":0, "code_405115":0,
"code_103118":0,
    "code_303118":0, "code_305118":0, "code_403118":0, "code_405118":0,
"code_101105":0,
    "code_110105":0, "code_303105":1, "code_305105":0, "code_103109":0,
"code_110109":0,
    "code_303109":0, "code_305109":0, "code_110118":0}
],
"Nds_imrt": [
  {
    "code_c6_p11_6": 0.026, "code_c6_p12_6": 0.024, "code_c6_p13_6":
0.015, "code_c6_p14_6": -0.01, "code_c6_p15_6": 0.005,
    "code_c6_p16_6": 0.018, "code_c6_p17_6": 0.024,
    "code_c7_p11_6": 0.029, "code_c7_p12_6": 0.036, "code_c7_p13_6":
0.033, "code_c7_p14_6": -0.009, "code_c7_p15_6": 0.014,
    "code_c7_p16_6": 0.017, "code_c7_p17_6": 0.02,
    "code_c8_p11_6": 0.018, "code_c8_p12_6": 0.021, "code_c8_p13_6":
0.013, "code_c8_p14_6": 0.46, "code_c8_p15_6": 0.019,
```

```

        "code_c8_p17_6": 0.064, "code_c8_p18_6": 0.039,
        "code_c6_p11_10": null, "code_c6_p12_10": null, "code_c6_p13_10":
null, "code_c6_p14_10": null, "code_c6_p15_10": null,
        "code_c6_p16_10": null, "code_c6_p17_10": null,
        "code_c7_p11_10": null, "code_c7_p12_10": null, "code_c7_p13_10":
null, "code_c7_p14_10": null, "code_c7_p15_10": null,
        "code_c7_p16_10": null, "code_c7_p17_10": null,
        "code_c8_p11_10": null, "code_c8_p12_10": null, "code_c8_p13_10":
null, "code_c8_p14_10": null, "code_c8_p15_10": null,
        "code_c8_p17_10": null, "code_c8_p18_10": null
    }
],
"Nds_imrt_misdelivery": [
    {
        "code_c6_p11_6": 1, "code_c6_p12_6": 0, "code_c6_p13_6": 0,
"code_c6_p14_6": 0, "code_c6_p15_6": 0,
        "code_c6_p16_6": 0, "code_c6_p17_6": 0,
        "code_c7_p11_6": 0, "code_c7_p12_6": 0, "code_c7_p13_6": 0,
"code_c7_p14_6": 0, "code_c7_p15_6": 0,
        "code_c7_p16_6": 0, "code_c7_p17_6": 0,
        "code_c8_p11_6": 0, "code_c8_p12_6": 0, "code_c8_p13_6": 0,
"code_c8_p14_6": 1, "code_c8_p15_6": 0,
        "code_c8_p17_6": 0, "code_c8_p18_6": 0,
        "code_c6_p11_10": 0, "code_c6_p12_10": 0, "code_c6_p13_10": 0,
"code_c6_p14_10": 0, "code_c6_p15_10": 0,
        "code_c6_p16_10": 0, "code_c6_p17_10": 0,
        "code_c7_p11_10": 0, "code_c7_p12_10": 0, "code_c7_p13_10": 0,
"code_c7_p14_10": 1, "code_c7_p15_10": 0,
        "code_c7_p16_10": 0, "code_c7_p17_10": 0,
        "code_c8_p11_10": 0, "code_c8_p12_10": 0, "code_c8_p13_10": 0,
"code_c8_p14_10": 0, "code_c8_p15_10": 0,
        "code_c8_p17_10": 0, "code_c8_p18_10": 0
    }
]
}

```

DELETE /results/{id}/

delete the result which id=1

```

DELETE /graphs/results/1/ HTTP/1.1
Host: 127.0.0.1:8000
Authorization: Basic cm9vdDpyb290

```

• 2.2 resultsList

POST /graphs/resultsList/

create new results.

[{Result1},{Result2}]

```
POST /graphs/resultsList/ HTTP/1.1
Host: 127.0.0.1:8000
Authorization: Basic cm9vdDpyb290
Content-Type: application/json

