

Outlier Detection Reporting - CWINS

Outlier Detection Algorithm is run on a particular form submission/ question_id. The result of the data can be directly consumed by CommCare Platform.

How to create report

Once the outlier detection tool is run and cases are updated in CommCare, we compile the project space's worker outlier detection report. Please note you have to be the admin of the project space to be able to create this report.

Navigate to the configurable reports page. The URL should have the following format:

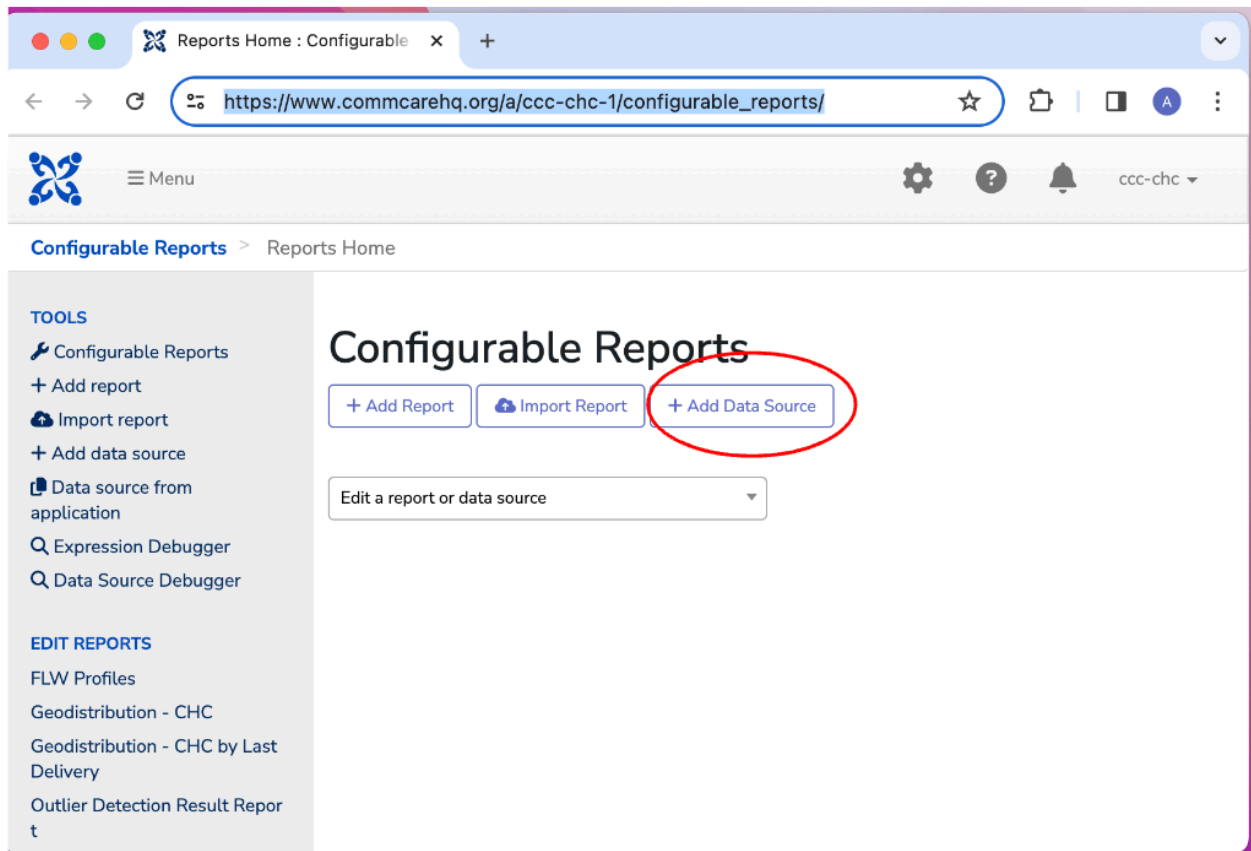
https://www.commcarehq.org/a/YOUR_PROJECT_DOMAIN_NAME/configurable_reports/.

Replace *YOUR_PROJECT_DOMAIN_NAME* in the URL with the domain name where you are building the report.

Once there, there are two steps to building the CC outlier detection report: building a CommCare data source and building the CommCare user report.

