

USER GUIDE

A RECOMMENDER SYSTEM FOR CULTURE MAURICIE



Version 1.0

Prepared by The UQTR Research Team

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PART 1. INTRODUCTION

This part presents an overview of the recommendation system for Culture Mauricie, hereafter called **RecomSys**. RecomSys consists of three main components: a management tool, a data repository, and recommendation scripts. The management tool allows managing data in the data repository, execute recommendation algorithms, and generate recommendation scripts (i.e., scripts which will be integrated into the DICI website to propose recommendations).

This part will be organized as follows: Section 1.1 (Overview) introduces briefly the overall components, as well as their interactions; Section 1.2 (Functionality description) describes the system functionalities; Section 1.3 (RecomSys login) demonstrates how administrators/managers can connect to RecomSys to perform their tasks.

1.1 Overview

Figure 1 presents an overview of three main components of the system (management tool, data repository, and recommendation scripts), as well as their interactions with each other and with the DICI website.

- 1 Data management module allows importing data retrieved from Google Analytics; provided by Caligram's API or Culture Mauricie's API; or stored in JSON files into the data repository of RecomSys.
- 2 Recommendation module allows training recommendation algorithms and generating recommendation scripts, which will be integrated into the DICI website to propose recommendations.
- 3 The embedded recommendation scripts allows connecting to RecomSys to retrieve recommended items (events or articles).

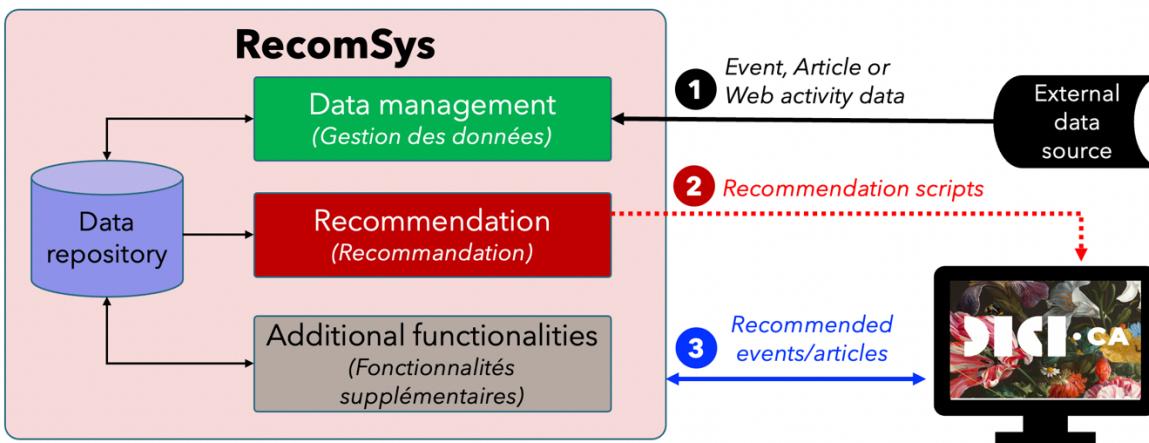


Figure 1. Main components of RecomSys

1.2 Functionality description

The system functionalities can be classified into three main groups, including the data management (*Gestion des données*), the recommendation (*Recommandation*), and other additional functionalities such as analytics (*Tableau de bord, Analyse des données*) or user management.

- The data management (*Gestion des données*) aims at accessing and manipulating cultural event data, article data, and web activity data, which are used in recommendation algorithms. The data will be stored in RecomSys' data repository and used for recommendation algorithms.
- The recommendation (*Recommandation*) aims at configuring recommendation algorithms and generating recommendation scripts embedded in the DICI website.
- Additional functionalities (*Tableau de bord, Analyse des données, et Gestion des utilisateurs*) consist of: i) visualizing and analyzing data (cultural events, products, or web activities) and ii) managing user accounts (create, update, or delete users).

Figure 2 shows an overview of main functionalities, whereas Table 1 presents functionality description in more detail.

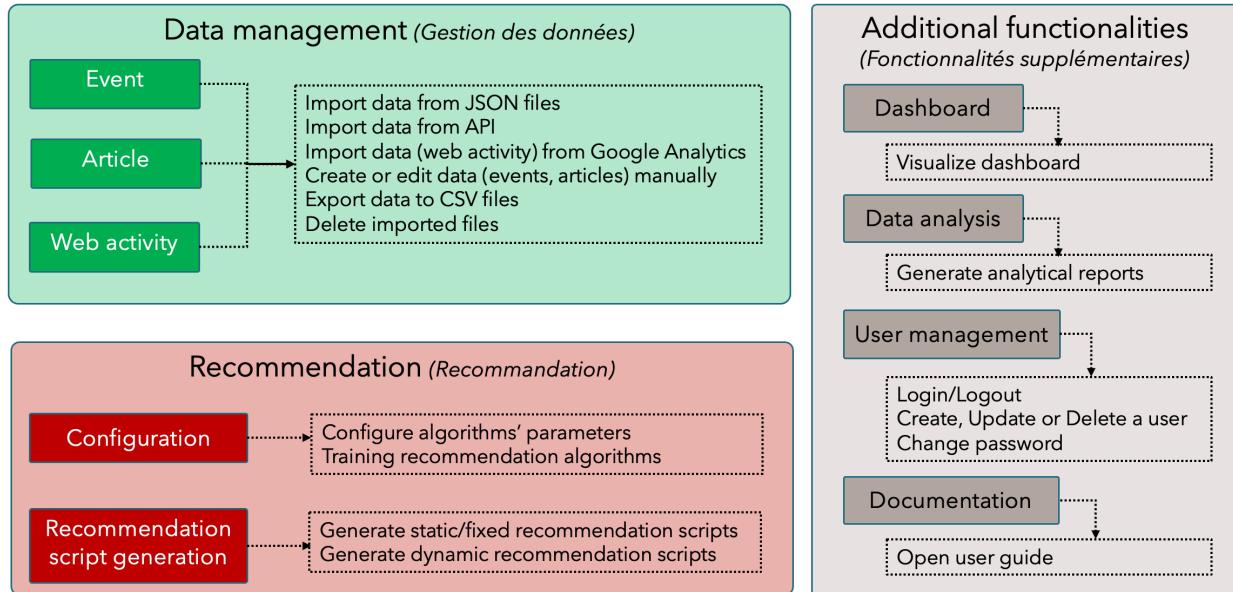


Figure 2. System functionalities

Group	Functionalities	Description
Data management <i>(Gestion des données)</i>	Event <i>(Événements)</i>	Access, manipulate, and manage cultural event data, including event creation, modification, deletion, importation (from files or API), and exportation.
	Article <i>(Articles)</i>	Access, manipulate, and manage article data, including article creation, modification,

Group	Functionalities	Description
		deletion, importation (from files or API), and exportation.
	Web Activity <i>(Activités Web)</i>	Access, manipulate, and manage web activity data (e.g. data containing users' interactions such as user clicks or engagement), including web activity importation (from files, API, or Google Analytics) and exportation.
Recommendation <i>(Recommandation)</i>	Configuration	Configure parameters for recommendation algorithms and train recommendation models, which are used to recommend similar events/articles.
	Recommendation scripts generation <i>(Génération des scripts)</i>	Generate recommendation scripts to be integrated into the DICI website. The recommendations scripts are responsible for communicating with RecomSys to execute recommendation algorithms and return appropriate cultural events/articles to the DICI website.
Additional functionalities	Dashboard <i>(Tableaux de bord)</i>	Visualize event, article, and web activity statistics through charts and tables.
	Data analysis <i>(Analyse des données)</i>	Generate statistical reports on visitors' interactions on the organization's website.
	User management	Manage users' account used to access to RecomSys, including user creation, deletion, and modification (password or other information).
	Documentation	Access to this user guide.

Table 1. Functionality description

1.3 RecomSys login

The system RecomSys has been deployed on the server ionos. To access the system, please follow the following steps.

- Browse to the website url (<http://198.71.52.84/>)
- Log in the website by using the default user account (**user: root, password: trivi**).

Figure 3 presents login page and Figure 4 presents homepage after logging to the system.

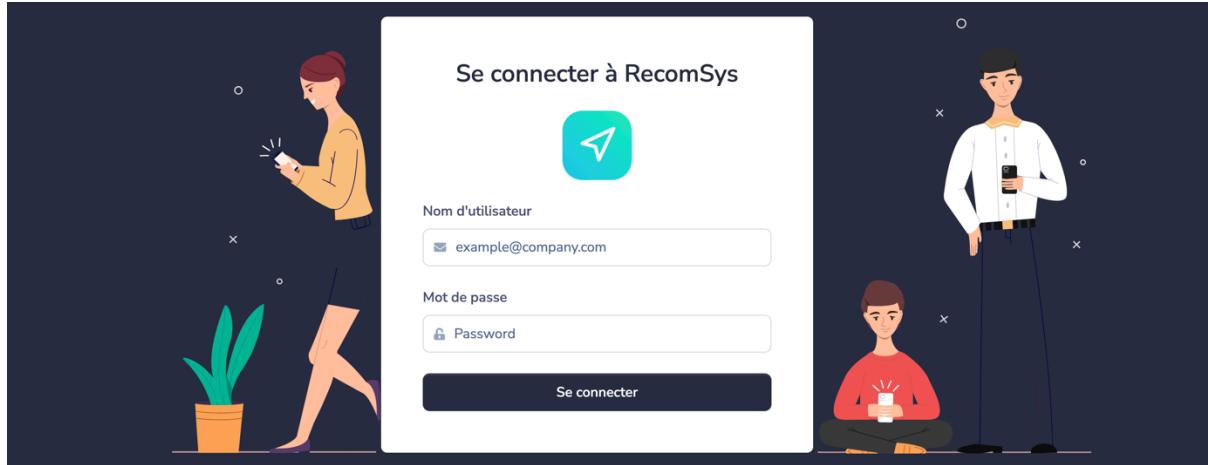


Figure 3. Log In Page

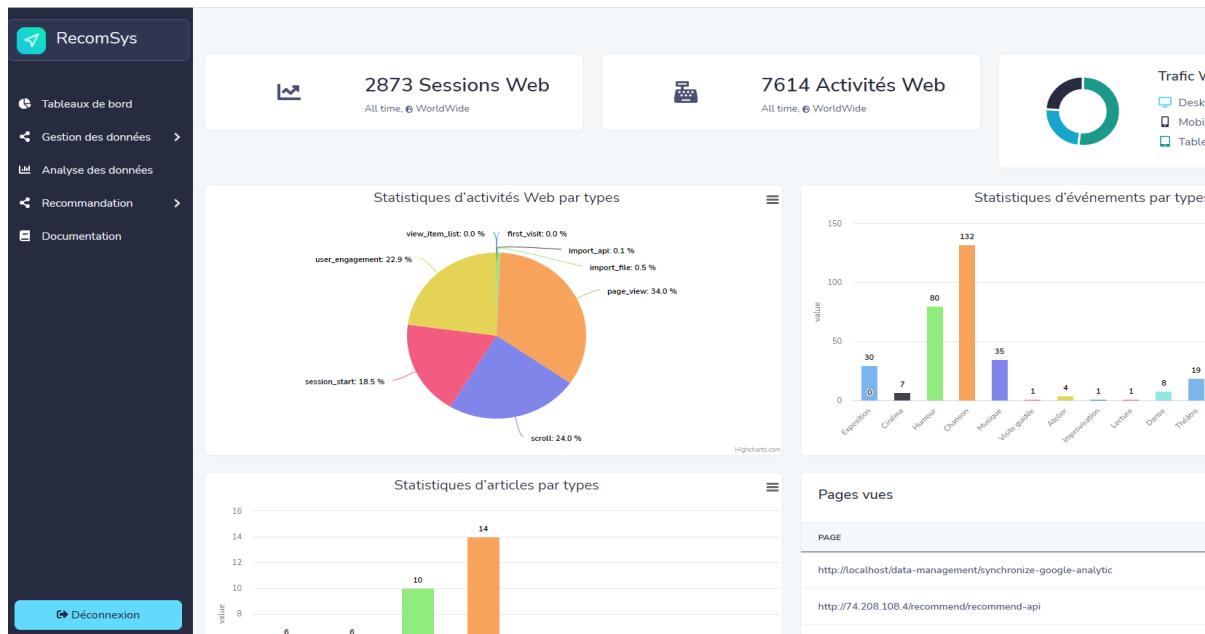


Figure 4. Overall interface of RecomSys

PART 2. DATA MANAGEMENT

This part presents a tutorial on how to use RecomSys to manage event, article, and web activity data. These data stored in the data repository of RecomSys are essential for recommendation algorithms. The data management module consists of three main submodules: (cultural) event management, article management, and web activity management.

This part will be organized as follows: Section 2.1 (Overview) presents an overall description of the module, the three next sections describe in more detail event management, article management, and web activity management, respectively.

2.1 Overview

Data management (*Gestion des données*) is a set of functions used to access, manipulate, and process (cultural) event, article, and web activity data. The structure of (cultural) event and article data is now based on the data structured defined by Caligram and Culture Mauricie's API. In terms of web activity data, the data is determined by Google Analytics data schema because this type of data is currently not provided. For each data type, the system provides several functions to manage the data, including:

- Create new data via editing form (applied for Event and Article)
- Edit (modify or delete) data (applied for Event and Article)
- Import data from JSON file (applied for all data types)
- Import data through API provided by Caligram or Culture Mauricie (applied for all data types)
- Synchronize data with Google Analytics (applied for Web activity)
- Export data to CSV file (applied for all data types)
- Delete imported data (applied for all data types)

Figure 5 present menu items to access data management module (*Gestion des données/[Événements, Articles, Activités Web]*).

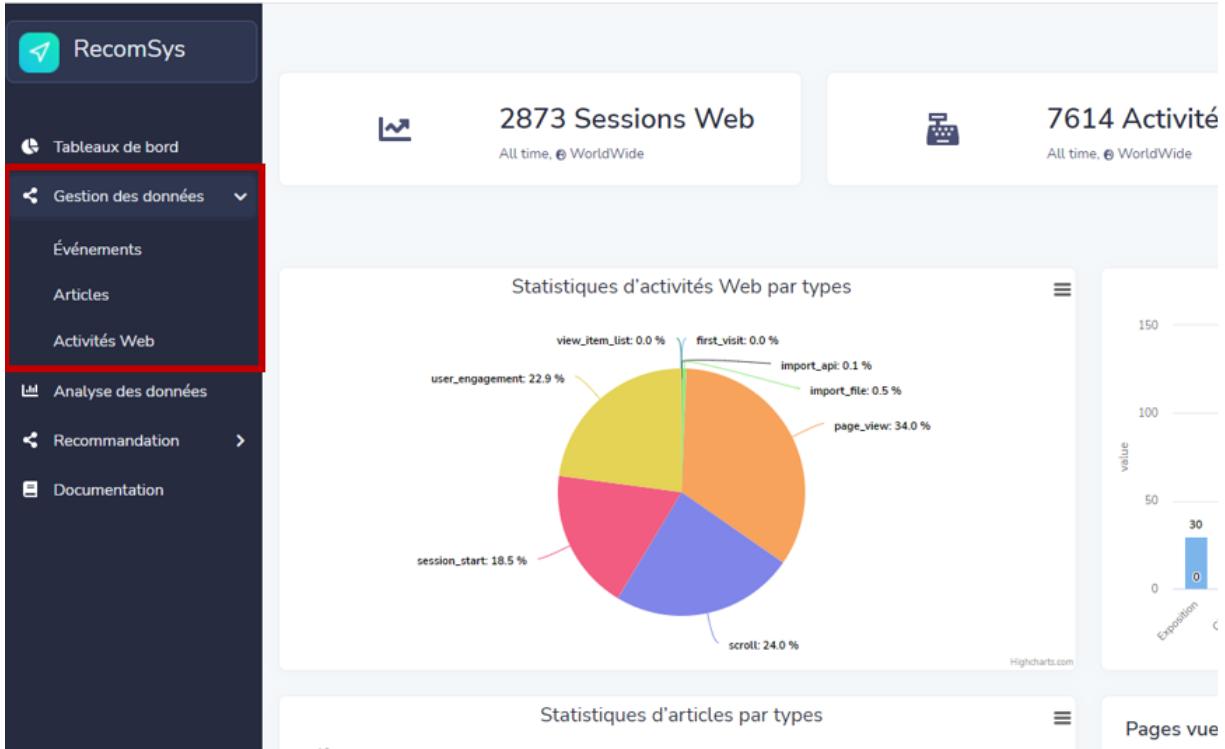


Figure 5. Menu items for Data Management module

2.2 Event management

The event management module (*Gestion des données/Événements*) allows managing event data, including:

- Import data from JSON file (*Importer un fichier*)
- Import data from API provided by Caligram (*Importer via API*)
- Create new event through event creation form (*Créer un événement*)
- Edit (delete or modify) an existing event by clicking on the corresponding event_id
- Delete imported files (*Supprimer un fichier*)
- Export data to CSV file (*Exporter un fichier*)

EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
0	Hélène Guilmaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/événements/helene-guilmaine-a-l-origine-les-deesses
1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/événements/art-1
2	Andrée Godin : Green/1	Exposition	https://dici.ca/événements/andree-godin-green-1
3	Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/événements/exposition-onde-de-choc-effluve-de-l-in
4	Sarah Seené : Fovea	Exposition	https://dici.ca/événements/exposition-fovea

Figure 6. Interface of Event Management

1. Import data from JSON file (*Importer un fichier*)

This function allows users to import a large amount of event data into the system by uploading a data file with extension .json. To perform this function, users follow these steps:

- Click the “Importer un fichier” button on the navbar.