[
  {
    "AuditID": "4",
    "RevisionNumber": "5",
    "FacilityName": "Avocet",
    "FacilityID": "3",
    "Auditor1": "3",
    "Auditor2": "3",
    "Auditor3": "3",
    "AuditDate": "2016-11-01",
    "RepDate": "3",
    "LinacModel": "3",
    "LinacManufacturer": "3",
    "PlanningSystemManufacturer": "3",
    "tps": "3",
    "Algorithm": "3",
    "kqFac": "3",
    "ACDS": "3",
    "Phantom": "3",
    "facilityOutput": [
      {"energy_6":1,
"energy_10":1,"energy_15":1,"energy_18":1,"energy_6FFF":1,"energy_10FFF":1}
    ],
    "TPR": [
      {"energy_6":1,
"energy_10":1,"energy_15":1,"energy_18":1,"energy_6FFF":1,"energy_10FFF":1}
    ],
    "Nds_3dcrt": [
      {
```

```

        "code_101106":0.01, "code_110106":0.01, "code_205106":0.01,
"code_208106":0.01, "code_205206":0.01,
        "code_208206":0.01, "code_205306":0.01, "code_208306":0.01,
"code_303106":0.01, "code_305106":0.01,
        "code_403106":0.01, "code_405106":0.01, "code_103110":0.01,
"code_110110":0.01, "code_303110":0.01,
        "code_305110":0.01, "code_403110":0.01, "code_405110":0.01,
"code_103115":0.01, "code_110115":0.01,
        "code_303115":0.01, "code_305115":0.01, "code_403115":0.01,
"code_405115":0.01, "code_103118":0.01,
        "code_303118":0.01, "code_305118":0.01, "code_403118":0.01,
"code_405118":0.01, "code_101105":0.01,
        "code_110105":0.01, "code_303105":0.01, "code_305105":0.01,
"code_103109":0.01, "code_110109":0.01,
        "code_303109":0.01, "code_305109":0.01, "code_110118":0.01}
    ],
    "Nds_3dcrt_misdelivery": [
        {
            "code_101106":0, "code_110106":0, "code_205106":0,
"code_208106":0, "code_205206":0,
            "code_208206":0, "code_205306":1, "code_208306":0,
"code_303106":0, "code_305106":0,
            "code_403106":0, "code_405106":0, "code_103110":0,
"code_110110":0, "code_303110":0,
            "code_305110":0, "code_403110":0, "code_405110":1,
"code_103115":1, "code_110115":0,
            "code_303115":0, "code_305115":0, "code_403115":0,
"code_405115":0, "code_103118":0,
            "code_303118":0, "code_305118":0, "code_403118":0,
"code_405118":0, "code_101105":0,
            "code_110105":0, "code_303105":1, "code_305105":0,
"code_103109":0, "code_110109":0,
            "code_303109":0, "code_305109":0, "code_110118":0}
        ],
    "Nds_imrt": [
        {
            "code_c6_p11_6": 0.026, "code_c6_p12_6": 0.024, "code_c6_p13_6":
0.015, "code_c6_p14_6": -0.01, "code_c6_p15_6": 0.005,
            "code_c6_p16_6": 0.018, "code_c6_p17_6": 0.024,
            "code_c7_p11_6": 0.029, "code_c7_p12_6": 0.036, "code_c7_p13_6":
0.033, "code_c7_p14_6": -0.009, "code_c7_p15_6": 0.014,
            "code_c7_p16_6": 0.017, "code_c7_p17_6": 0.02,
            "code_c8_p11_6": 0.018, "code_c8_p12_6": 0.021, "code_c8_p13_6":
0.013, "code_c8_p14_6": 0.46, "code_c8_p15_6": 0.019,
            "code_c8_p17_6": 0.064, "code_c8_p18_6": 0.039,

```