Building CommCare Data Source

1. Click on Create Data Source



2. For the data source configuration, make sure the following fields have the value specified:

Unset

Table Id: outlier_detection_results

Unset

Sourceid : cases

Unset

Data Source Display Name : outlier_detection_results

Unset

```
Base item expression : {}
```

Unset

Configured filter :

```
{
  "type": "boolean_expression",
  "operator": "eq",
  "expression": {
    "type": "property_name",
    "property_name": "type",
    "datatype": null
  },
  "property_value": "outlier_detection_results",
  "comment": null
}
```

Unset

Configured indicators :

```
[
  {
    "type": "expression",
    "column_id": "name",
    "display_name": "name",
    "datatype": "string",
    "expression": {
      "type": "property_path",
      "property_path": [
        "name"
      ],
      "datatype": null
    },
    "is_nullable": true,
  },
]
```

```

    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "case_type",
    "display_name": "case_type",
    "datatype": "string",
    "expression": {
      "type": "property_path",
      "property_path": [
        "type"
      ],
      "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "closed",
    "display_name": "closed",
    "datatype": "string",
    "expression": {
      "type": "property_path",
      "property_path": [
        "closed"
      ],
      "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "closed_by_user_id",

```

```

    "display_name": "closed_by_user_id",
    "datatype": "string",
    "expression": {
      "type": "property_path",
      "property_path": [
        "closed_by"
      ],
      "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "closed_date",
    "display_name": "closed_date",
    "datatype": "datetime",
    "expression": {
      "type": "property_path",
      "property_path": [
        "closed_on"
      ],
      "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "external_id",
    "display_name": "external_id",
    "datatype": "string",
    "expression": {
      "type": "property_path",
      "property_path": [
        "external_id"
      ],
      "datatype": null
    }
  }

```

```

    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "last_modified_by_user_id",
    "display_name": "last_modified_by_user_id",
    "datatype": "string",
    "expression": {
      "type": "property_path",
      "property_path": [
        "user_id"
      ],
      "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "last_modified_date",
    "display_name": "last_modified_date",
    "datatype": "datetime",
    "expression": {
      "type": "property_path",
      "property_path": [
        "modified_on"
      ],
      "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {

```

```

    "type": "expression",
    "column_id": "opened_by_user_id",
    "display_name": "opened_by_user_id",
    "datatype": "string",
    "expression": {
      "type": "property_path",
      "property_path": [
        "opened_by"
      ],
      "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "opened_date",
    "display_name": "opened_date",
    "datatype": "datetime",
    "expression": {
      "type": "property_path",
      "property_path": [
        "opened_on"
      ],
      "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "owner_id",
    "display_name": "owner_id",
    "datatype": "string",
    "expression": {
      "type": "property_path",
      "property_path": [
        "owner_id"
      ]
    }
  }

```

```

    ],
    "datatype": null
  },
  "is_nullable": true,
  "is_primary_key": false,
  "create_index": false,
  "transform": {},
  "comment": null
},
{
  "type": "expression",
  "column_id": "server_last_modified_date",
  "display_name": "server_last_modified_date",
  "datatype": "datetime",
  "expression": {
    "type": "property_path",
    "property_path": [
      "server_modified_on"
    ],
    "datatype": null
  },
  "is_nullable": true,
  "is_primary_key": false,
  "create_index": false,
  "transform": {},
  "comment": null
},
{
  "type": "expression",
  "column_id": "state",
  "display_name": "state",
  "datatype": "string",
  "expression": {
    "type": "property_path",
    "property_path": [
      "doc_type"
    ],
    "datatype": null
  },
  "is_nullable": true,
  "is_primary_key": false,
  "create_index": false,
  "transform": {},
  "comment": null
}

```



```

},
{
  "type": "expression",
  "column_id": "expected_freq",
  "display_name": "expected_freq",
  "datatype": "string",
  "expression": {
    "type": "property_path",
    "property_path": [
      "expected_freq"
    ],
    "datatype": null
  },
  "is_nullable": true,
  "is_primary_key": false,
  "create_index": false,
  "transform": {},
  "comment": null
},
{
  "type": "expression",
  "column_id": "observed_freq",
  "display_name": "observed_freq",
  "datatype": "string",
  "expression": {
    "type": "property_path",
    "property_path": [
      "observed_freq"
    ],
    "datatype": null
  },
  "is_nullable": true,
  "is_primary_key": false,
  "create_index": false,
  "transform": {},
  "comment": null
},
{
  "type": "expression",
  "column_id": "p_value",
  "display_name": "p_value",
  "datatype": "decimal",
  "expression": {
    "type": "property_path",