Figure 7. "Importer un fichier" button

- Click the “Télécharger un fichier” section.
- Upload a json file.

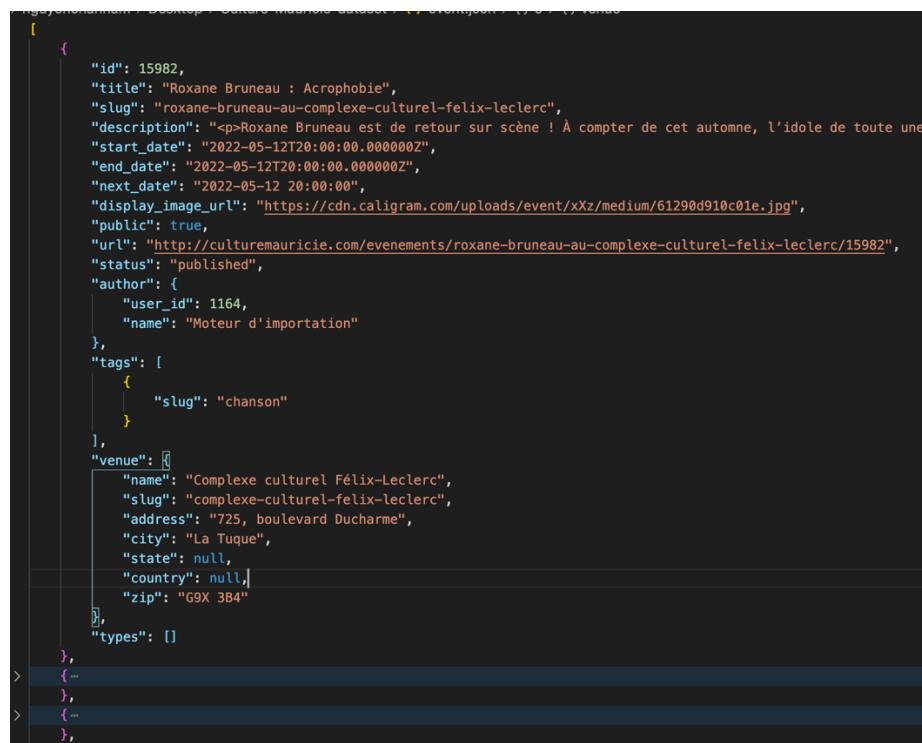
Figure 8. Interface for "Importer un fichier"

- Select a mapping template (which helps to match data structure between a uploaded file and system data models) in the “Choisir un mapping template” section. Based

on documents that Culture Mauricie provided, we have defined a “default” mapping template for “Event”.

- Click the “Importer” button. If there is a data duplication (duplication in event_id) or the data structure of the uploaded file does not match the mapping template, there would be an error message displayed on the interface. Therefore, users need to check that error.

***Note: When the structure of uploaded json file changes, users need to notify us to update/create a mapping template.** By default, when users choose “Default” mapping template, the uploaded json file must follow the format below:



The screenshot shows a JSON editor with a dark theme. A single JSON object is displayed, representing an event. The object has properties like id, title, slug, description, start_date, end_date, next_date, display_image_url, public, url, status, author, tags, venue, and types. The venue property contains a nested object with name, slug, address, city, state, country, and zip. The types property is currently empty. The JSON is formatted with indentation and line breaks for readability.

```
[  
  {  
    "id": 15982,  
    "title": "Roxane Bruneau : Acrophobie",  
    "slug": "roxane-bruneau-au-complexe-culturel-felix-leclerc",  
    "description": "<p>Roxane Bruneau est de retour sur scène ! À compter de cet automne, l'idole de toute une",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
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    "public": true,  
    "url": "http://culturemauricie.com/evenements/roxane-bruneau-au-complexe-culturel-felix-leclerc/15982",  
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    "author": {  
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        "city": "La Tuque",  
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    "description": "Musique et poésie",  
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        "city": "La Tuque",  
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      "name": "Moteur d'importation"  
    },  
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      {  
        "slug": "cinema"  
      }  
    ],  
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        "city": "La Tuque",  
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        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
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    "slug": "poesie-et-musique",  
    "description": "Poésie et musique",  
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        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  },  
  {  
    "id": 15990,  
    "title": "Poésie et littérature",  
    "slug": "poesie-et-litterature",  
    "description": "Poésie et littérature",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
    "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg",  
    "public": true,  
    "url": "http://culturemauricie.com/evenements/poesie-et-litterature/15990",  
    "status": "published",  
    "author": {  
      "user_id": 1164,  
      "name": "Moteur d'importation"  
    },  
    "tags": [  
      {  
        "slug": "litterature"  
      }  
    ],  
    "venue": [  
      {  
        "name": "Complexe culturel Félix-Leclerc",  
        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  },  
  {  
    "id": 15991,  
    "title": "Poésie et gastronomie",  
    "slug": "poesie-et-gastronomie",  
    "description": "Poésie et gastronomie",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
    "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg",  
    "public": true,  
    "url": "http://culturemauricie.com/evenements/poesie-et-gastronomie/15991",  
    "status": "published",  
    "author": {  
      "user_id": 1164,  
      "name": "Moteur d'importation"  
    },  
    "tags": [  
      {  
        "slug": "gastronomie"  
      }  
    ],  
    "venue": [  
      {  
        "name": "Complexe culturel Félix-Leclerc",  
        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  },  
  {  
    "id": 15992,  
    "title": "Poésie et arts visuels",  
    "slug": "poesie-et-arts-visuels",  
    "description": "Poésie et arts visuels",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
    "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg",  
    "public": true,  
    "url": "http://culturemauricie.com/evenements/poesie-et-arts-visuels/15992",  
    "status": "published",  
    "author": {  
      "user_id": 1164,  
      "name": "Moteur d'importation"  
    },  
    "tags": [  
      {  
        "slug": "arts-visuels"  
      }  
    ],  
    "venue": [  
      {  
        "name": "Complexe culturel Félix-Leclerc",  
        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  },  
  {  
    "id": 15993,  
    "title": "Poésie et sciences",  
    "slug": "poesie-et-sciences",  
    "description": "Poésie et sciences",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
    "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg",  
    "public": true,  
    "url": "http://culturemauricie.com/evenements/poesie-et-sciences/15993",  
    "status": "published",  
    "author": {  
      "user_id": 1164,  
      "name": "Moteur d'importation"  
    },  
    "tags": [  
      {  
        "slug": "sciences"  
      }  
    ],  
    "venue": [  
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        "name": "Complexe culturel Félix-Leclerc",  
        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  },  
  {  
    "id": 15994,  
    "title": "Poésie et sports",  
    "slug": "poesie-et-sports",  
    "description": "Poésie et sports",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
    "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg",  
    "public": true,  
    "url": "http://culturemauricie.com/evenements/poesie-et-sports/15994",  
    "status": "published",  
    "author": {  
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      "name": "Moteur d'importation"  
    },  
    "tags": [  
      {  
        "slug": "sports"  
      }  
    ],  
    "venue": [  
      {  
        "name": "Complexe culturel Félix-Leclerc",  
        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  },  
  {  
    "id": 15995,  
    "title": "Poésie et technologies",  
    "slug": "poesie-et-technologies",  
    "description": "Poésie et technologies",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
    "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg",  
    "public": true,  
    "url": "http://culturemauricie.com/evenements/poesie-et-technologies/15995",  
    "status": "published",  
    "author": {  
      "user_id": 1164,  
      "name": "Moteur d'importation"  
    },  
    "tags": [  
      {  
        "slug": "technologies"  
      }  
    ],  
    "venue": [  
      {  
        "name": "Complexe culturel Félix-Leclerc",  
        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  },  
  {  
    "id": 15996,  
    "title": "Poésie et médias",  
    "slug": "poesie-et-medias",  
    "description": "Poésie et médias",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
    "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg",  
    "public": true,  
    "url": "http://culturemauricie.com/evenements/poesie-et-medias/15996",  
    "status": "published",  
    "author": {  
      "user_id": 1164,  
      "name": "Moteur d'importation"  
    },  
    "tags": [  
      {  
        "slug": "medias"  
      }  
    ],  
    "venue": [  
      {  
        "name": "Complexe culturel Félix-Leclerc",  
        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  },  
  {  
    "id": 15997,  
    "title": "Poésie et culture",  
    "slug": "poesie-et-culture",  
    "description": "Poésie et culture",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
    "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg",  
    "public": true,  
    "url": "http://culturemauricie.com/evenements/poesie-et-culture/15997",  
    "status": "published",  
    "author": {  
      "user_id": 1164,  
      "name": "Moteur d'importation"  
    },  
    "tags": [  
      {  
        "slug": "culture"  
      }  
    ],  
    "venue": [  
      {  
        "name": "Complexe culturel Félix-Leclerc",  
        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  },  
  {  
    "id": 15998,  
    "title": "Poésie et histoire",  
    "slug": "poesie-et-histoire",  
    "description": "Poésie et histoire",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
    "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg",  
    "public": true,  
    "url": "http://culturemauricie.com/evenements/poesie-et-histoire/15998",  
    "status": "published",  
    "author": {  
      "user_id": 1164,  
      "name": "Moteur d'importation"  
    },  
    "tags": [  
      {  
        "slug": "histoire"  
      }  
    ],  
    "venue": [  
      {  
        "name": "Complexe culturel Félix-Leclerc",  
        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  },  
  {  
    "id": 15999,  
    "title": "Poésie et sciences humaines",  
    "slug": "poesie-et-sciences-humaines",  
    "description": "Poésie et sciences humaines",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
    "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg",  
    "public": true,  
    "url": "http://culturemauricie.com/evenements/poesie-et-sciences-humaines/15999",  
    "status": "published",  
    "author": {  
      "user_id": 1164,  
      "name": "Moteur d'importation"  
    },  
    "tags": [  
      {  
        "slug": "sciences-humaines"  
      }  
    ],  
    "venue": [  
      {  
        "name": "Complexe culturel Félix-Leclerc",  
        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  },  
  {  
    "id": 16000,  
    "title": "Poésie et philosophie",  
    "slug": "poesie-et-philosophie",  
    "description": "Poésie et philosophie",  
    "start_date": "2022-05-12T20:00:00.000000Z",  
    "end_date": "2022-05-12T20:00:00.000000Z",  
    "next_date": "2022-05-12 20:00:00",  
    "display_image_url": "https://cdn.caligram.com/uploads/event/xXz/medium/61290d910c01e.jpg",  
    "public": true,  
    "url": "http://culturemauricie.com/evenements/poesie-et-philosophie/16000",  
    "status": "published",  
    "author": {  
      "user_id": 1164,  
      "name": "Moteur d'importation"  
    },  
    "tags": [  
      {  
        "slug": "philosophie"  
      }  
    ],  
    "venue": [  
      {  
        "name": "Complexe culturel Félix-Leclerc",  
        "slug": "complexe-culturel-felix-leclerc",  
        "address": "725, boulevard Ducharme",  
        "city": "La Tuque",  
        "state": null,  
        "country": null,  
        "zip": "G9X 3B4"  
      }  
    ],  
    "types": []  
  }]
```

Figure 9. Default "Event" JSON file

2. Import data from API (Importer un API)

This function allows users to import a large amount of event data based on APIs provided by organization's data providers (Caligram, etc.). To perform this function, users follow these steps:

- Click the “Importer un API” button on the navbar.



Figure 10. "Importer un API" button

- Enter an API url that data providers has given you (<https://culturemauricie.caligram.com/api/events/?page=<id>>), in the URL section.

Importer une API - événement

This screenshot shows the 'Importer une API - événement' form. It has three main input fields: 'URL' containing 'Ex: https://dici.ca/événements/?page=1', 'Bearer Token' containing 'dici', and 'Choisir un mapping template' containing 'default'. At the bottom is a large dark blue 'Importer' button.

Figure 11. Interface of "Importer un API"

- Enter a bearerToken (a keyword used for request authentication that data providers have given you). For “Import event from API”, users can leave this section blank.
- Select a mapping template (which assists to match data structure between a uploaded file and system data models) in the “Choisir un mapping template” section. By default, click the “default” option.
- Click the “Importer” button. If there is a data duplication (duplication in event_id) or the data structure in the uploaded file does not match the mapping template, there would be an error message displayed on the interface and users need to check that error.

3. Create a new event through event creation form (Créer un événement):

When the amount of imported data is not too much or there are not any available APIs/json files, the system allows users to create a new event/article manually and add its information (event name, event id, event date, etc.). To perform this function, users follow these steps:

- Click the “Créer un événement” button, which is located in the navbar.

The screenshot shows the RecomSys application's event management interface. The top navigation bar includes a logo, the title 'RecomSys', and several buttons: 'Tableaux de bord', 'Gestion des données', 'Événements' (which is selected and highlighted in blue), 'Articles', 'Activités Web', and 'Analyse des données'. Below the navigation is a search bar with placeholder text 'Recherche de mots clés'. The main content area is titled 'Liste des événements' and contains a table with two rows of event data. The columns are labeled 'EVENT_ID', 'EVENT_NAME', 'EVENT_TYPE', and 'URL'. The first row has an ID of 0, a name of 'Hélène Guilmaint : À l'origine... les déesses-mères', a type of 'Exposition', and a URL of 'https://dici.ca/événements/helene-guilmaint-a-l-origine-les-deesses'. The second row has an ID of 1, a name of 'Véronique Paprosky : Savoir Web', a type of 'Exposition', and a URL of 'https://dici.ca/événements/art-1'. At the bottom of the table are five buttons: 'Créer un événement' (highlighted with a red box), 'Importer un fichier', 'Importer un API', 'Exporter un fichier', and 'Supprimer un fichier'.

Figure 12. "Créer un événement" button

- Fill in information fields. There are some unskippable fields that users are obliged to fill in (including: event_id, event_name, event_type, event_img, event_url, event_datees, event_place).

The screenshot shows a form for creating a new event. The form is organized into a grid of input fields. The columns are labeled 'EVENT' and 'DETAIL'. The rows contain the following pairs: (event_id, event_name), (event_type, event_price), (price_type, slug), (lang, img), (url, location_name), (location_address, location_city), and (location_state, location_country). Each pair consists of a label and a corresponding input field.

Form	
EVENT	
event_id	event_name
event_type	event_price
price_type	slug
lang	img
url	location_name
location_address	location_city
location_state	location_country

Figure 13. Information form for new event

- When users click the “Ajouter” button, it allows users to add more information for a specified field (for example, when users click the "Ajouter event_date" button, users can add more dates that the event will take place).

The screenshot shows a form with two main sections: 'status' and 'description'. Below these sections are three buttons: '+ Ajouter EVENT_DATE' (highlighted with a red box), '+ Ajouter ORGANISME/ARTIST' (highlighted with a red box), and 'Enregistrer' (highlighted with a red box).

Figure 14. "Ajouter" and "Enregistrer" button

- Click the “Enregistrer” button at the bottom page to store new event.
4. Edit (delete or modify) an existing event

This function allows users to edit or delete an imported data. To perform this function, users follow these steps:

- Click the “Event_ID” section that belongs to a data row in the table.

The screenshot shows a table titled "Liste des événements". The table has columns: EVENT_ID, EVENT_NAME, EVENT_TYPE, and URL. The first column, EVENT_ID, contains numerical values from 0 to 7. The entire first column is highlighted with a red box. The data rows are as follows:

EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
0	Hélène Guilmaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/événements/helene-guilmaine-a-l-origine-les-deesses
1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/événements/art-1
2	Andrée Godin : Green/1	Exposition	https://dici.ca/événements/andree-godin-green-1
3	Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/événements/exposition-onde-de-choc-effluve-de-l-in
4	Sarah Seené : Fovea	Exposition	https://dici.ca/événements/exposition-fovea
5	Marie-Sol St-Onge : L'art d'avancer	Exposition	https://dici.ca/événements/l-art-d'avancer
6	Si la faune m'était sculptée - L'art animalier québécois	Exposition	https://dici.ca/événements/si-la-faune-m-était-sculptée
7	Le match parfait - Sport vs Science	Exposition	https://dici.ca/événements/le-match-parfait-sport-vs-science

Figure 15. Event ID

- The interface would switch to the “Update” page, then users can modify event information.
- Click the “Mettre à jour” button to update the event.
- Or, click the “Supprimer” button to delete the event.

status	description
<input type="text"/>	<pre><p class="c-HeaderPage__text--details -date">22 février 2022</p><p class="c-HeaderPage__text--details -below">Par Caroline Ruest</p><p>Quand vient la relâche scolaire, certains parents se mettent une pression énorme dans le seul but de combler leurs minis; d'autres</pre>
PROPRIETOR[1]	
entity_id	entity_name
<input type="text"/>	<input type="text"/> Caroline Ruest
slug	description
<input type="text"/>	<input type="text"/>
role_name	
<input type="text"/> author	
<input type="button" value="Supprimer"/> <input type="button" value="+ Ajouter PROPRIETOR"/> <input type="button" value="Mettre à jour"/> <input type="button" value="Supprimer"/> 	

Figure 16. "Mettre à jour" and "Supprimer" button

5. Delete imported files (Supprimer un fichier)

This function allows users to delete automatically a large amount of data imported from a json file or an API, instead of deleting each event. Every time users import data from a json file/an API, the system would keep track information of that json file/API and its data. To perform this function, users follow these steps:

- Click the “Supprimer un fichier” button on the navbar.