```

        "code_c6_p11_10": null, "code_c6_p12_10": null,
"code_c6_p13_10": null, "code_c6_p14_10": null, "code_c6_p15_10": null,
        "code_c6_p16_10": null, "code_c6_p17_10": null,
        "code_c7_p11_10": null, "code_c7_p12_10": null,
"code_c7_p13_10": null, "code_c7_p14_10": null, "code_c7_p15_10": null,
        "code_c7_p16_10": null, "code_c7_p17_10": null,
        "code_c8_p11_10": null, "code_c8_p12_10": null,
"code_c8_p13_10": null, "code_c8_p14_10": null, "code_c8_p15_10": null,
        "code_c8_p17_10": null, "code_c8_p18_10": null
    }
},
    "Nds_imrt_misdelivery": [
        {
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            "code_c8_p11_6": 0, "code_c8_p12_6": 0, "code_c8_p13_6": 0,
"code_c8_p14_6": 1, "code_c8_p15_6": 0,
            "code_c8_p17_6": 0, "code_c8_p18_6": 0,
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"code_c6_p14_10": 0, "code_c6_p15_10": 0,
            "code_c6_p16_10": 0, "code_c6_p17_10": 0,
            "code_c7_p11_10": 0, "code_c7_p12_10": 0, "code_c7_p13_10": 0,
"code_c7_p14_10": 1, "code_c7_p15_10": 0,
            "code_c7_p16_10": 0, "code_c7_p17_10": 0,
            "code_c8_p11_10": 0, "code_c8_p12_10": 0, "code_c8_p13_10": 0,
"code_c8_p14_10": 0, "code_c8_p15_10": 0,
            "code_c8_p17_10": 0, "code_c8_p18_10": 0
        }
    ]
},
{
    "AuditID": "4",
    "RevisionNumber": "5",
    "FacilityName": "Drever",
    "FacilityID": "3",
    "Auditor1": "3",
    "Auditor2": "3",
    "Auditor3": "3",
    "AuditDate": "2016-11-01",
    "RepDate": "3",
    "LinacModel": "3",
    "LinacManufacturer": "3",

```

```
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"tps": "3",
"Algorithm": "3",
"kqFac": "3",
"ACDS": "3",
"Phantom": "3",
"facilityOutput": [
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],
"TPR": [
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"energy_10":1,"energy_15":1,"energy_18":1,"energy_6FFF":1,"energy_10FFF":1}
],
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    "code_208206":0.01, "code_205306":0.01, "code_208306":0.01,
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"code_103109":0.01, "code_110109":0.01,
    "code_303109":0.01, "code_305109":0.01, "code_110118":0.01}
  ],
"Nds_3dcrt_misdelivery": [
  {
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```

```
        "code_110105":0, "code_303105":1, "code_305105":0,
"code_103109":0, "code_110109":0,
        "code_303109":0, "code_305109":0, "code_110118":0}
    ],
    "Nds_imrt": [
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            "code_c6_p16_6": 0.018, "code_c6_p17_6": 0.024,
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            "code_c7_p11_10": null, "code_c7_p12_10": null,
"code_c7_p13_10": null, "code_c7_p14_10": null, "code_c7_p15_10": null,
            "code_c7_p16_10": null, "code_c7_p17_10": null,
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"code_c8_p13_10": null, "code_c8_p14_10": null, "code_c8_p15_10": null,
            "code_c8_p17_10": null, "code_c8_p18_10": null
        }
    ],
    "Nds_imrt_misdelivery": [
        {
            "code_c6_p11_6": 1, "code_c6_p12_6": 0, "code_c6_p13_6": 0,
"code_c6_p14_6": 0, "code_c6_p15_6": 0,
            "code_c6_p16_6": 0, "code_c6_p17_6": 0,
            "code_c7_p11_6": 0, "code_c7_p12_6": 0, "code_c7_p13_6": 0,
"code_c7_p14_6": 0, "code_c7_p15_6": 0,
            "code_c7_p16_6": 0, "code_c7_p17_6": 0,
            "code_c8_p11_6": 0, "code_c8_p12_6": 0, "code_c8_p13_6": 0,
"code_c8_p14_6": 1, "code_c8_p15_6": 0,
            "code_c8_p17_6": 0, "code_c8_p18_6": 0,
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"code_c6_p14_10": 0, "code_c6_p15_10": 0,
            "code_c6_p16_10": 0, "code_c6_p17_10": 0,
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"code_c7_p14_10": 1, "code_c7_p15_10": 0,
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"code_c8_p14_10": 0, "code_c8_p15_10": 0,
            "code_c8_p17_10": 0, "code_c8_p18_10": 0
        }
    ]
}
```

```
]
  }
]
}
```

• 2.3 graphManage

GET /graphManage/

get all the graphs information

```
GET /graphs/graphManage/ HTTP/1.1
Host: 127.0.0.1:8000
Authorization: Basic cm9vdDpyb290
```

POST /graphManage/

plot graph.

graphType :

There are two graph type now: **NDS_IMRT** and **NDS_3DCRT**

NDS_3DCRT :

NDS_3DCRT has one mode: **all**

NDS_IMRT :

NDS_IMRT has three modes: **all** , **std** and **average**

facilitys :