```

```

        "property_path": [
            "p_value"
        ],
        "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
},
{
    "type": "expression",
    "column_id": "questionid",
    "display_name": "questionid",
    "datatype": "string",
    "expression": {
        "type": "property_path",
        "property_path": [
            "questionid"
        ],
        "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
},
{
    "type": "expression",
    "column_id": "score",
    "display_name": "score",
    "datatype": "decimal",
    "expression": {
        "type": "property_path",
        "property_path": [
            "score"
        ],
        "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,

```

```

    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "username",
    "display_name": "username",
    "datatype": "string",
    "expression": {
      "type": "property_path",
      "property_path": [
        "username"
      ],
      "datatype": null
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "count",
    "display_name": "count",
    "datatype": "small_integer",
    "expression": {
      "type": "constant",
      "constant": 1
    },
    "is_nullable": true,
    "is_primary_key": false,
    "create_index": false,
    "transform": {},
    "comment": null
  },
  {
    "type": "expression",
    "column_id": "date_range",
    "display_name": "date_range",
    "datatype": "string",
    "expression": {
      "type": "property_path",
      "property_path": [

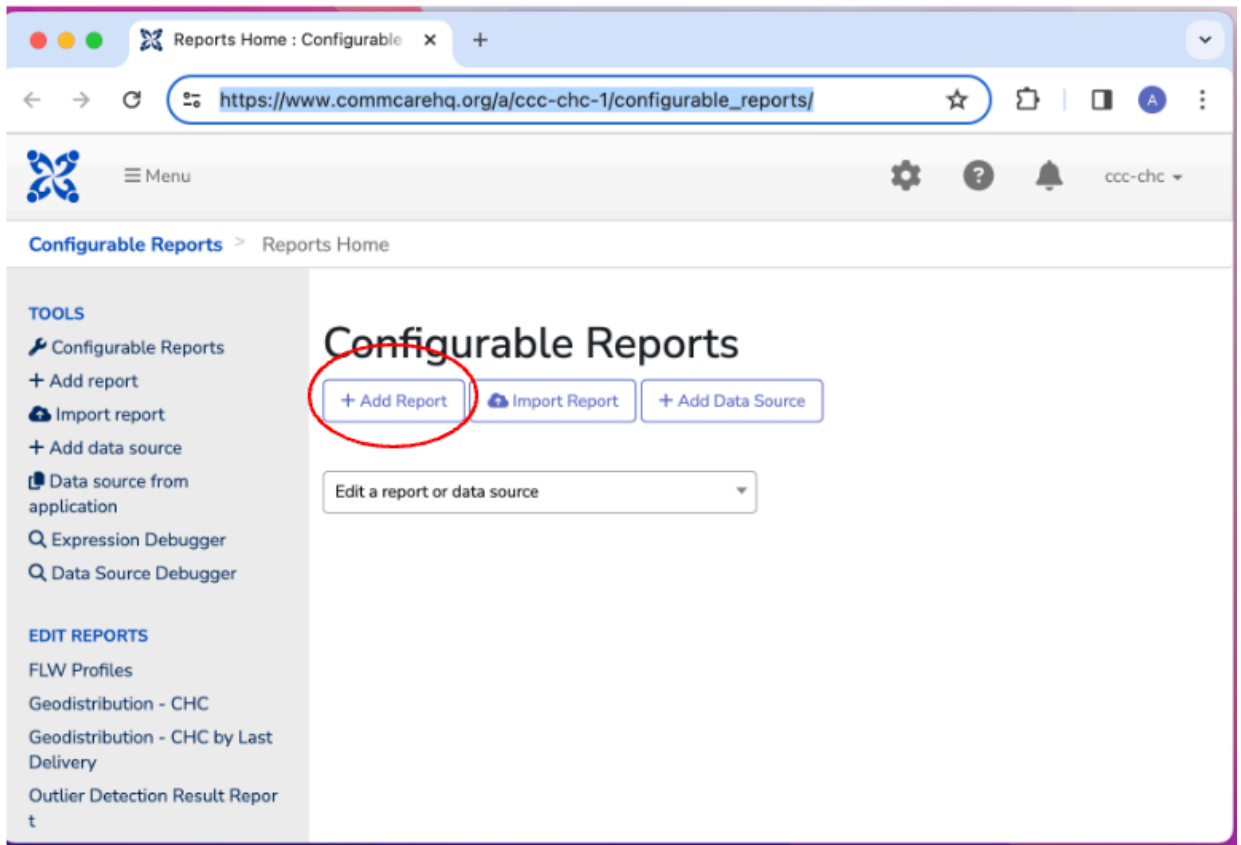
```

```
        "date_range"  
      ],  
      "datatype": null  
    },  
    "is_nullable": true,  
    "is_primary_key": false,  
    "create_index": false,  
    "transform": {},  
    "comment": null  
  }  
]
```