Liste des événements				Recherche de mots clés <input type="text"/>
<input type="button" value="Créer un événement"/> <input type="button" value="Importer un fichier"/> <input type="button" value="Importer un API"/> <input type="button" value="Exporter un fichier"/> <input style="background-color: red; color: white; border: 2px solid red;" type="button" value="Supprimer un fichier"/>				
EVENT_ID	EVENT_NAME	EVENT_TYPE	URL	
0	Hélène Guilmaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/evenements/helene-guilmaine-a-l-origine-les-deesses	<input type="button" value="Supprimer"/>
1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/evenements/art-1	<input type="button" value="Supprimer"/>
2	Andrée Godin : Green/1	Exposition	https://dici.ca/evenements/andree-godin-green-1	<input type="button" value="Supprimer"/>

Figure 17. "Supprimer un fichier" button

- The interface would display an information table, which includes: date and time when a json file/API was imported.
- Users define which imported json file/API they want to delete, then, click the “Afficher ce fichier” button.

Historique des importations de fichier/API - événement

The screenshot shows a table with columns: ID, SOURCE_NAME, and IMPORT_DATE. There are three rows of data:

ID	SOURCE_NAME	IMPORT_DATE	
21	events.json	2022-03-16T18:29:41.562673Z	<button>Afficher ce fichier</button>
35	https://culturemauricie.caligram.com/api/events/?page=1	2022-03-20T20:06:59.283293Z	<button>Afficher ce fichier</button>
36	events_default.json	2022-03-21T05:11:05.571242Z	<button>Afficher ce fichier</button>

At the bottom, there are navigation buttons: "Afficher 20 objets", "Précédent", "1", "Suivant".

Figure 18. Interface of "Supprimer un fichier"

- Click the “Supprimer tous” for deleting all imported data.

Tables

The screenshot shows a table with columns: ID, EVENT_ID, EVENT_NAME, EVENT_TYPE, and URL. There are seven rows of data:

ID	EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
667	0	Hélène Guilmaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/événements/helene-guilmaine-a-l-origine-les-deesses-meres
668	1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/événements/art-1
669	2	Andrée Godin : Green/1	Exposition	https://dici.ca/événements/andree-godin-green-1
670	3	Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/événements/exposition-onde-de-choc-effluve-de-l-impene-trable
671	4	Sarah Seené : Fovea	Exposition	https://dici.ca/événements/exposition-fovea
672	5	Marie-Sol St-Onge : L'art d'avancer	Exposition	https://dici.ca/événements/l-art-d-avancer
673	6	Si la faune m'était sculptée - L'art animalier québécois	Exposition	https://dici.ca/événements/si-la-faune-m-était-sculptée-l-art-animalier-québécois

At the top left, there is a red button labeled "Supprimer tous". At the top right, there is a search bar.

Figure 19. "Supprimer tous" button

6. Export events to CSV file (Exporter un fichier)

This function allows users to export imported data into a CSV file and to automatically download this file to your local computer. To perform this function, users follow these steps:

- Click the “Exporter un fichier” button, which is located on the navbar.

The screenshot shows a user interface for managing events. On the left is a sidebar with navigation links: Tableaux de bord, Gestion des données (with sub-links Événements, Articles, Activités Web), Analyse des données, Recommandation, Documentation, and Déconnexion. A blue box highlights the 'Documentation' link. Below the sidebar is a file download link: 'generatedBy_react....csv'. At the top right is a navigation bar with buttons: Crée un événement, Importer un fichier (blue), Importer un API (orange), Exporter un fichier (green, highlighted with a red box), and Supprimer un fichier (red). The main area displays a table of event data:

EVENT_ID	EVENT_NAME	EVENT_TYPE	URL
0	Hélène Guilmaine : À l'origine... les déesses-mères	Exposition	https://dici.ca/événements/hélène-guilmaine-à-lorigine-les-déeses-mères
1	Véronique Paprosky : Savoir Web	Exposition	https://dici.ca/événements/veronique-paprosky-savoir-web
2	Andrée Godin : Green/1	Exposition	https://dici.ca/événements/andrée-godin-green-1
3	Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable	Exposition	https://dici.ca/événements/suzanne-ferlandl-onde-de-choc-effluve-de-limpénétrable
4	Sarah Seené : Fovea	Exposition	https://dici.ca/événements/sarah-seéné-fovea

Figure 20. "Exporter un fichier" button

2.3 Article management

Figure 21 presents the interface of Article management. The article management module (*Gestion des données/ Articles*) allows managing article data, including:

- Create new article via article creation form
- Import data from JSON file
- Import data from API
- Export data to CSV files
- Delete an imported file

The screenshot shows a user interface for managing articles. The sidebar and navigation bar are identical to Figure 20. The main area displays a table of article data:

PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE	URL
0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées	https://dici.ca/magazine/musees/semaine-de-relâche-2022-activités-culturelles-faire-enfants-mauricie
1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène	https://dici.ca/magazine/arts-de-la-scène/thomas-gregoire-festivox-trois-rivières-musique-innovation
2	Étienne Poirier : Capteur de mots	Littérature	https://dici.ca/magazine/litterature/etienne-poirier-capteur-mots
3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle	Arts de la scène	https://dici.ca/magazine/arts-de-la-scène/album-paysage-isabelle-clermont-expérience-sonore-multisensorielle
4	La Saint-Valentin en mode mollo	Arts visuels	https://dici.ca/magazine/arts-visuels/saint-valentin-mode-mollo

Figure 21. Interface of Article Management

1. Import data from JSON File (Importer un fichier) :

This function allows users to import a large amount of article data into the system by uploading a data file with extension .json. To perform this function, users follow these steps:

- Click the “Importer un fichier” button on the navbar.

The screenshot shows the 'Articles' section of the RecomSys application. On the left is a sidebar with navigation links: Tableaux de bord, Gestion des données (selected), Événements, Articles (selected), Activités Web, and Analyse des données. The main area is titled 'Liste des articles' and contains a table with two rows of data. At the top of the table are four buttons: 'Créer un article' (black), 'Importer un fichier' (blue, highlighted with a red box), 'Importer un API' (orange), and 'Exporter un fichier' (green). A search bar 'Recherche de mots clés' is at the top right. The table has columns: PRODUCT_ID, PRODUCT_NAME, PRODUCT_TYPE, and URL. Row 0: PRODUCT_ID 0, PRODUCT_NAME 'Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie', PRODUCT_TYPE 'Musées', URL 'https://dici.ca/magazine/musees/semaine'. Row 1: PRODUCT_ID 1, PRODUCT_NAME 'Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation', PRODUCT_TYPE 'Arts de la scène', URL 'https://dici.ca/magazine/arts-de-la-scene'.

Figure 22. "Importer un fichier" button

- Click the “Télécharger un fichier” section.
- Upload a json file.

The screenshot shows the 'Importer un fichier - article' interface. It has two main sections: 'Télécharger un fichier' (with a 'Choisir un fichier de json' button) and 'Choisir un mapping template' (with a dropdown menu labeled 'Dérouler ce menu de sélection'). At the bottom is a large 'Importer' button.

Figure 23. Interface of "Importer un fichier"

- Select a mapping template (which assists to match data structure between a uploaded file and system data models) in the “Choisir un mapping template” section. Based on documents that Culture Mauricie provided, we have defined a “default” mapping template for “Article”.
- Click the “Importer” button. If there is a data duplication (duplication in article_id) or the data structure in the uploaded file does not match the mapping template, there would be an error message displayed on the interface and users need to check that error.

***Note: When the structure of uploaded json file changes, users need to notify us to update/create a mapping template.** By default, when users choose “Default” mapping template, the uploaded json file must be follow the format below:

```

[
  {
    "id": 12390,
    "name": "La poésie dans les mots de Isabelle Dumais",
    "description": "<p>Octobre est en cours et, comme autant de feuilles d'arbre qui se colorent, les mots des poètes d'parcs, cafés, restaurants, bars et salles de spectacle de Trois-Rivières, ville du Festival international de la poésie de Trois-Rivières, sont à leur tour colorés par la poésie de Isabelle Dumais. La poésie dans les mots de Isabelle Dumais est une œuvre qui explore la relation entre la poésie et la culture urbaine. L'œuvre est composée de plusieurs poèmes qui sont publiés sur un site web et qui sont également disponibles en format papier. Les poèmes sont écrits dans un style poétique et élégant, et traitent de thèmes tels que l'amour, la nature, la vie quotidienne et la culture. La poésie dans les mots de Isabelle Dumais est une œuvre qui mérite d'être connue et appréciée par tous les amateurs de poésie.", "type": "Musées",
    "image": "https://dici.php80.acostaging.com/app/uploads/2021/09/isabelle-dumais-dici.jpg",
    "url": "https://dici.php80.acostaging.com/magazine/litterature/la-poiesie-dans-les-mots-de-isabelle-dumais"
  },
  ...
],
{
  ...
},
{
  ...
},
{
  ...
},
{
  ...
},
{
  ...
}
]

```

Figure 24. Default "Article" JSON file

2. Import data from API (Importer un API)

This function allows users to import a large amount of article data based on APIs provided by organization's data providers (Caligram, etc.).

*Note: APIs for articles that Culture Mauricie provided us is currently unavailable, so users can not perform this function. However, when there are available APIs, users can perform this functions by following these steps:

- Click the “Importer un API” button on the navbar.

The screenshot shows the RecomSys application interface. On the left, there is a sidebar with navigation links: Tableaux de bord, Gestion des données (with a dropdown menu), Événements, Articles (selected), Activités Web, Analyse des données, and Recommandation. The main area is titled "Liste des articles". At the top, there are five buttons: "Créer un article" (black), "Importer un fichier" (blue), "Importer un API" (orange, highlighted with a red box), "Exporter un fichier" (green), and "Supprimer un fichier" (red). Below these buttons is a search bar labeled "Recherche de mots clés" with a magnifying glass icon. The main content area displays a table with three rows of data:

PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE	URL
0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées	https://dici.ca/magazine/musees/semaine-de-relache-2022
1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène	https://dici.ca/magazine/arts-de-la-scene-thomas-gregoire-et-le-festiwoix-de-trois-rivieres
2	Étienne Poirier : Capteur de mots	Littérature	https://dici.ca/magazine/litterature/etienne-poirier-capteur-de-mots

Figure 25. "Importer un API" button

- Enter an API url that data providers has given you (<https://dici.php80.acostaging.com/wp-json/aco/v1/articles>) in the URL section.

The screenshot shows a user interface for importing an API. At the top, it says "Importer une API - événement". There are two input fields: "URL" containing "Ex: https://dici.ca/événements/?page=1" and "Bearer Token" containing "dici". Below these is a section titled "Choisir un mapping template" with a dropdown menu showing "default". At the bottom is a large blue "Importer" button.

Figure 26. Interface of "Importer un API"

- Enter a bearerToken (a keyword used for request authentication that data providers has given you).
 - Select a mapping template (which assists to match data structure between a uploaded file and system data models) in the “Choisir un mapping template” section. By default, click the “default” option.
 - Click the “Importer” button. If there is a data duplication (duplication in event_id) or the data structure in the uploaded file does not match the mapping template, there would be an error message displayed on the interface. Therefore, users need to check that error.
3. Import data by manually inputting (Créer une article):

When the amount of imported data is not too much or there is not any available APIs/json files, the system allows users to create a new article manually and add its information (article name, article id, etc.). To perform this function, users follow these steps:

- Click the “Créer un article” button, which is located in the navbar.

The screenshot shows a dashboard titled "RecomSys". On the left, there's a sidebar with "Tableaux de bord", "Gestion des données" (selected), "Événements", "Articles" (selected), "Activités Web", and "Analyse des données". The main area is titled "Liste des articles" and shows a table with the following data:

PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE	URL
0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées	https://dici.ca/magazine/musees/semaine-de-releche-2022
1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène	https://dici.ca/magazine/arts-de-la-scene-thomas-gregoire-et-le-festi-voix-de-trois-rivieres

Figure 27. "Créer un article" button

- Fill in information fields. There are some unskippable fields that users are obliged to fill in (including: article_id, article_name, article_type, article_img, article_url).

ARTICLE

product_id	product_name
<input type="text"/>	<input type="text"/>
product_type	product_price
<input type="text"/> Dérouler ce menu de sélection	<input type="text"/>
price_type	slug
<input type="text"/>	<input type="text"/>
img	url
<input type="text"/>	<input type="text"/>
status	description
<input type="text"/>	<input type="text"/>

+ Ajouter ORGANISME/ARTIST

Enregistrer

This figure shows a form for creating a new article. It consists of several input fields arranged in pairs across two columns. The left column contains fields for product_id, product_type (with a dropdown placeholder 'Dérouler ce menu de sélection'), price_type, img, status, and a large description area. The right column contains fields for product_name, product_price, slug, url, and another large description area. Below the form are two buttons: '+ Ajouter ORGANISME/ARTIST' and 'Enregistrer'.

Figure 28. Information form for new article

- When users click the “Ajouter” button, it allow users to add more information for a specified field (for example, when users click the "Ajouter organisme/artist" button, users can add more artists/authors for this article).

status	description
<input type="text"/>	<input type="text"/>

+ Ajouter ORGANISME/ARTIST

Enregistrer

This figure shows a simplified version of the form from Figure 28, focusing on the 'status' and 'description' fields. A red box highlights the '+ Ajouter ORGANISME/ARTIST' button, which is identical to the one in Figure 28. Below it is the 'Enregistrer' button.

Figure 29. "Ajouter" and "Enregistrer" button

- Click the “Enregistrer” button at the bottom page to store new event.
4. Edit/delete an event:

This function allows users to edit or delete an imported data. To perform this function, users follow these steps:

- Click the “Product_ID” section that belongs to a data row in the table.

Liste des articles

Recherche de mots clés 

Créer un article **Importer un fichier** **Importer un API** **Exporter un fichier** **Supprimer un fichier**

PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE	URL
0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées	https://dici.ca/magazine/musees/semaine-de-relache-2022-activites-culturelles-a-faire-avec-ses-enfants-en-mauricie
1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène	https://dici.ca/magazine/arts-de-la-scene/thomas-gregoire-et-le-festiwoix-de-trois-rivieres-de-musique-et-dinnovation
2	Étienne Poirier : Capteur de mots	Littérature	https://dici.ca/magazine/litterature/etienne-poirier-capteur-de-mots
3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle	Arts de la scène	https://dici.ca/magazine/arts-de-la-scene/lalbum-paysage-disabelle-clermont-une-expérience-sonore-multisensorielle
4	La Saint-Valentin en mode mollo	Arts visuels	https://dici.ca/magazine/arts-visuels/la-saint-valentin-en-mode-mollo
5	Quoi faire en février en Mauricie	Arts de la scène	https://dici.ca/magazine/arts-de-la-scene/quoi-faire-en-fevrier-en-mauricie
6	Suzie Bergeron, quand créativité et ingéniosité se rencontrent	Arts médiatiques	https://dici.ca/magazine/arts-meditatiques/suzie-bergeron-quand-creativite-et-ingéniosité-se-rencontrent

Figure 30. Article ID column

- The interface would switch to the “Update” page, users can modify article information.

ARTICLE	product_id	product_name
	0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie
	product_type	product_price
	Musées	
	price_type	slug
		semaine-de-relache-2022-activites-culturelles-a-faire-avec-ses-enfants-en-mauricie
	img	url
	https://dici.ca/app/uploads/2022/02/enfants-dans-la-neige-dici-660x396.	https://dici.ca/magazine/musees/semaine-de-relache-activites-culturelles-a-faire-avec-ses-enfants-en-mauricie
	status	description
		<p class="c-HeaderPage__text--details -date">22 février 2022</p><p class="c-HeaderPage__text--details -below">Par Caroline Ruest</p><p>Quand vient la relâche scolaire, certains parents se mettent une pression énorme dans le seul but de combler leurs minis; d'autres

Figure 31. Update an article

- Click the “Mettre à jour” button to update.
- Or, click the “Supprimer” button to delete.

5. Delete multiple data (Supprimer un fichier)

This function allows users to delete automatically a large amount of data imported from a json file or an API, instead of deleting each event. Every time users import data from a json file/an API, the system would keep track information of that json file/API and its data. To perform this function, users follow these steps:

- Click the “Supprimer un fichier” button on the navbar.