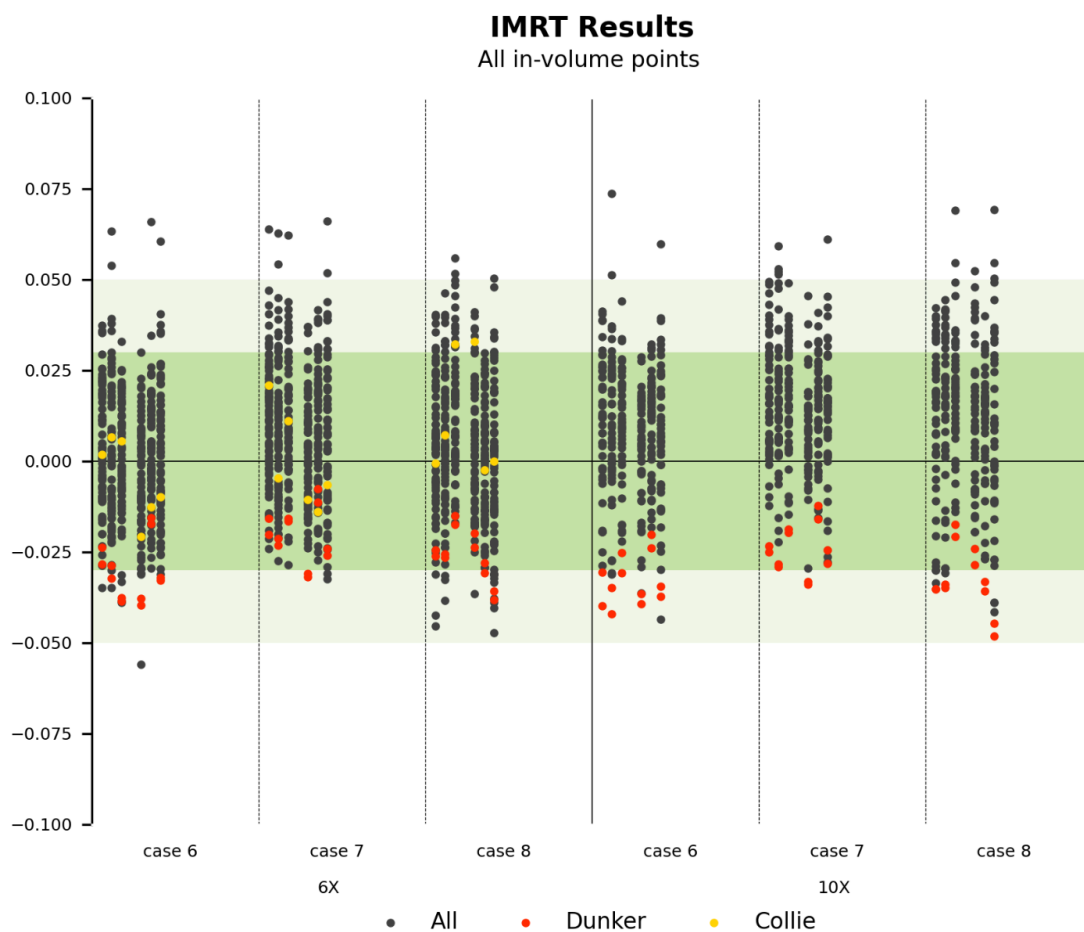
Used to specify the data that needs to be plotted and highlighted.

```
<FacilityName> : [<list of result_id>]
```


For example, in the below example request, the results with `id=194` and `id=195` have the FacilityName `Dunker` . and the results which `id=154` has the FacilityName `Collie` . Those three results will be highlighted and showed. The `All` dataset are showed in the below graph with black points. `All` dataset has all the results exclude those three results highlighted.

```
POST /graphs/graphManage/ HTTP/1.1
Host: 127.0.0.1:8000
Authorization: Basic cm9vdDpyb290
Content-Type: application/json

{
  "graphType": "NDS_IMRT",
  "mode": "all",
  "facilitys":{
    "Dunker" : [194, 195],
    "Collie": [154]
  }
}
```



DELETE /graphManage/

Delete the graphs information in database and the relative files.

The graphs which id in the `graphs_list` will be deleted.

```
DELETE /graphs/graphManage/ HTTP/1.1
Host: 127.0.0.1:8000
Authorization: Basic cm9vdDpyb290
Content-Type: application/json

{
  "graphs_list": [10]
}
```

3. Future development

- Replace the basic authentication with a safe authentication in product environment.
- Extend the api according the other graph types.

4. Relative links

Django documentation <https://docs.djangoproject.com/en/3.1/>

Django REST framework documentation <https://www.django-rest-framework.org/>