3. Click the “Save” button.

Building CommCare User Configurable Report

1. Navigate to the configurable reports screen, click on “Add Report” option



2. For the report configuration, make sure the following fields have the value specified:

Unset

`Config id : outlier_detection_results`

Unset

`Title : Outlier Detection Results`

Unset

`Visible To : all users`

Unset

```
Aggregation columns :  
[  
  "doc_id"  
]
```

Unset

```
Filters:  
[  
  {  
    "field": "closed",  
    "slug": "closed",  
    "display": "Closed",  
    "type": "dynamic_choice_list",  
    "datatype": "string",  
    "show_all": true,  
    "choice_provider": {},  
    "ancestor_expression": {}  
  },  
  {  
    "field": "owner_id",  
    "slug": "owner_id",  
    "display": "Case Owner",  
    "type": "dynamic_choice_list",  
    "choice_provider": {  
      "type": "owner"  
    },  
    "datatype": "string",  
    "show_all": true,  
    "ancestor_expression": {}  
  },  
  {  
    "field": "questionid",  
    "slug": "questionid",  
    "display": "Question id",  
    "type": "dynamic_choice_list",  
    "datatype": "string",  
    "show_all": true,  
    "choice_provider": {},  
    "ancestor_expression": {}  
  },  
  {
```

```

    "field": "username",
    "slug": "username",
    "display": "username",
    "type": "dynamic_choice_list",
    "datatype": "string",
    "show_all": true,
    "choice_provider": {},
    "ancestor_expression": {}
  },
  {
    "field": "date_range",
    "slug": "date_range",
    "display": "Date range",
    "type": "dynamic_choice_list",
    "datatype": "string",
    "show_all": true,
    "choice_provider": {},
    "ancestor_expression": {}
  }
]

```

Unset

```

Columns :
[
  {
    "format": "default",
    "aggregation": "simple",
    "field": "username",
    "column_id": "column_0",
    "type": "field",
    "display": "Username",
    "transform": {
      "type": "custom",
      "custom_type": "short_decimal_display"
    },
    "sortable": false,
    "width": null,
    "css_class": null,
    "calculate_total": false,
    "description": null,

```

```

        "visible": true
    },
    {
        "format": "default",
        "aggregation": "simple",
        "field": "questionid",
        "column_id": "column_1",
        "type": "field",
        "display": "Question ID",
        "transform": {
            "type": "custom",
            "custom_type": "short_decimal_display"
        },
        "sortable": false,
        "width": null,
        "css_class": null,
        "calculate_total": false,
        "description": null,
        "visible": true
    },
    {
        "format": "default",
        "aggregation": "simple",
        "field": "score",
        "column_id": "column_2",
        "type": "field",
        "display": "Score",
        "transform": {
            "type": "custom",
            "custom_type": "short_decimal_display"
        },
        "sortable": true,
        "width": null,
        "css_class": null,
        "calculate_total": false,
        "description": null,
        "visible": true
    },
    {
        "format": "default",
        "aggregation": "simple",
        "field": "p_value",
        "column_id": "column_3",
        "type": "field",