The screenshot shows a user interface titled "Liste des articles". At the top, there are five buttons: "Créer un article" (dark blue), "Importer un fichier" (light blue), "Importer un API" (orange), "Exporter un fichier" (teal), and "Supprimer un fichier" (red, highlighted with a red box). Below the buttons is a table with four columns: PRODUCT_ID, PRODUCT_NAME, PRODUCT_TYPE, and URL. The table contains three rows of data:

PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE	URL
0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées	https://dici.ca/magazine/musees/semaine-de-releche-2022
1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène	https://dici.ca/magazine/arts-de-la-scene-thomas-gregoire-et-le-festiwoix-de-trois-rivieres
2	Étienne Poirier : Capteur de mots	Littérature	https://dici.ca/magazine/litterature/etienne-poirier-capteur-de-mots

Figure 32. "Supprimer un fichier" button

- The interface would display an information table, which includes: date and time when a json file/API was imported.
- Users define which json file/API they want to delete, then, click the “Afficher ce fichier” button.



The screenshot shows a user interface titled "Historique des importations de fichier/API - article". At the top, there is a search bar labeled "Recherche de mots clés". Below the search bar is a table with three columns: ID, SOURCE_NAME, and IMPORT_DATE. The table contains one row of data:

ID	SOURCE_NAME	IMPORT_DATE
22	products.json	2022-03-16T18:30:56.328092Z

Below the table is a button labeled "Afficher ce fichier" (highlighted with a red box). At the bottom of the page, there are navigation controls: "Afficher 20 objets" (dropdown), "Précédent" (disabled), "1" (selected), and "Suivant".

Figure 33. Interface of "Supprimer un fichier"

- Click the “Supprimer tous” for deleting all imported data.

Tables



A screenshot of a web-based table interface. At the top left is a red rectangular button labeled "Supprimer tous". To its right is a search bar with the placeholder "Recherche de mots clés" and a magnifying glass icon. The main area contains a table with columns: ID, PRODUCT_ID, PRODUCT_NAME, PRODUCT_TYPE, and URL. The data rows are as follows:

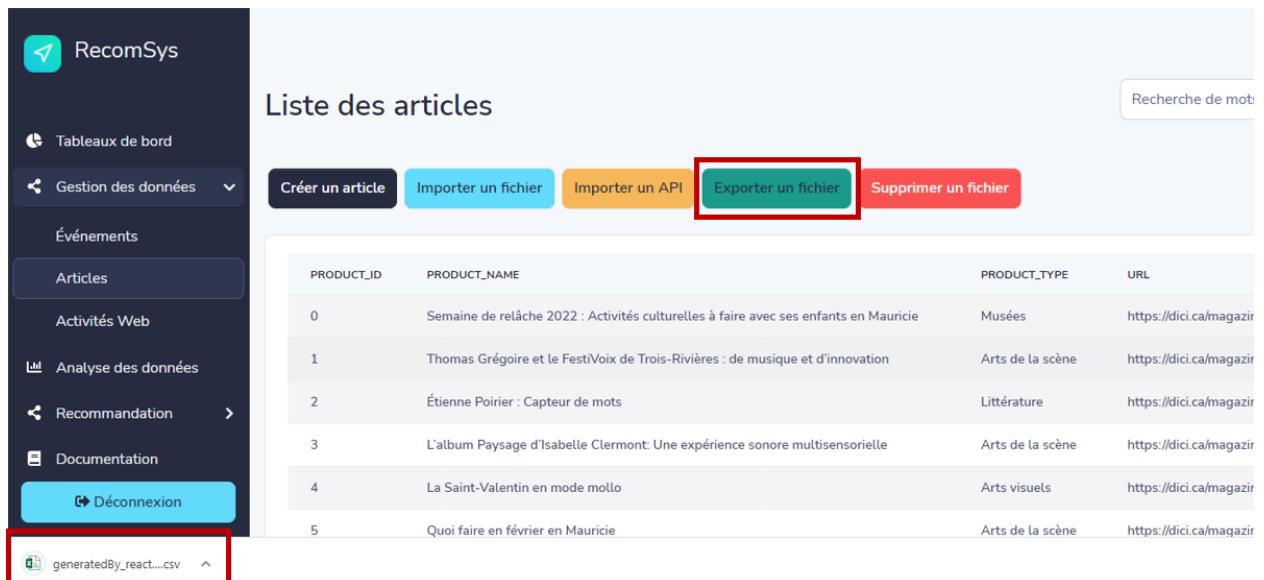
ID	PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE	URL
139	0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées	https://dici.ca/magazin...
140	1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène	https://dici.ca/magazin...
141	2	Étienne Poirier : Capteur de mots	Littérature	https://dici.ca/magazin...
142	3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle	Arts de la scène	https://dici.ca/magazin...
143	4	La Saint-Valentin en mode mollo	Arts visuels	https://dici.ca/magazin...
144	5	Quoi faire en février en Mauricie	Arts de la scène	https://dici.ca/magazin...
145	6	Suzie Bergeron, quand créativité et ingéniosité se rencontrent	Arts médiatiques	https://dici.ca/magazin...
146	7	Eliane Ste-Marie: Portrait d'une brodeuse non conventionnelle	Métiers d'art	https://dici.ca/magazin...

Figure 34. "Supprimer tous" button

6. Export article (Exporter un fichier) :

This function allows users to export imported data into a CSV file and to automatically download this file to your local computer. To perform this function, users follow these steps:

- Click the “Exporter un fichier” button, which is located on the navbar.



A screenshot of a dashboard titled "RecomSys". The left sidebar includes links for "Tableaux de bord", "Gestion des données", "Événements", "Articles" (which is highlighted), "Activités Web", "Analyse des données", "Recommandation", "Documentation", and "Déconnexion". The main content area is titled "Liste des articles" and shows a table with columns: PRODUCT_ID, PRODUCT_NAME, PRODUCT_TYPE, and URL. The data rows are as follows:

PRODUCT_ID	PRODUCT_NAME	PRODUCT_TYPE	URL
0	Semaine de relâche 2022 : Activités culturelles à faire avec ses enfants en Mauricie	Musées	https://dici.ca/magazin...
1	Thomas Grégoire et le FestiVoix de Trois-Rivières : de musique et d'innovation	Arts de la scène	https://dici.ca/magazin...
2	Étienne Poirier : Capteur de mots	Littérature	https://dici.ca/magazin...
3	L'album Paysage d'Isabelle Clermont: Une expérience sonore multisensorielle	Arts de la scène	https://dici.ca/magazin...
4	La Saint-Valentin en mode mollo	Arts visuels	https://dici.ca/magazin...
5	Quoi faire en février en Mauricie	Arts de la scène	https://dici.ca/magazin...

At the bottom left, there is a download manager window with a file named "generatedBy_react....csv" highlighted with a red box.

Figure 35. "Exporter un fichier" button

2.4 Web activity management

The web activity management module (*Gestion des données/ Activités Web*) allows managing web activities, including (cf. Figure 36):

- Import data from JSON file
- Import data from API
- Export data to CSV File
- Delete an imported file
- Import data from Google Analytics

The screenshot shows the RecomSys application interface. On the left, there is a dark sidebar with the RecomSys logo at the top. Below it are several navigation items: 'Tableaux de bord', 'Gestion des données' (with a dropdown arrow), 'Événements', 'Articles', 'Activités Web' (which is highlighted in blue), 'Analyse des données', 'Recommandation' (with a right-pointing arrow), and 'Documentation'. At the bottom of the sidebar is a blue button labeled 'Déconnexion'. The main content area has a light background. At the top, there is a header with the text 'Liste des activités' and a search bar with the placeholder 'Recherche de mots clés' and a magnifying glass icon. Below the header is a row of buttons: 'Importer un fichier' (blue), 'Importer un API' (orange), 'Importer GA' (dark blue), 'Exporter un fichier' (green), and 'Supprimer un fichier' (red). The main area contains a table with the following data:

SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_LOCATION
1645637556	2022-01-01	user_engagement	https://dici.ca/magazine/arts-visuels/catherine-bard-quand-l-illustration-et-la-nature-se-rencontrent
1645636042	2022-01-01	session_start	https://dici.ca/evénements/michel-barrette-l-humour-de-ma-vie-4
1645637204	2022-01-01	session_start	https://dici.ca/événements/olivier-martineau-au-théâtre-du-cegep-de-trois-rivières-1
1645637421	2022-01-01	page_view	https://dici.ca/magazine/arts-visuels/5-artistes-de-performance-de-la-mauricie-a-surveiller
1645636826	2022-01-01	user_engagement	https://dici.ca/événements/arnaud-soly-stand-up-4
1645637712	2022-01-01	page_view	https://dici.ca/événements/roch-voisine-americana-10-ans
1645637118	2022-01-01	page_view	https://dici.ca/magazine/arts-mediatiques/suzie-bergeron-quand-la-creativité-et-lingeniosité-se-rencontrent
1645637181	2022-01-01	scroll	https://dici.ca/magazine/arts-visuels/quoi-faire-en-novembre-en-mauricie
1645636288	2022-01-01	page_view	https://dici.ca/événements/gijs-van-bon-état-ephémère-imperceptible-immatériel-ineluctable-1
1645635985	2022-01-01	page_view	https://dici.ca/magazine/arts-visuels/la-saint-valentin-en-mode-mollo

Figure 36. Interface of Web Activity Management

1. Import data from JSON File (Importer un fichier) :

This function allows users to import a large amount of web activity data into the system by uploading a data file with extension .json. To perform this function, users follow these steps:

- Click the “Importer un fichier” button on the navbar.

The screenshot shows the RecomSys application's 'Liste des activités' (List of Activities) page. On the left, there is a sidebar with navigation links: 'Tableaux de bord', 'Gestion des données' (with sub-links 'Événements', 'Articles', 'Activités Web'), and 'Analyse des données'. The 'Activités Web' link is currently selected. At the top right, there is a search bar labeled 'Recherche de mots clés' and a user icon labeled 'root'. Below the sidebar, there is a row of buttons: 'Importer un fichier' (highlighted with a red box), 'Importer un API', 'Importer GA', 'Exporter un fichier', and 'Supprimer un fichier'. A table below these buttons displays two rows of data:

SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_LOCATION
1645637556	2022-01-01	user_engagement	https://dici.ca/magazine/arts-visuels/catherine-bard-quand-l-illustration-et-la-nature-se-rencontrent
1645636042	2022-01-01	session_start	https://dici.ca/evenements/michel-barrette-l-humour-de-ma-vie-4

Figure 37. "Importer un fichier" button

- Click the “Télécharger un fichier” section.
- Upload a json file.

The screenshot shows the 'Importer un fichier - activité' (Import file - activity) interface. It has two main sections: 'Télécharger un fichier' (Download a file) and 'Choisir un mapping template' (Select a mapping template). The 'Télécharger un fichier' section contains a button 'Choisir un fichier de json'. The 'Choisir un mapping template' section contains a dropdown menu with the option 'Dérouler ce menu de sélection' (Expand this selection menu) and a button 'Importer' (Import) below it.

Figure 38. Interface of "Importer un fichier"

- Select a mapping template (which assists to match data structure between a uploaded file and system data models) in the “Choisir un mapping template” section. We have defined a “default” mapping template for “Web Activity”.
- Click the “Importer” button. If there is a data duplication or the data structure in the uploaded file does not match the mapping template, there would be an error message displayed on the interface and users need to check that error.

***Note: When the structure of uploaded json file changes, users need to notify us to update/create a mapping template.** By default, when users choose “Default” mapping template, the uploaded json file must be follow the format below:

```

[
  {
    "event_date": "20220101",
    "event_timestamp": "1641066871",
    "event_name": "user_engagement",
    "event_params": [
      {
        "key": "ga_session_id",
        "value": {
          "string_value": null,
          "int_value": "1645637556",
          "float_value": null,
          "double_value": null
        }
      },
      {
        "key": "page_location",
        "value": {
          "string_value": "https://dici.ca/magazine/arts-visuels/catherine-bard-quand-l-illustration-et-la-nature-se-rencontrent",
          "int_value": null,
          "float_value": null,
          "double_value": null
        }
      }
    ],
    "user_id": "97",
    "device": {
      "category": "tablet",
      "mobile_brand_name": "LG",
      "mobile_model_name": "Galaxy",
      "operating_system": "Macintosh",
      "web_info": {
        "browser": "Safari"
      }
    },
    "geo": [
      {
        "continent": "Europe",
        "country": "France",
        "region": "",
        "city": "Lyon"
      }
    ],
    "traffic_source": {
      "name": "Youtube"
    }
  },
  {}
]

```

Figure 39. Default "Web activities" JSON file

2. Import data from API (Importer un API)

This function allows users to import a large amount of event data based on APIs provided by organization's data providers (Caligram, etc.).

*Note: APIs for web activities is currently not provided by Culture Mauricie, so users can not perform this function. However, when there are available APIs, users can perform this functions by following these steps:

- Click the “Importer un API” button on the navbar.

The screenshot shows the RecomSys platform's main dashboard. On the left, there is a sidebar with navigation links: Tableaux de bord, Gestion des données (with a dropdown menu for Événements, Articles, Activités Web, and Analyse des données), and a search bar labeled 'Recherche'. The main area is titled 'Liste des activités' and contains several buttons: 'Importer un fichier' (blue), 'Importer un API' (yellow, highlighted with a red box), 'Importer GA' (dark blue), 'Exporter un fichier' (green), and 'Supprimer un fichier' (red). Below these buttons is a table with four columns: SESSION_ID, VISIT_DATE, EVENT_NAME, and PAGE_LOCATION. Two rows of data are visible:

SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_LOCATION
1645637556	2022-01-01	user_engagement	https://dici.ca/magazine/arts-visuels/catherine-bard-quand-l-illustration-et-la-nature
1645636042	2022-01-01	session_start	https://dici.ca/evenements/michel-barrette-l-humour-de-ma-vie-4

Figure 40. "Importer un API" button

- Enter an API url that data providers has given you in the URL section.

This screenshot shows the 'Importer une API - événement' interface. It includes fields for 'URL' (containing 'Ex: https://dici.ca/événements/?page=1') and 'Bearer Token' (containing 'dici'). Below these fields is a section titled 'Choisir un mapping template' with a dropdown menu showing 'default'. At the bottom is a large 'Importer' button.

Figure 41. Interface of "Importer un API"

- Enter a bearerToken (a keyword used for request authentication that data providers has given you).
- Select a mapping template (which assists to match data structure between a uploaded file and system data models) in the “Choisir un mapping template” section. By default, click “default”.
- Click the “Importer” button. If there is a data duplication (duplication in event_id) or the data structure in the uploaded file does not match the mapping template, there would be an error message displayed on the interface and users need to check that error.

3. Delete multiple data (Supprimer un fichier)

This function allows users to delete automatically a large amount of data imported from a json file or an API. Every time users import data from a json file/an API, the system would keep track information of that json file/API and its data. To perform this function, users follow these steps:

- Click the “Supprimer un fichier” button on the navbar.

The screenshot shows a user interface titled "Liste des activités". At the top, there are five buttons: "Importer un fichier" (blue), "Importer un API" (orange), "Importer GA" (black), "Exporter un fichier" (green), and "Supprimer un fichier" (red, highlighted with a red box). Below the buttons is a table with four columns: SESSION_ID, VISIT_DATE, EVENT_NAME, and PAGE_LOCATION. The table contains three rows of data:

SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_LOCATION
1645637556	2022-01-01	user_engagement	https://dici.ca/magazine/arts-visuels/catherine-bard-quand-l-illustration-et-la-nature-se-rencontre
1645636042	2022-01-01	session_start	https://dici.ca/evenements/michel-barrette-l-humour-de-ma-vie-4
1645637204	2022-01-01	session_start	https://dici.ca/evenements/olivier-martineau-au-theatre-du-cegep-de-trois-rivieres-1

Figure 42. "Supprimer un fichier" button

- The interface would display an information table, which includes: date and time when a json file/API was imported.
- Users define which json file/API they want to delete, then, click the “Afficher ce fichier” button.

The screenshot shows a user interface titled "Historique des importations de fichier/API - activité". At the top, there is a search bar labeled "Recherche de mots clés". Below the search bar is a table with three columns: ID, SOURCE_NAME, and IMPORT_DATE. The table contains one row of data:

ID	SOURCE_NAME	IMPORT_DATE
23	dataset.json	2022-03-16T18:33:00.194996Z

At the bottom of the table, there is a button labeled "Afficher ce fichier" (highlighted with a red box). Below the table are navigation controls: "Afficher 20 objets" with a dropdown arrow, "Précédent", a page number "1", and "Suivant".

Figure 43. Interface of "Supprimer un fichier"

- Click the “Supprimer tous” for deleting all imported data.

The screenshot shows a user interface titled "Tables". At the top, there is a search bar labeled "Recherche de mots clés" and a red button labeled "Supprimer tous" (highlighted with a red box). Below the search bar is a table with five columns: ID, SESSION_ID, VISIT_DATE, EVENT_NAME, and PAGE_LOCATION. The table contains three rows of data:

ID	SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_LOCATION
10801	1645637556	2022-01-01	user_engagement	https://dici.ca/magazine/arts-visuels/catherine-bard-quand-l-illustration-et-la-nature-se-rencontre
10802	1645636042	2022-01-01	session_start	https://dici.ca/evenements/michel-barrette-l-humour-de-ma-vie-4
10803	1645637204	2022-01-01	session_start	https://dici.ca/evenements/olivier-martineau-au-theatre-du-cegep-de-trois-rivieres-1

Figure 44. "Supprimer tous" button

4. Export web-activities (Exporter un fichier) :

This function allows users to export imported data into a CSV file and to automatically download this file to your local computer. To perform this function, users follow these steps:

- Click the “Exporter un fichier” button, which is located on the navbar.

The screenshot shows the RecomSys application interface. On the left is a dark sidebar with various navigation options: Tableaux de bord, Gestion des données (with a dropdown menu for Événements, Articles, and Activités Web), Analyse des données, Recommandation, Documentation, and Déconnexion. Below the sidebar, there is a red box highlighting a file named "generatedBy_react....csv". The main content area has a title "Liste des activités". Below the title is a row of buttons: Importer un fichier (blue), Importer un API (orange), Importer GA (dark blue), Exporter un fichier (green, highlighted with a red box), and Supprimer un fichier (red). A table follows, showing five rows of activity data with columns: SESSION_ID, VISIT_DATE, EVENT_NAME, and PAGE_LOCATION. The first row's details are: SESSION_ID 1645637556, VISIT_DATE 2022-01-01, EVENT_NAME user_engagement, PAGE_LOCATION https://dici.ca/magazine/arts-visuels/catherine-bard-quan. The last row's details are: SESSION_ID 1645637742, VISIT_DATE 2022-01-01, EVENT_NAME user_engagement, PAGE_LOCATION https://dici.ca/evenements/arnaud-soly-stand-up-4.

SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_LOCATION
1645637556	2022-01-01	user_engagement	https://dici.ca/magazine/arts-visuels/catherine-bard-quan
1645636042	2022-01-01	session_start	https://dici.ca/evenements/michel-barrette-l-humour-de-i
1645637204	2022-01-01	session_start	https://dici.ca/evenements/olivier-martineau-au-theatre-c
1645637421	2022-01-01	page_view	https://dici.ca/magazine/arts-visuels/5-artistes-de-perfor
1645636826	2022-01-01	user_engagement	https://dici.ca/evenements/arnaud-soly-stand-up-4

Figure 45. "Exporter un fichier" button

5. Import data from Google Analytics (Importer GA)

Google Analytics is a web analytics service that tracks and reports website traffic by embedding tracking code into websites. Synchronizing data with Google Analytics allows users to query reports that Google Analytics has collected from visitors of your website. These reports provide important information about the number of visitors' web activities by day, by page location, by activity types, by country, by device, etc. This information, especially the number of visitors for a specified page location, is really essential for recommendation, because it allows to find most popular events/pages that most of visitors viewed.

Import data from Google Analytics means that you import all Google Analytics reports about your website into the recommendation system. It requires your website to be linked with Google Analytics (it means that your website has been embedded tracking

codes and there have been available reports in your organization's Google Analytics account). Furthermore, for the recommendation system to be able to query tracked data from Google Analytics, your organization needs to create a Google Analytics Service Account and then, enabling Google Analytics API. Google Analytics API is a function that allows Service Accounts to query data through APIs (without through the Google Analytics user interface). You need to save the created Service Account information, which includes: the version of Google Analytics (GA4 or UA), the view_id/property_id (view/property is a place in an Google Analytics account where you can view reports of a specified website) and the json key file (Google Analytics uses this file for API authentication when the recommendation system connects to GA for querying data).

5.1. Create Service Account and Enable Google Analytics APIs

The following section shows users how to create a Google Analytics Service Account and to enable the Google Analytics API:

- Open the Service Accounts page (<https://console.developers.google.com/iam-admin/serviceaccounts>). If prompted, select a Google Analytics project (the project that integrates with your website).

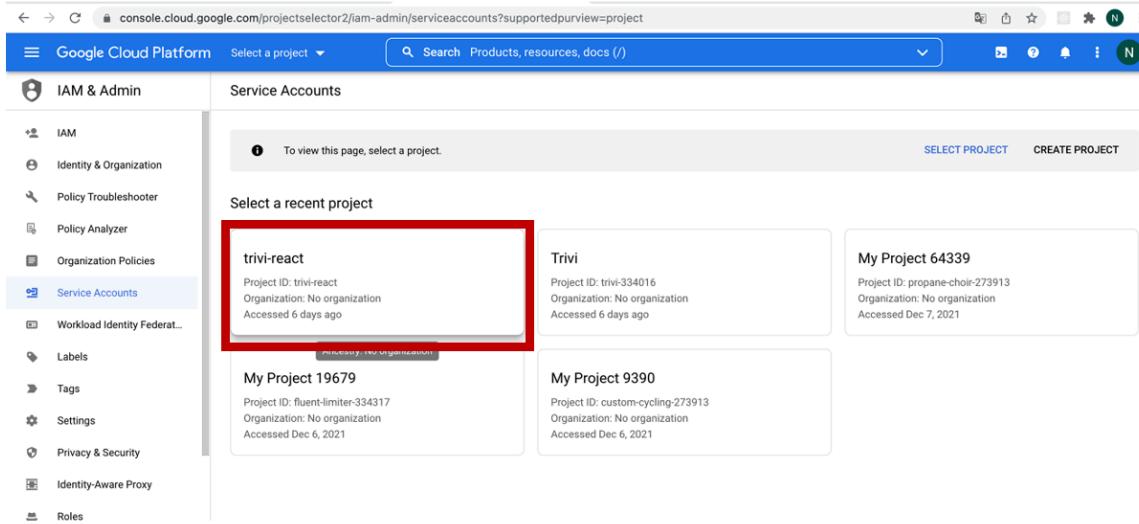


Figure 46. Interface of Service Account page

- Click add “Create Service Account” tab.

The screenshot shows the Google Cloud Platform IAM & Admin Service accounts page. On the left, there's a sidebar with various options like IAM, Identity & Organization, Policy Troubleshooter, etc. The main area shows a list of service accounts for the project "trivi-react". At the top right, there are buttons for DELETE, MANAGE ACCESS, and REFRESH. A prominent red box highlights the "+ CREATE SERVICE ACCOUNT" button. Below it, the list of existing service accounts includes entries like "culturemauricie@trivi-react.iam.gserviceaccount.com", "dima-818@trivi-react.iam.gserviceaccount.com", and "firebase-measurement-system-gs@trivi-react.iam.gserviceaccount.com".

Figure 47. "Create service account" button

- Enter a name and description for the service account. You can use the default service account ID, or choose a different, unique one.

1 Service account details

Service account name
trivi

Display name for this service account

Service account ID *
trivi-67 @trivi-react.iam.gserviceaccount.com X C

Service account description

Describe what this service account will do

CREATE AND CONTINUE

2 Grant this service account access to project (optional)

3 Grant users access to this service account (optional)

DONE **CANCEL**

Figure 48. Information for new service account

- Next, at the step 2 “Grant this service account access to project”, you choose the role “Viewer”. Then, click continue.

2 Grant this service account access to project
(optional)

Grant this service account access to trivi-react so that it has permission to complete specific actions on the resources in your project. [Learn more](#)

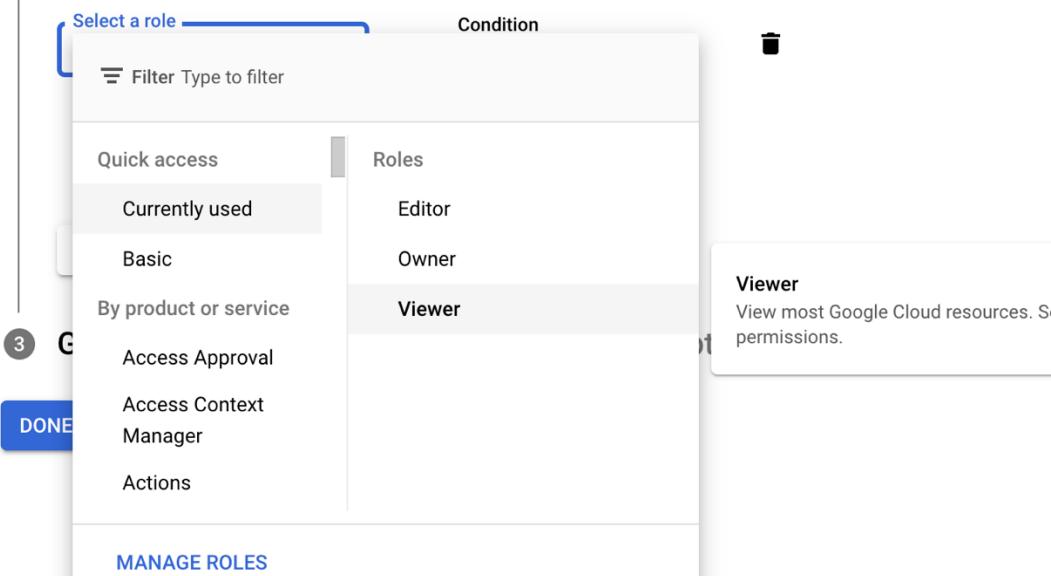


Figure 49. Account permission

- Next, skip the step 3 on the screen and then click “Done” to finish creating new Service Account.

3 Grant users access to this service account (optional)

Grant access to users or groups that need to perform actions as this service account. [Learn more](#)

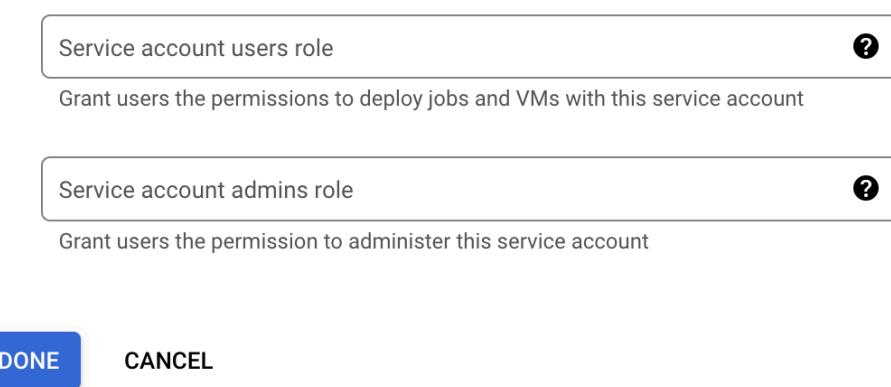


Figure 50. Insert user access to service account

- Now, you would be returned to the Main Panel. It would show you email information of the new account. **You must keep this email since you would use it for next steps.**

Service accounts																																															
		+ CREATE SERVICE ACCOUNT		DELETE	MANAGE ACCESS																																										
Service accounts for project "trivi-react"																																															
A service account represents a Google Cloud service identity, such as code running on Compute Engine VMs, App Engine apps, or systems running outside Google. Learn more about service accounts.																																															
Organization policies can be used to secure service accounts and block risky service account features, such as automatic IAM Grants, key creation/upload, or the creation of service accounts entirely. Learn more about service account organization policies.																																															
<div style="display: flex; justify-content: space-between;"> Filter <input type="text" value="Enter property name or value"/> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Email</th> <th>Status</th> <th>Name </th> <th>Description</th> <th>Key ID</th> <th>Action</th> </tr> </thead> <tbody> <tr> <td>culturemauricie@trivi-react.iam.gserviceaccount.com</td> <td></td> <td>culturemauricie</td> <td></td> <td>038593a2ad57a0d74146786e202bb4fd6ef3c8c</td> <td></td> </tr> <tr> <td>dima-818@trivi-react.iam.gserviceaccount.com</td> <td></td> <td>dima</td> <td>No keys</td> <td></td> <td></td> </tr> <tr> <td>dimalab@trivi-react.iam.gserviceaccount.com</td> <td></td> <td>dimalab</td> <td></td> <td>c7f0fec370604902f3069643b7c212431ab38e</td> <td></td> </tr> <tr> <td>firebase-measurement-system-gs@trivi-react.iam.gserviceaccount.com</td> <td></td> <td>firebase-measurement</td> <td>GA4-BigQuery</td> <td>No keys</td> <td></td> </tr> <tr> <td>recommendation@trivi-react.iam.gserviceaccount.com</td> <td></td> <td>recommendation</td> <td></td> <td>bc0bb52e38cccad825d4e2bd404635b9e53955</td> <td></td> </tr> <tr> <td>trivi-67@trivi-react.iam.gserviceaccount.com</td> <td></td> <td>trivi</td> <td>No keys</td> <td></td> <td></td> </tr> </tbody> </table>						Email	Status	Name	Description	Key ID	Action	culturemauricie@trivi-react.iam.gserviceaccount.com		culturemauricie		038593a2ad57a0d74146786e202bb4fd6ef3c8c		dima-818@trivi-react.iam.gserviceaccount.com		dima	No keys			dimalab@trivi-react.iam.gserviceaccount.com		dimalab		c7f0fec370604902f3069643b7c212431ab38e		firebase-measurement-system-gs@trivi-react.iam.gserviceaccount.com		firebase-measurement	GA4-BigQuery	No keys		recommendation@trivi-react.iam.gserviceaccount.com		recommendation		bc0bb52e38cccad825d4e2bd404635b9e53955		trivi-67@trivi-react.iam.gserviceaccount.com		trivi	No keys		
Email	Status	Name	Description	Key ID	Action																																										
culturemauricie@trivi-react.iam.gserviceaccount.com		culturemauricie		038593a2ad57a0d74146786e202bb4fd6ef3c8c																																											
dima-818@trivi-react.iam.gserviceaccount.com		dima	No keys																																												
dimalab@trivi-react.iam.gserviceaccount.com		dimalab		c7f0fec370604902f3069643b7c212431ab38e																																											
firebase-measurement-system-gs@trivi-react.iam.gserviceaccount.com		firebase-measurement	GA4-BigQuery	No keys																																											
recommendation@trivi-react.iam.gserviceaccount.com		recommendation		bc0bb52e38cccad825d4e2bd404635b9e53955																																											
trivi-67@trivi-react.iam.gserviceaccount.com		trivi	No keys																																												

Figure 51. List of service accounts

- Next, click the “Keys” tab, to create a new json key file. At the “ADD KEY” section, click the “Create new key” section.

DETAILS	PERMISSIONS	KEYS	METRICS	LOGS
<h3>Keys</h3> <div style="background-color: #f0f0f0; padding: 10px; margin-bottom: 10px;"> Service account keys could pose a security risk if compromised. We recommend you avoid down can learn more about the best way to authenticate service accounts on Google Cloud here. </div> <p>Add a new key pair or upload a public key certificate from an existing key pair.</p> <p>Block service account key creation using organization policies. Learn more about setting organization policies for service accounts</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <div style="background-color: #fff; padding: 5px; border-bottom: 1px solid #ccc; margin-bottom: 5px;"> ADD KEY </div> <div style="background-color: #fff; padding: 5px;"> Create new key </div> <div style="background-color: #fff; padding: 5px;"> Upload existing key </div> </div>				

Figure 52. Create a json key file

- Next, a modal would be displayed on the screen, choose “JSON” for key file type and then click “Create”. A JSON key file would be then downloaded on your computer, please keep this file for next steps.

Create private key for "trivi"

Downloads a file that contains the private key. Store the file securely because this key can't be recovered if lost.

Key type

JSON

Recommended

P12

For backward compatibility with code using the P12 format

CANCEL CREATE

Figure 53. Choices of key file

- Next, on the search bar, enter “Google Analytics API”. Click the first result.

The screenshot shows a search results page for 'Google Analytics API'. On the left, there are filters for 'Resource containers' (Organization, Folder, Project) and 'Resource types' (App Engine Version, Backend bucket). The main area displays search results for 'Google Analytics API', showing 30 of 117 results. The top result is 'API Google Analytics API', which is described as providing access to Analytics configuration and report data. It shows the type as API and the producer as Google. The 'Enable' button is visible on the right side of the result card.