```



```

    "display": "P Value",
    "transform": {
      "type": "custom",
      "custom_type": "short_decimal_display"
    },
    "sortable": true,
    "width": null,
    "css_class": null,
    "calculate_total": false,
    "description": null,
    "visible": true
  },
  {
    "format": "default",
    "aggregation": "simple",
    "field": "observed_freq",
    "column_id": "column_4",
    "type": "field",
    "display": "Observed Freq",
    "transform": {
      "type": "custom",
      "custom_type": "short_decimal_display"
    },
    "sortable": false,
    "width": null,
    "css_class": null,
    "calculate_total": false,
    "description": null,
    "visible": true
  },
  {
    "format": "default",
    "aggregation": "simple",
    "field": "expected_freq",
    "column_id": "column_5",
    "type": "field",
    "display": "Expected Freq",
    "transform": {
      "type": "custom",
      "custom_type": "short_decimal_display"
    },
    "sortable": false,
    "width": null,
    "css_class": null,

```

```

        "calculate_total": false,
        "description": null,
        "visible": true
    },
    {
        "format": "default",
        "aggregation": "simple",
        "field": "date_range",
        "column_id": "column_6",
        "type": "field",
        "display": "Date Range",
        "transform": {
            "type": "custom",
            "custom_type": "short_decimal_display"
        },
        "sortable": true,
        "width": null,
        "css_class": null,
        "calculate_total": false,
        "description": null,
        "visible": true
    },
    {
        "format": "default",
        "aggregation": "simple",
        "field": "last_modified_date",
        "column_id": "column_7",
        "type": "field",
        "display": "Modified Date",
        "transform": {
            "type": "custom",
            "custom_type": "short_decimal_display"
        },
        "sortable": true,
        "width": null,
        "css_class": null,
        "calculate_total": false,
        "description": null,
        "visible": true
    }
]

```

Unset

```
Sort expression :  
[  
  {  
    "field": "score",  
    "order": "DESC"  
  }  
]
```

3. Click the “Save” button.

The screenshot shows a web interface for configuring a report. It has three main sections: 'Sort expression*' with a text area containing a JSON array, 'Distinct on*' with an empty text area, and 'Report ID' with a text field containing a long alphanumeric string. Below these fields is a 'Save' button, which is circled in red. A small tooltip is visible below the Report ID field.

Sort expression*

Distinct on*

Report ID

5365db39bc80c24d187ce34ef9757774

The System ID of the report (sometimes needed in APIs or other advanced features)

Save

4. Once the report is saved, you can view the report by either clicking on the view report button or navigating to the report name from Reports> Report Name.

Dashboard Reports Data Users Applications Web Apps Messaging Admin

Report "Outlier Detection Results Final" saved!

Configurable Reports > Edit Report

TOOLS

- Configurable Reports
- Add report
- Import report
- Add data source
- Data source from application
- Expression Debugger
- Data Source Debugger

EDIT REPORTS

- FLW Profiles
- Geodistribution - CHC
- Geodistribution - CHC by Last Deliver Y
- Outlier Detection - C-WINS
- Outlier Detection Result Report
- Outlier Detection Results Final**
- Services Delivery Report - Child

EDIT DATA SOURCES

- CCC GPS Study

Configuration Usage

Config id* outlier_detection_results_AS

Title* Outlier Detection Results Final

Visible to* all users

Description

Aggregation columns*

```
{
  "doc_id"
}
```

Filters*

```
{
  "field": "username",
}
```

View Report View Data Source Report Source Delete Report

Viewing the report

- Once you navigate to the report you have saved, we can add different filters to get the report resultset. Based on the filters set, we can view the report and the relevant information.

Reports > Outlier Detection Results Final Edit Report

TOOLS

- My Saved Reports
- Configurable Reports

REPORT BUILDER

- Create New Report

REPORTS

- FLW Profiles
- Geodistribution - CHC
- Geodistribution - CHC by Last Delivery
- Outlier Detection Result Report
- Outlier Detection Results Final**
- Outlier Detection Results Final (2)
- Services Delivery Report - Child
- Test Outlier Detection Results
- test_meds due

MONITOR WORKERS

- Worker Activity
- Daily Form Activity
- Submissions By Form
- Form Completion Time
- Case Activity
- Form Completion vs. Submission Trends
- Project Performance