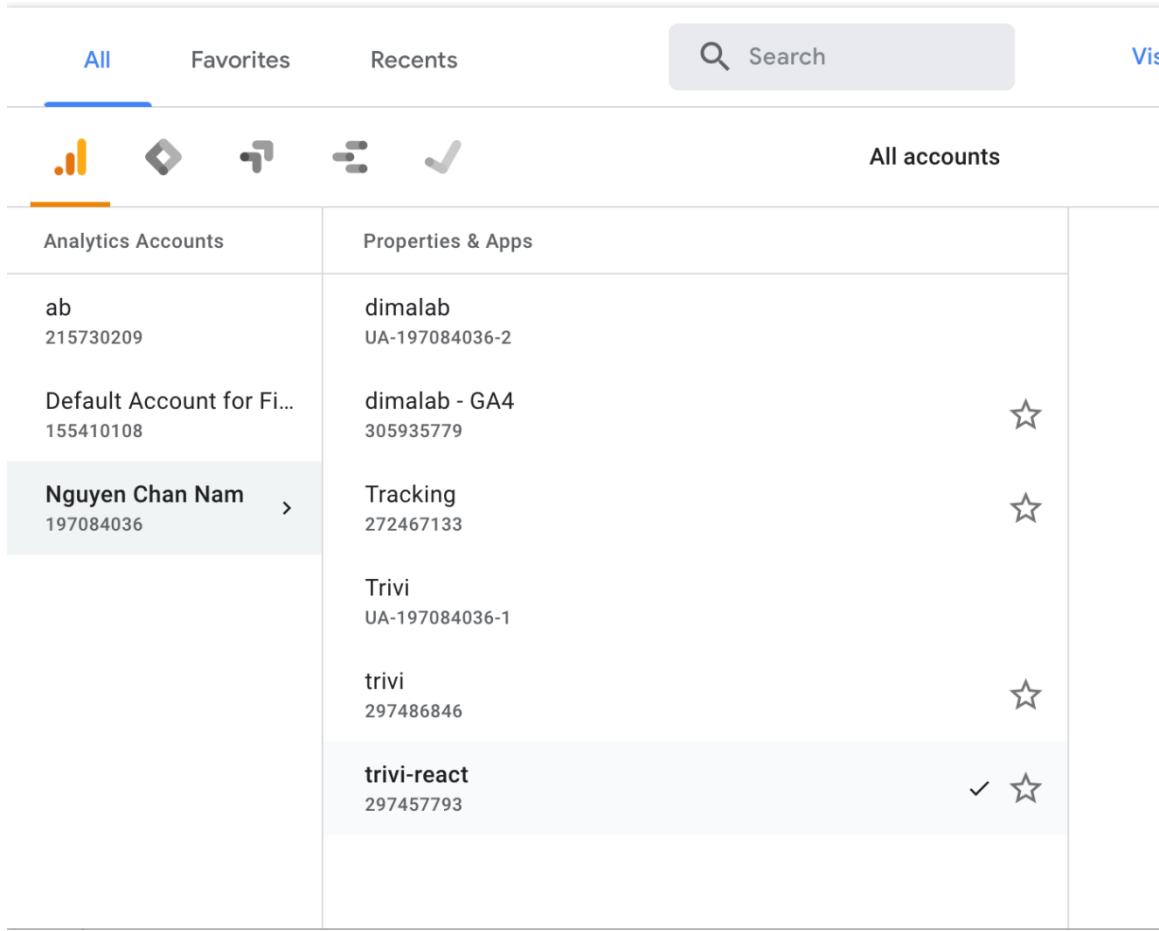
Figure 54. Search "Google Analytics API"

- Click the “Enable” button to allow data collection from Google Analytics through APIs.

The screenshot shows the 'Google Analytics API' enablement page. It features the Google Analytics logo (orange bars) and the title 'Google Analytics API'. Below the title, it says 'The Analytics API provides access to Analytics configuration and report data.' There are three buttons at the bottom: 'MANAGE' (blue), 'TRY THIS API' (white with blue text), and 'API Enabled' (green with a checkmark).

Figure 55. Enable Google Analytics API

- Next, you access to the url “<https://analytics.google.com/analytics/web>” and then, click on a Google Analytics project that integrated with your website.



The screenshot shows the Google Analytics Admin interface. At the top, there are tabs for 'All', 'Favorites', and 'Recents', followed by a search bar and a 'Vis' button. Below the header are five icons: a bar chart, a diamond, a funnel, a gear, and a checkmark. To the right of these icons is the text 'All accounts'. The main area is a table with two columns: 'Analytics Accounts' and 'Properties & Apps'. The 'Analytics Accounts' column lists 'ab' (215730209), 'Default Account for Fi...' (155410108), and 'Nguyen Chan Nam' (197084036). The 'Properties & Apps' column lists properties for each account: 'dimalab' (UA-197084036-2), 'dimalab - GA4' (305935779) with a star icon, 'Tracking' (272467133) with a star icon, 'Trivi' (UA-197084036-1), 'trivi' (297486846) with a star icon, and 'trivi-react' (297457793) with a checked star icon.

Analytics Accounts	Properties & Apps
ab 215730209	dimalab UA-197084036-2
Default Account for Fi... 155410108	dimalab - GA4 305935779
Nguyen Chan Nam > 197084036	Tracking 272467133
	Trivi UA-197084036-1
	trivi 297486846
	trivi-react 297457793

Figure 56. Interface of Google Analytics

- Then, click the “Admin” button at the left bottom page. If your Google Analytics project uses GA4 version, the screen would appear only 2 columns “Account” and “Property”. Otherwise, if your GA project uses UA version, the screen would appear 3 columns “Account”, “Property” and “View”.

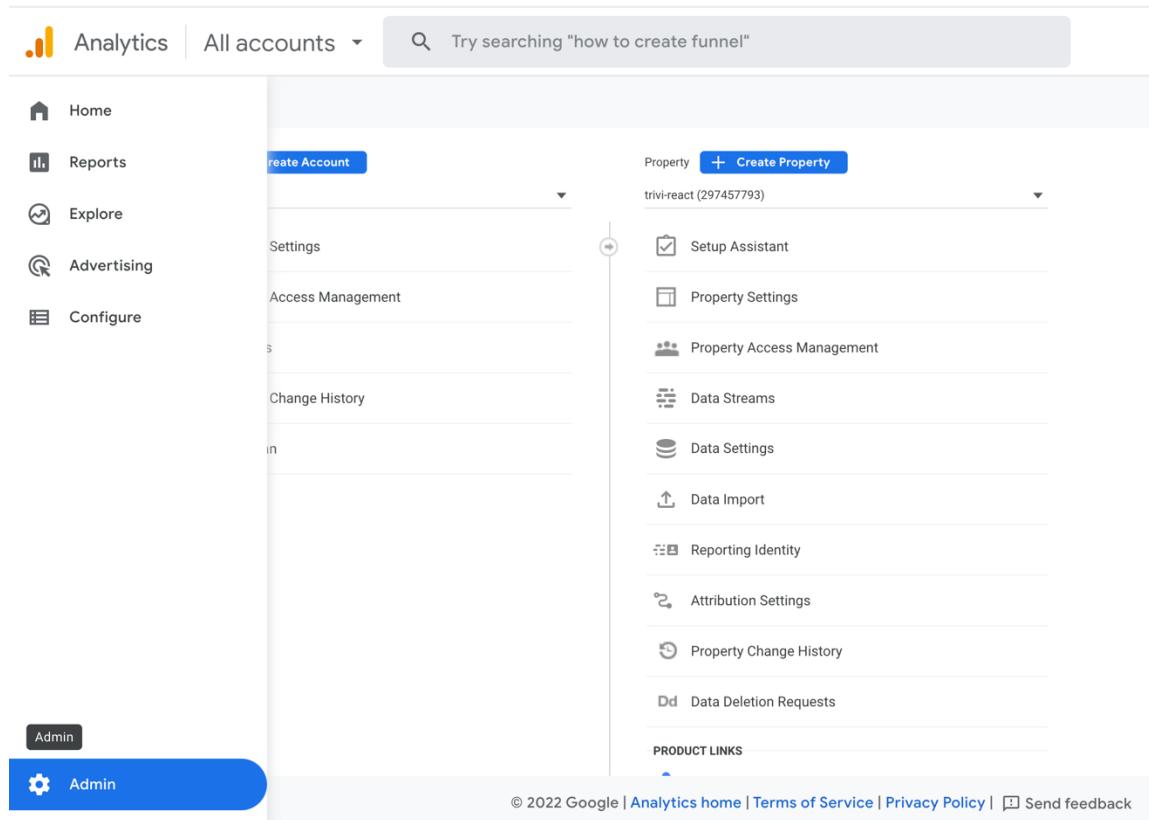


Figure 57. Google Analytics Admin Interface

- To get your GA project property ID/view ID, click the “Property settings” or “View settings” section, depending on your project version. The property ID or view ID appears on the right top page.

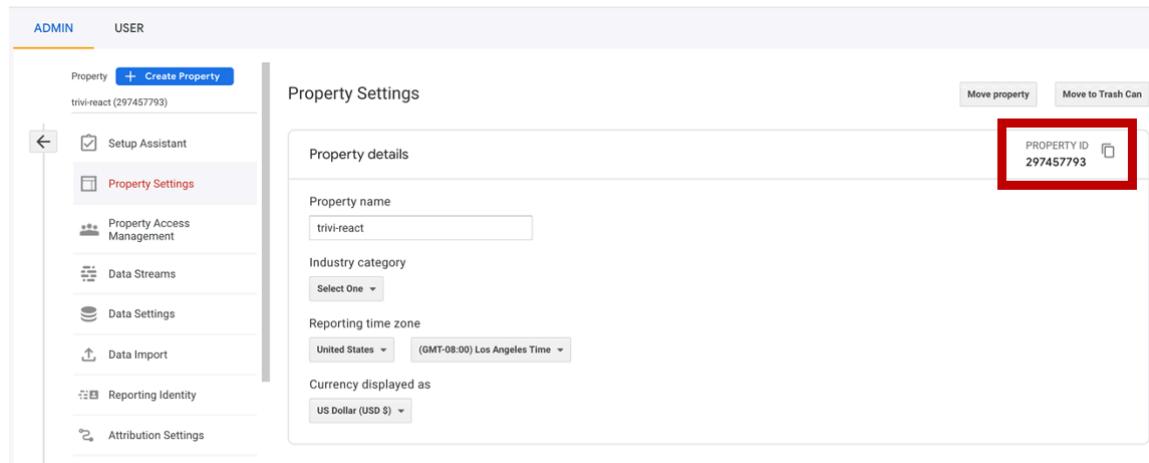
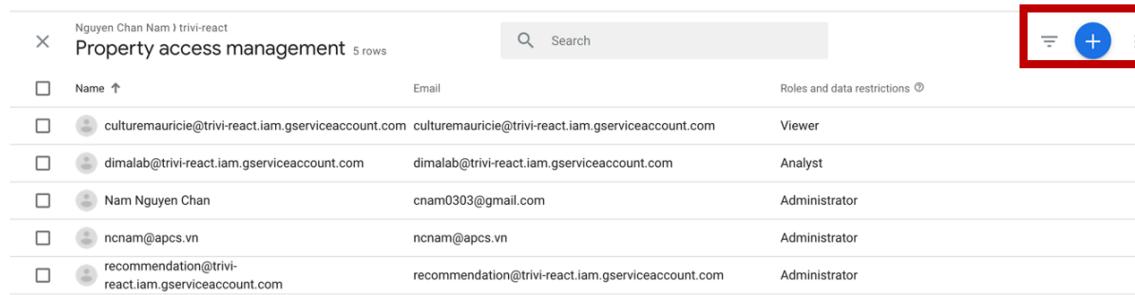


Figure 58. Property ID / View ID

- Next, click the “Property Access Management” or “View Access Management” section on the “Property” or “View” column.

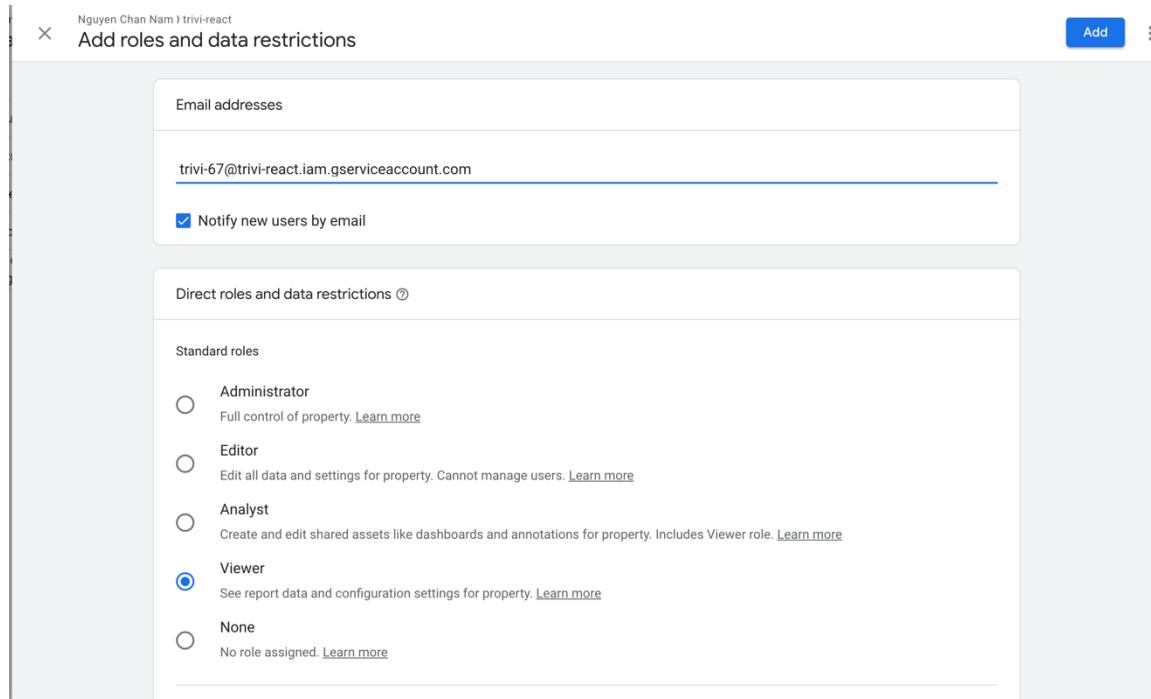
- Next, click the (+) button in order to add permissions for the created service account.



Property access management		
Name	Email	Roles and data restrictions
culturemauricie@trivi-react.iam.gserviceaccount.com	culturemauricie@trivi-react.iam.gserviceaccount.com	Viewer
dimalab@trivi-react.iam.gserviceaccount.com	dimalab@trivi-react.iam.gserviceaccount.com	Analyst
Nam Nguyen Chan	cnam0303@gmail.com	Administrator
ncnam@apcs.vn	ncnam@apcs.vn	Administrator
recommendation@trivi-react.iam.gserviceaccount.com	recommendation@trivi-react.iam.gserviceaccount.com	Administrator

Figure 59. Add service account to access to Property/View

- Then, let the service account email in the “email addresses” field. For the standard roles, select the “Viewer” role and then clicking “Add” button to finish.



Nguyen Chan Nam | trivi-react

Add roles and data restrictions

Email addresses

trivi-67@trivi-react.iam.gserviceaccount.com

Notify new users by email

Direct roles and data restrictions

Standard roles

- Administrator
- Full control of property. [Learn more](#)
- Editor
- Edit all data and settings for property. Cannot manage users. [Learn more](#)
- Analyst
- Create and edit shared assets like dashboards and annotations for property. Includes Viewer role. [Learn more](#)
- Viewer
- See report data and configuration settings for property. [Learn more](#)
- None
- No role assigned. [Learn more](#)

Figure 60. Add permission for service account

This section has shown users how to create a Service Account to collect Google Analytics reports via APIs. All information about Google Analytics version, view ID or property ID and json key file need to be saved carefully since users would use them for next functions.

5.2. Synchronize Google Analytics data:

To perform this function, users follows these steps:

- Click the “Gestion des données” and then “Activités Web” on the left side bar.

The screenshot shows the RecomSys interface with a dark blue sidebar and a light gray main content area. The sidebar has a logo at the top, followed by navigation items: "Tableaux de bord", "Gestion des données" (with a dropdown arrow), "Événements", "Articles", "Activités Web" (which is highlighted with a blue background), and "Analyse des données". The main content area has a title "Liste des activités". Below it is a table with columns: SESSION_ID, VISIT_DATE, EVENT_NAME, and PAGE_LOCATION. There are two rows of data:

SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_LOCATION
1645637556	2022-01-01	user_engagement	https://dici.ca/magazine/arts-visuels/catherine-bard-qua
1645636042	2022-01-01	session_start	https://dici.ca/evenements/michel-barrette-l-humour-de

Figure 61. Interface of "Web activities" Management

- Click the “Importer GA” button on the navbar.

The screenshot shows the RecomSys interface with a dark blue sidebar and a light gray main content area. The sidebar has a logo at the top, followed by navigation items: "Tableaux de bord", "Gestion des données" (with a dropdown arrow), "Événements", "Articles", "Activités Web" (which is highlighted with a blue background), and "Analyse des données". The main content area has a title "Liste des activités". Below it is a table with columns: SESSION_ID, VISIT_DATE, EVENT_NAME, and PAGE_LOCATION. There are three rows of data. The "Importer GA" button in the toolbar is highlighted with a red box.

SESSION_ID	VISIT_DATE	EVENT_NAME	PAGE_LOCATION
1645637556	2022-01-01	user_engagement	https://dici.ca/magazine/arts-visuels/catherine-bard-qua
1645636042	2022-01-01	session_start	https://dici.ca/evenements/michel-barrette-l-humour-de
1645637204	2022-01-01	session_start	https://dici.ca/evenements/olivier-martineau-au-theatre

Figure 62. "Importer GA" button

- Click the “Synchroniser GA” button.

The screenshot shows the RecomSys interface with a light gray main content area. The title is "Liste des Google Analytics rapports". Below it is a table with columns: Synchroniser GA, Exporter un fichier, and Supprimer un fichier. The "Synchroniser GA" button is highlighted with a red box.

- Select the version of your Google Analytics project.

Version de Google Analytics

ID de la vue ou de propriété

Télécharger le fichier de clé JSON

Date de début

Date de fin

Synchroniser

Figure 63. Interface of "Synchroniser des données Google Analytics"

- Enter the view_id/ property_id of your Google Analytics project.
- Upload the json key file.
- Define the period that you want to import Google Analytics data by selecting a start date (Date de début) and an end date (Date de fin). The end date should be filled in with the latest date while the start date should be as default.
- Click the “Synchronize” button.

5.3. Delete Google Analytics data (Supprimer un fichier)

This function allows users to delete automatically a large amount of data imported from Google Analytics. Every time users synchronize data from Google Analytics, the system would keep track information about synchronization date and synchronized data. To perform this function, users follow these steps:

- Click the “Supprimer un fichier” button on the navbar.

Liste des Google Analytics rapports

Synchroniser GA

Exporter un fichier

Supprimer un fichier

Figure 64. "Supprimer un fichier" button

- The interface would display an information table, which includes: date and time of synchronization.

- Users define which synchronized data they want to delete, then, click the “Afficher ce fichier” button.

The screenshot shows a table with columns: ID, TABLE_NAME, and CREATED_AT. The first row has ID 20, TABLE_NAME 'interaction_ga', and CREATED_AT '2022-03-16T02:53:55.756719Z'. To the right of this row is a dark blue button labeled 'Afficher ce fichier' with a white border. A red rectangular box highlights this button. At the bottom of the table, there are navigation links: 'Afficher 20 objets', 'Précédent', '1', and 'Suivant'.

ID	TABLE_NAME	CREATED_AT
20	interaction_ga	2022-03-16T02:53:55.756719Z

Figure 65. Interface of "Supprimer un fichier"

- Click the “Supprimer tous” for deleting all synchronized data.

The screenshot shows a table with columns: ID, DATE, EVENT_NAME, PAGE_LOCATION, COUNTRY, BROWSER, DEVICE_CATEGORY, and OPERATING_SYSTEM. There are three rows of data. At the top left of the table area, there is a red rectangular button labeled 'Supprimer tous'. Below the table are navigation links: 'Afficher 20 objets', 'Précédent', '1', and 'Suivant'.

ID	DATE	EVENT_NAME	PAGE_LOCATION	COUNTRY	BROWSER	DEVICE_CATEGORY	OPERATING_SYSTEM
4849	2022-03-11	page_view	http://new.dimalab.ca/	Canada	Chrome	desktop	Macintosh
4850	2022-03-11	session_start	http://new.dimalab.ca/	Canada	Chrome	desktop	Macintosh
4851	2022-03-11	user_engagement	http://new.dimalab.ca/	Canada	Chrome	desktop	Macintosh

Figure 66. "Supprimer tous" button

5.4. Export Google Analytics data (Exporter un fichier) :

This function allows users to export synchronized data into a CSV file and to automatically download this file to your local computer. To perform this function, users follow these steps:

- Click the “Exporter un fichier” button, which is located on the navbar.

Liste des Google Analytics rapports

Synchroniser GAExporter un fichierSupprimer un fichier

Recherche de mots clésQ

ID	DATE	EVENT_NAME	PAGE_LOCATION	COUNTRY	BROWSER	DEVICE_CATEGORY	OPERATING_SYSTEM
4849	2022-03-11	page_view	http://new.dimalab.ca/	Canada	Chrome	desktop	Macintosh
4850	2022-03-11	session_start	http://new.dimalab.ca/	Canada	Chrome	desktop	Macintosh
4851	2022-03-11	user_engagement	http://new.dimalab.ca/	Canada	Chrome	desktop	Macintosh

Afficher 20 objets ▾Précédent1Suivant

Figure 67. "Exporter un fichier" button

PART 3. RECOMMENDATION

This part of the document presents a tutorial on how to use RecomSys to train recommendation algorithms, then generate recommendation scripts which will be integrated into the DICI website to propose recommendations.

Recommendation is the most important function of the system. We have implemented 3 types of recommendations:

1. Upcoming recommendation – À venir (suggest upcoming events)
2. Most popular recommendation – Les plus populaires (suggest events/articles based on the number of website visitor interactions)
3. Similar recommendation – Produits similaires (suggest events/articles based on content similarites among them)

With two types of recommendation, “Most popular” and “Similar”, they require system users to take several configuration steps before the system can generate highly accurate recommendation. The following parts present in detail the configuration steps.

3.1 Configure web-activity ponderation

The “*Most popular*” recommendation type suggests events/articles based on the interaction between website visitors and events/articles on the organization website. These interactions can be “view event in detail”, “click an event”, “view list of events”, etc. Each type of interaction has its own ponderation (important weight). The greater the interaction ponderation is, the higher the visitor’s interest in an event/article is. For example, when a visitor performs an interaction (clickung on an “event” to view its detailed page), it is likely that the visitor wants to know more information about this event (event date, event type, etc.) to attend. The activity “click an event” is an important interaction, the more people perform that interaction means that the event actually attracts more visitors.

The system allows users to set ponderation value for each interaction type. To perform this function, users follow these steps:

- Click the “Recommendation” section, which is located on the left side bar.
- Select the “Configuration” section in the dropdown section.

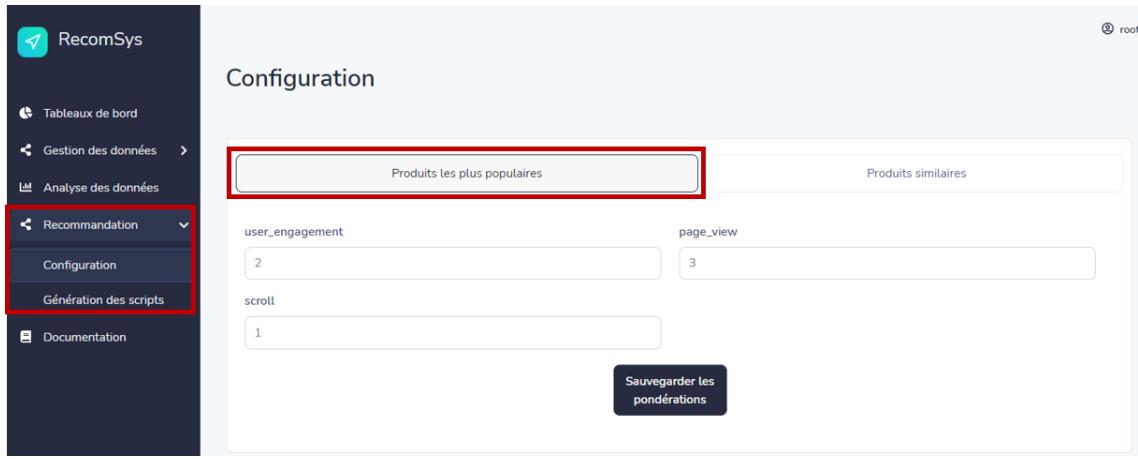


Figure 68. Interface of "«Produits les plus populaires» configuration"

- Select the “Produits les plus populaires” tab.
- Input ponderation values for interaction types. (Note: Users can only perform this function when there are imported data about “Activité Web”).
- Click the “Save” button to update new ponderations.

3.2 Train “Similar recommendation” model

To recommend similar events/articles based on a given event/article, it requires that the system must find a function (a “Similar recommendation” model) being capable of understanding contents (descriptions) of all events/articles and then measuring similarity points between any 2-event/2 article contents. This function needs to be trained to give accurate similarity scores. Every time users import a large amount of event/article data into the system, this function needs to be retrained. To perform this function, users follow these steps:

- Click the “Recommandation” section, which is located on the left side bar.
- Select the “Configuration” section in the dropdown section.
- Select the “Produits similaires” tab.

The screenshot shows the RecomSys application interface. On the left, there is a sidebar with the following menu items:

- Tableaux de bord
- Gestion des données
- Analyse des données
- Recommandation** (selected)
- Configuration (highlighted with a red box)
- Génération des scripts
- Documentation

The main content area is titled "Configuration". It contains two tabs: "Produits les plus populaires" and "Produits similaires" (which is highlighted with a red box). Below the tabs, there is a section for "Types de produits culturels" with a dropdown menu labeled "Dérouler ce menu de sélection". A "Entrainer" button is located at the bottom right of this section.

Below the configuration tabs, there is a section titled "Historique de la formation d'algorithme" which displays a table of training history:

NAME	NUMBER_ITEMS	LATEST_TRAINING_AT	NUMBER_TRAINED_ITEMS
Événement	377	2022-03-21 16:18:49.537003+00:00	357

Figure 69. Interface of "Produits similaires" configuration

- Next, the website page displays an information table (the number of trained events/articles, the total number of events/articles currently imported). When the difference between these two metrics is large, users can retrain the “similar recommendation” function.
- Select a data type (Event/Article) in the “Type d’items” select menu.
- Click the “Entrainer” button and wait for the training process to finish.
- When the training process is completed, metrics in the information table will be updated.

The screenshot shows the RecomSys application interface, similar to Figure 69 but with a different focus. The "Produits similaires" tab is selected. The "Entrainer" button is highlighted with a red box. The "Historique de la formation d'algorithme" section shows the following training history table:

NAME	NUMBER_ITEMS	LATEST_TRAINING_AT	NUMBER_TRAINED_ITEMS
Événement	377	2022-03-21 16:18:49.537003+00:00	357
Article	47	2022-03-20 00:56:15.912727+00:00	47

Figure 70. "Entrainer" button

3.3 Generate embedded recommendation script

To be able to integrate recommendations into the organization website, our solution is to embed recommendation scripts into the website's pages. These recommendation scripts are HTML, CSS, Javascript source codes, whose function is to call the recommendation system for retrieving recommendations, and to display recommendations on the website's pages.

To perform this function, users follow these steps:

- Click the “Recommendation” section, which is located on the left side bar.
- Select the “Génération des scripts” section in the dropdown menu.

The screenshot shows the RecomSys application interface. On the left, there is a dark sidebar with the RecomSys logo at the top. Below the logo are several navigation items: "Tableaux de bord", "Gestion des données", "Analyse des données", "Recommandation" (which is expanded to show "Configuration" and "Génération des scripts"), and "Documentation". The "Génération des scripts" item is highlighted with a red box. The main content area has a title "Génération des scripts" and two tabs: "Scripts de recommandation fixés" (selected) and "Scripts de recommandation dynamiques". Below the tabs, there is a code editor containing a fixed recommendation script. The code is as follows:

```
<link rel="stylesheet" href="http://74.208.108.4:8000/static/dimadb/css/recommender.css">
<div id="recommendations"></div>
<script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
<script>
    var recommendations = getRecommendation("http://74.208.108.4:8000/dimadb/get-recommendation", "culturemauricie2022");
    recommendations.then(res => {
        //Handle recommend items here
        //Below code shows recommendation results
        console.log(res);
    });
</script>
```

Figure 71. Interface of "Génération des scripts"

There are 2 types of embedded recommendation scripts:

- Fixed recommendation script: a script that never changes its source code. Users only need to embed this script once in the organization website's source code. When a website visitor opens a website page, this fixed script will automatically send the url of current website page to the recommendation system. The system will rely on this url to recommend appropriate items.
- Dynamic recommendation script: a script that changes its source code. For each page, users need to embed manually a different script. To generate dynamic scripts, users have to define which page on the organization website should be integrated recommendations, which recommendation type will be chosen to display on that page.

a. *Fixed recommendation script:*

To generate fixed recommendation script, users follow these steps:

- Click the “Scripts de recommandation fixés” tab. Then, the website page will display two parts : “Script fixé et intégré dans la page d'accueil (sans la génération des interfaces)” and “Script fixé et intégré dans la page d'accueil (avec la génération des interfaces)” :
 - “Script fixé et intégré dans la page d'accueil (sans la génération des interfaces)” part includes source code that users embed into the organization's website to only retrieve recommended items without showing them on the website page. Recommended items will be retrieved as an array of json objects. The website developpers are responsible for how to display recommended items (images, etc.) on the webiste page.

Script fixé et intégré dans la page d'accueil (sans la génération des interfaces)

```
<link rel="stylesheet" href="http://74.208.108.4:8000/static/dimadb/css/recommender.css">
<div id="recommendations"></div>
<script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
<script>
  var recommendations = getRecommendation("http://74.208.108.4:8000/dimadb/get-recommendation", "culturemauricie2022");
  recommendations.then(res => {
    //Handle recommend items here
    //Below code shows recommendation results
    console.log(res);
  });
</script>
```

Figure 72. Fixed recommendation script without GUI

- “Script fixé et intégré dans la page d'accueil (avec la génération des interfaces)” part includes source code that users embed into the organization's website to both retrieve recommended items and then to display automatically them on the website page.

Script fixé et intégré dans la page d'accueil (avec la génération des interfaces)

```
<link rel="stylesheet" href="http://74.208.108.4:8000/static/dimadb/css/recommender.css">
<div id="recommendations"></div>
<script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
<script>
    var recommendations = getRecommendation("http://74.208.108.4:8000/dimadb/get-recommendation", "culturemauricie2022");
    recommendations.then(res => {
        //Handle recommend items here
        //Below code shows recommendation GUI
        getListViews(res);
    });
</script>
```

Figure 73. Fixed recommendation script with GUI

b. Dynamic recommendation script:

To generate dynamic recommendation script, users follow these steps:

- Click the “Scripts de recommandation dynamique” tab.
- Then, the website page will display several selection menus, which comprises: item types (Types d’items), recommend levels (Niveau de recommandation), recommend types (Types de recommandation), domain, events/articles name and quantity (quantité). The dynamic recommendation script is generated based on the user’s choice of these selection menus. The following subpart explains the meaning of each selection menu:
 - Item types: types of recommended items (Event or Article).
 - Recommend levels: places where recommended items are displayed on the website’s pages, which include: Homepage Level (Where displays all items in all domains/categories), Domain Level (where displays items belonging to a specific domain/category), Item Level (where displays detailed information of an item).
 - Recommend types: types of recommendation, which include: Upcoming, Most popular, Similar, Similar combined with Most popular.
 - Domain: categories of an item type. Users need to select a domain when they want to find recommended items in a specified domain. List of domains for each item type:
 - Event type: exposition, cinéma, humour, chanson, musique, etc.

- Article type : musées, arts de la scène, littérature, arts visuels, arts médiatiques, métiers d'art and patrimoine.
- Event/Article name : specified name of an event/article. Users need to select an event/article name to find its similar items.
- Quantity: the number of recommended items that the website page want to retrieve.

Figure 74. Interface of "Dynamic Recommendation Script Generation"

To know which choice must be selected in selection menus, users must:

- Define which page on the website that recommendations will be integrated into.
- Define which recommend level of that page, “Homepage – Page d'accueil”/ “Domain - Domaine”/ “Item - Produit” level.
- If we choose “Domain - Domaine” level, define which category of displayed items in that page.
- If we choose “Item - Produit” level, define which name of event/article in that page.
- Define which recommendation type would be integrated in that page, “Upcoming – À venir”/ “Most popular – Les plus populaires”/ “Similar product – Produits similaires”/ “Similar product combined with Most popular - Produits similaires combinés avec les plus populaires” type.

Based on our observations on the “<https://dici.ca>” website, we have listed a list of pages that can be integrated recommendations. Besides, a list of choices of selection menus has been pre-defined, users fill selection menus with predefined-choices in the table below to generate

recommendation scripts. Then paste these recommendation scripts into the source code of the corresponding page.

Page url	Item Type	Recommend Level	Recommend Type	Domain	Event /Article name
https://dici.ca/evenements	Événement	Page d'accueil	À venir / Les plus populaires	No	No
https://dici.ca/magazine/tous-les-articles	Article	Page d'accueil	Les plus populaires	No	No
https://dici.ca/magazine/arts-de-la-scene	Article	Domaine	Les plus populaires	Arts de la scène	No
https://dici.ca/magazine/arts-mediatiques	Article	Domaine	Les plus populaires	Arts médiatiques	No
https://dici.ca/magazine/arts-visuels	Article	Domaine	Les plus populaires	Arts visuels	No
https://dici.ca/magazine/litterature	Article	Domaine	Les plus populaires	Littérature	No
https://dici.ca/magazine/metiers-dart	Article	Domaine	Les plus populaires	Métiers d'art	No
https://dici.ca/magazine/musees	Article	Domaine	Les plus populaires	Musées	No
https://dici.ca/magazine	Article	Domaine	Les plus populaires	Patrimoine	No

/patrimoine					
<article_type> <article_name> Example : https://dici.ca/magazine/litterature/six-suggestions-de-lecture-de-lequipe-du-salon-du-livre-de-trois-rivieres	Article	Produit	Produits similaires/ Produits similaires combinés avec les plus populaires	No Based on the event/article name	
<event_name> Example: https://dici.ca/evenements/femmes-d-argentine	Événement	Produit	Produits similaires/ Produits similaires combinés avec les plus populaires	No Based on the event/article name	

Table 2. List of page url and pre-defined recommendation parameters

After selecting all choices and clicking the “Générer des scripts”, the website page will display two parts : “Script dynamique et intégré dans la page d'accueil (sans la génération des interfaces)” and “Script dynamique et intégré dans la page d'accueil (avec la génération des interfaces)”.