INSPECT DATA

- Submit History
- Case List
- Case List Explorer
- Duplicate Cases

MANAGE DEPLOYMENTS

- Application Status
- Aggregate User Status
- Raw Forms, Errors & Duplicates
- Application Error Report

MESSAGING

Report Filters

Closed [x] [Show All]

Case Owner [x] [Show All]

Question id [x] [Show All]

username [x] [Show All]

Apply Favorites Save

Hide Filter Options Export to Excel

Outlier Detection Results Final

Username	Question ID	Score	P Value	Observed Freq	Expected Freq	Modified Date
muac_colour	2.674215514902811	0.1310027602038021	[": 0, 'Green': 277, 'Red': 0, 'Yellow': 0]	[": 0.5, 'Green': 269.6, 'Red': 2.4, 'Yellow': 4.3]	2024-01-16T02:18:03.375	
muac_colour	6.571781837377531	0.003679401017031347	[": 1, 'Green': 610, 'Red': 0, 'Yellow': 0]	[": 1.0, 'Green': 594.8, 'Red': 5.5, 'Yellow': 9.7]	2024-01-16T02:18:03.384	
muac_colour	4.210241630727358	0.03296321660183865	[": 1, 'Green': 415, 'Red': 0, 'Yellow': 0]	[": 0.7, 'Green': 405.2, 'Red': 3.6, 'Yellow': 6.5]	2024-01-16T02:18:03.392	
muac_colour	2.734420669181347	0.1242458680785022	[": 0, 'Green': 282, 'Red': 0, 'Yellow': 0]	[": 0.5, 'Green': 274.7, 'Red': 2.4, 'Yellow': 4.4]	2024-01-16T02:18:03.400	
muac_colour	3.046304749751344	0.09427067962464841	[": 0, 'Green': 433, 'Red': 0, 'Yellow': 2]	[": 0.8, 'Green': 423.7, 'Red': 3.8, 'Yellow': 6.7]	2024-01-16T02:18:03.411	
muac_colour	1.691311460388468	0.3046392528484729	[": 1, 'Green': 177, 'Red': 0, 'Yellow': 0]	[": 0.3, 'Green': 173.5, 'Red': 1.5, 'Yellow': 2.7]	2024-01-16T02:18:03.419	
muac_colour	1.298530959067805	0.420284670857645	[": 1, 'Green': 354, 'Red': 1, 'Yellow': 2]	[": 0.6, 'Green': 348.8, 'Red': 3.1, 'Yellow': 5.5]	2024-01-16T02:18:03.428	
muac_colour	2.602284519833008	0.1395372870790128	[": 0, 'Green': 271, 'Red': 0, 'Yellow': 0]	[": 0.5, 'Green': 264.0, 'Red': 2.3, 'Yellow': 4.2]	2024-01-16T02:18:03.444	
muac_colour	2.471319638769494	0.1564571622974897	[": 0, 'Green': 260, 'Red': 0, 'Yellow': 0]	[": 0.4, 'Green': 253.3, 'Red': 2.2, 'Yellow': 4.0]	2024-01-16T02:18:03.454	
muac_colour	0.01595329851130027	0.9970656536976792	[": 0, 'Green': 73, 'Red': 0, 'Yellow': 1]	[": 23, 'Green': 11287, 'Red': 49, 'Yellow': 186]	2024-01-11T19:15:24.714	
muac_colour	4.456997324240671	0.02629629329166838	[": 0, 'Green': 290, 'Red': 4, 'Yellow': 11]	[": 0.5, 'Green': 297.5, 'Red': 2.5, 'Yellow': 4.4]	2024-01-16T02:18:03.462	
muac_colour	1.812860049057069	0.2751604022510702	[": 0, 'Green': 203, 'Red': 0, 'Yellow': 0]	[": 0.3, 'Green': 197.8, 'Red': 1.7, 'Yellow': 3.1]	2024-01-16T02:18:03.471	

- We can do the following with the generated report:
 - Export:** We can also export the report to an Excel file.

- b. **Save** the filters settings: We can save the filters of the report and utilize the same filters later on as needed
- c. **Schedule** the saved reports: Saved reports can be scheduled to be received as emails on a set frequency. To know more, follow the steps mentioned [here](#)