- “Script dynamique et intégré dans la page d'accueil (sans la génération des interfaces)” part includes source code that users embed into the organization's website to only retrieve recommended items without showing them on the

website page. Recommended items will be retrieved as an array of json objects. The website developpers are responsible for how to display recommended items (images, etc.) on the webiste page.

Script dynamique et intégré dans chaque page (sans la génération des interfaces)

```
<div id="similarItems"></div>
<script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
<script>
    var similarItems = getRecommend("http://74.208.108.4:8000/dimadb/get-list-recommend/?itemType=events&level=Item&quantity=10&recommendType=Similar&itemUrl=https://dici.ca/evenements/helene-guillemeres", "culturemauricie2022");
    similarItems.then(res => {
        //Handle recommend items here
        //Below code shows recommendation results
        console.log(res);
    });
</script>
```

Figure 75. Dynamic Recommendation Script without GUI

- “Script dynamique et intégré dans chaque page (avec la génération des interfaces)” part includes source code that users embed into the organization’s website to both retrieve recommended items and then to display automatically them on the website page.

Script dynamique et intégré dans chaque page (avec la génération des interfaces)

```
<link rel="stylesheet" href="http://74.208.108.4:8000/static/dimadb/css/recommender.css">
<div id="similarItems"></div>
<script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
<script>
    var similarItems = getRecommend("http://74.208.108.4:8000/dimadb/get-list-recommend/?itemType=events&level=Item&quantity=10&recommendType=Similar&itemUrl=https://dici.ca/evenements/helene-guillemeres", "culturemauricie2022");
    similarItems.then(res => {
        //Handle recommend items here
        //Below code shows recommendation GUI
        getListView("similarItems", res);
    });
</script>
```

Figure 76. Dynamic Recommendation Script with GUI

PART 4. OTHER FUNCTIONALITIES

This part of the document presents a tutorial on additional functionalities, including dashboard, data analysis, and user management.

4.1.Dashboard (menu item “Tableaux de bord”)

This function aims at presenting statistics of web activities and cultural products. Important metrics (KPIs) related to website activities of visitors such as: the total number of web activities, the total number of sessions, the share of visitor devices, the most popular pages, the number of events/articles by categories are provided on the dashboard in forms of interactive charts, tables. To perform this function, users:

- Click the “Tableaux de bord” section, which is located on the left side bar.

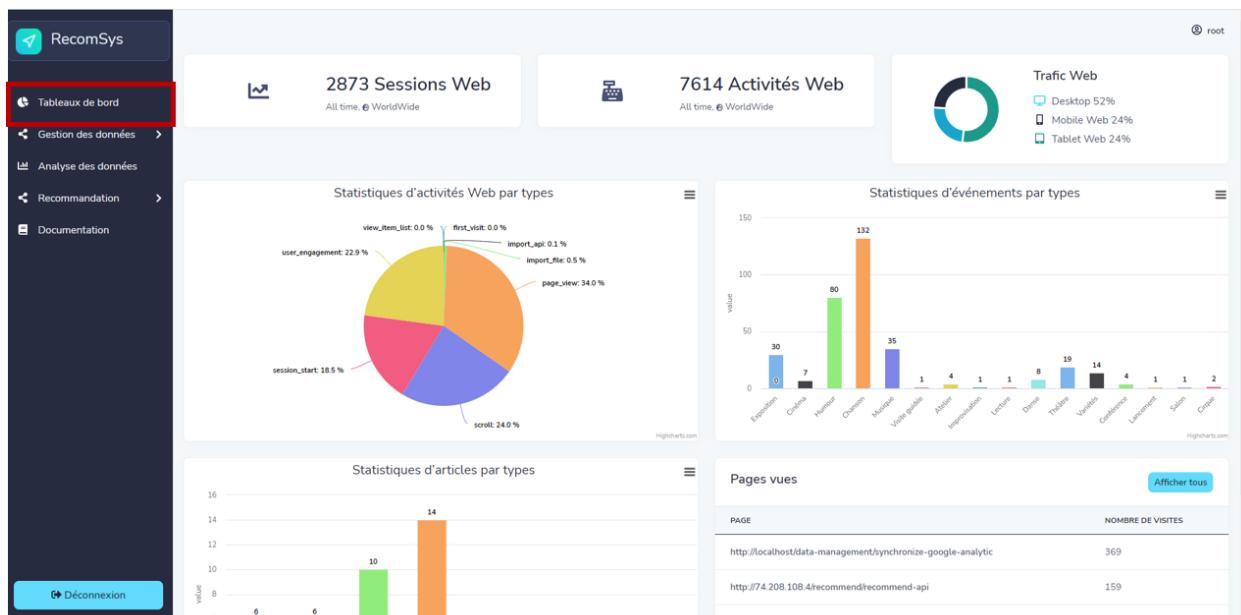


Figure 77. Dashboard

4.2.Data analytics (menu item “Analyse des données”)

This function allows users to keep track statistical reports on website visitors based on visitor indicators such as: device categories, operating systems, browsers, web-activity types, etc. Users can select the report period (the start date and the end date of reports), as well as the report type (daily, weekly, monthly, etc.). To perform this function, users:

- Click the “Analyse des données” section, which is located on the left side bar.
- Select start date, end date and type of reports.

- Click the “Générer un rapport” button.

The screenshot shows the RecomSys application interface. On the left is a dark sidebar with navigation links: Tableaux de bord, Gestion des données (highlighted with a red box), Analyse des données (highlighted with a red box), Recommendation, and Documentation. At the bottom of the sidebar is a 'Déconnexion' button. The main area has two charts: 'Statistiques de sessions Web' and 'Statistiques d'activités Web'. Above the charts are date selection fields ('Date de début: 04/03/2022' and 'Date de fin: 11/03/2022') and a dropdown for 'Types de rapports' ('Rapport quotient'). A large red box highlights the 'Générer un rapport' button. Below the charts, the first chart displays data for sessions from March 4 to March 11, 2022, with values ranging from 58 to 209. The second chart displays data for web activities from March 4 to March 11, 2022, with values ranging from 60 to 578.

Figure 78. Interface of Data Analysis

- For some report charts, users can customize the chart type (pie chart, line chart, column chart) by clicking on the “Chart type” button.



Figure 79. Example of a report chart

4.3. User management

4.3.1. Change password

This function allows users to change their password. To perform this function, users follow these steps:

- Login to RecomSys by browsing to the website url <http://198.71.52.84/> and the user account, whose password will be modified (default user account: user: root, password: trivi)
- Click the “User” Icon, which is located on the top right corner of the website.
- Select the “Change mot de passe ” section.



Figure 80. "User" Icon on the top right corner

- Next, the interface will redirect to the “Changer mot de passe” page.
- Enter a new password and confirm it again before clicking the “Changer” button.

A screenshot of a password change form titled "Changer mot de passe". It contains two input fields: "Nouveau mot de passe" (New password) and "Mot de passe confirmé" (Password confirmed). Both fields are currently empty. Below the fields is a large dark blue "Changer" button.

Figure 81. Update new password

- After the new password is updated, login the interface of administrative tool again.

4.3.2. Add new user

This function allows the root user to create a new user of the administrative tool interface. To perform this function, the root user follows these steps:

- Browse to the website url (<http://198.71.52.84:8000/admin>)

- Log in the website by using this default user account (user: root, password: trivi).

Figure 82. LogIn page for admin

- Click the (+ Add) button, which is located on the “Users” row in the “Authorization and Authentication” section.

AUTHENTICATION AND AUTHORIZATION		
Groups	+ Add	Change
Users	+ Add	Change

Figure 83. Main page for admin

- Enter an username and a password for the new account before clicking the “Save” button.

Add user

First, enter a username and password. Then, you'll be able to edit more user options.

Username:	<input type="text"/>	Required. 150 characters or fewer. Letters, digits and @/./+/-/_ only.
Password:	<input type="password"/>	Your password can't be too similar to your other personal information. Your password must contain at least 8 characters. Your password can't be a commonly used password. Your password can't be entirely numeric.
Password confirmation:	<input type="password"/>	Enter the same password as before, for verification.
<input type="button" value="Save and add another"/> <input type="button" value="Save and continue editing"/> <input type="button" value="SAVE"/>		

Figure 84. Enter information for new account

4.3.3. Update/Delete user

This function allows the root user to update/delete a created user account. To perform this function, the root user follows these steps:

- Browse to the website url (<http://198.71.52.84:8000/admin>)
- Log in the website by using this default user account (user: root, password: trivi).

▲ Non sécurisé | 74.208.108.4:8000/admin/login/?next=/admin/

Figure 85. LogIn page for admins

- Click the “Users” section, which is located in the “Authorization and Authentication” section.

Django administration

Site administration

AUTHENTICATION AND AUTHORIZATION	
Groups	+ Add Change
Users	+ Add Change

Figure 86. Main page for admin

- Click the user account that you want to update/delete.

Select user to change					
<input type="text"/> Search					
Action:	USERNAME	EMAIL ADDRESS	FIRST NAME	LAST NAME	STAFF STATUS
<input type="checkbox"/>	dimalab				
<input type="checkbox"/>	root				

Figure 87. List of system users

- For updating, modify user account information and then click the “Save” button.
- For deleting, click the “Delete” button at the end of website page.

Change user

dimalab

Username: Required. 150 characters or fewer. Letters, digits and @./+/-/_ only.

Password: **algorithm:** pbkdf2_sha256 **iterations:** 260000 **salt:** VJPrP3***** **hash:** zRICyj*****

Raw passwords are not stored, so there is no way to see this user's password, but you can change the password using [this form](#).

Figure 88. Update user password

4.4.Document

This function provides a user guide on how to perform the system's functions and how to integrate recommendations into the website. To perform this function, the user clicks on the "Documentation" item located on the left side bar.

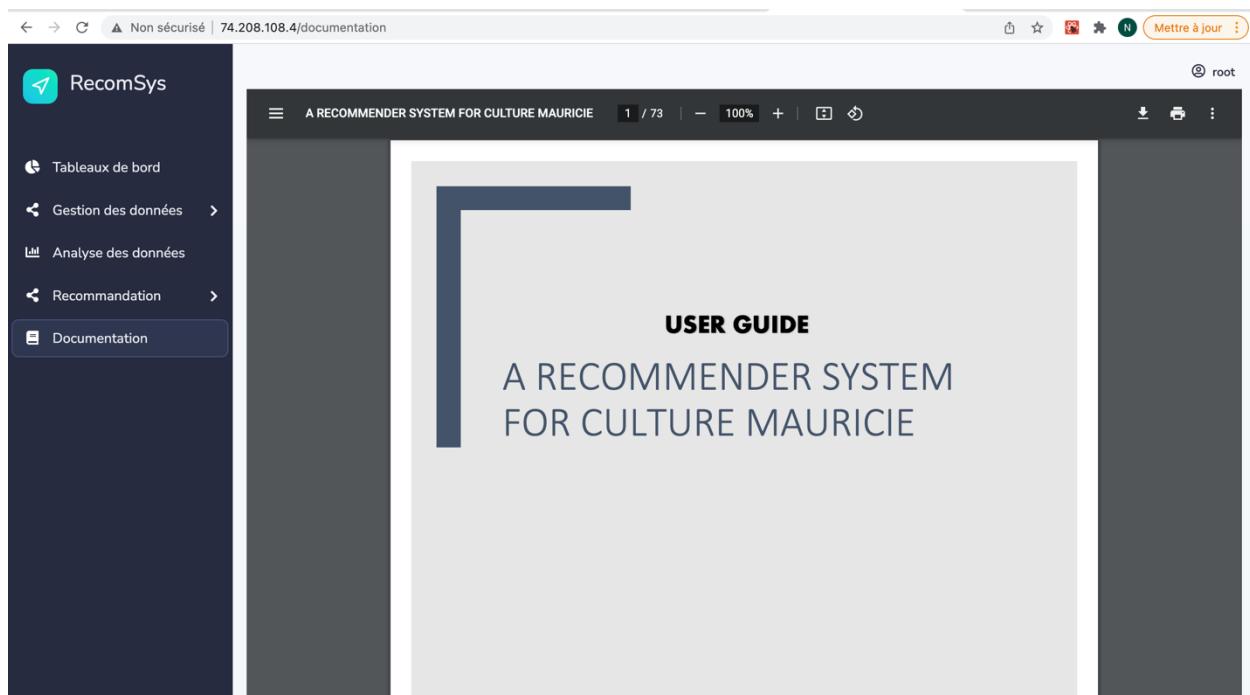
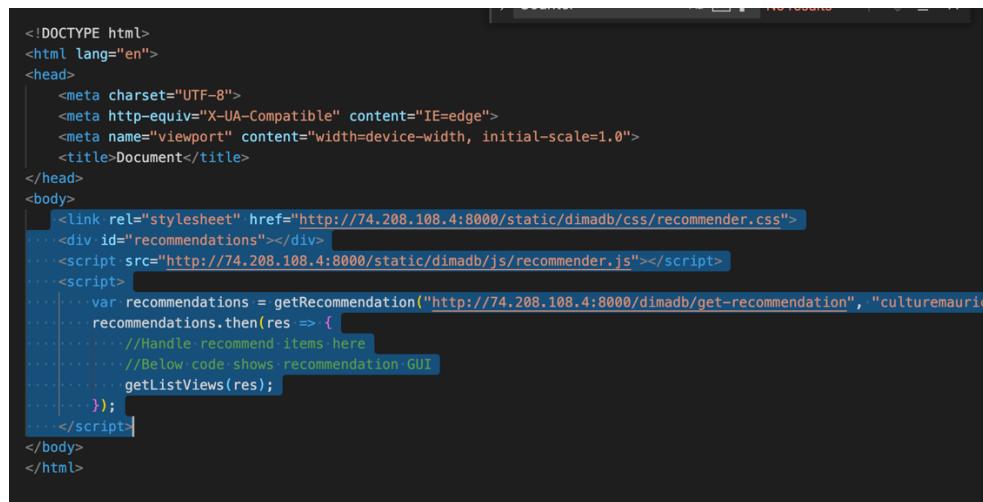


Figure 89. Interface of Documentation

PART 5. RECOMMENDATION SCRIPT EMBEDDING

In the previous part, we guide users how to perform functions on the interface of administrative tool. In this part, we show users how to embed recommendation scripts into the organization's website, in order to retrieve list of recommendations and to display them on each website page.

The simplest way, users just need to put the entire generated source code anywhere in the HTML source code that constructs the website page. The figure below illustrates the embedding the recommendation script into a pair of <body></body> tag in a HTML file.



```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <link rel="stylesheet" href="http://74.208.108.4:8000/static/dimadb/css/recommender.css">
    <div id="recommendations"></div>
    <script src="http://74.208.108.4:8000/static/dimadb/js/recommender.js"></script>
    <script>
        var recommendations = getRecommendation("http://74.208.108.4:8000/dimadb/get-recommendation", "culturemauric
        recommendations.then(res => {
            //Handle recommend items here
            //Below code shows recommendation GUI
            getListViews(res);
        });
    </script>
</body>
</html>
```

Figure 90. Example of embedding recommendation script into a HTML file

Les événements à venir



Figure 91. Recommendations integrated into a website

5.1 Recommendation script without GUI integration:

Embedding recommender script without GUI integration means that the embedded script will be responsible for retrieving list of recommended items from the recommendation system in forms of an array of json objects, without explicitly displaying them on the website. Website developpers need to write additional source code to show recommendations on the website. The advantages of this embedding type is that it would not break the layout/template of the organization website, website developpers who designed and understood carefully the organization's website, will be able to know how to insert a section for recommendations on the website.

```
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <script src="http://localhost:8000/static/dimadb/js/recommender.js"></script>
    <script>
        const recommendItems = getRecommend("http://localhost:8000/dimadb/get-list-recommend/?itemType");
        recommendItems.then(res => {
            //Handle recommend items here
            //Below code shows recommendation results
            console.log(res);
        });
    </script>
</body>
</html>
```

Figure 92. Example of embedding recommendation script without GUI into a HTML file

The format of returned recommendations would be an array of json objects. Each json object has some specified properties based on its item type (Events or Article). The table below shows list of properties for each item type.

Item Type	Fields
Event	Event_id, event_name, event_type, img, url, location_name, next_date
Article	Product_id, product_name, product_type, img, url

Table 3. Data types and their properties

```

▼ Object
  □ itemType:"events"
  ▼ □ items: Array (10)
    0 □ Object
      □ event_id: "0"
      □ event_name: "Hélène Guilmaine : À l'origine_ les déesses-mères"
      □ event_type: "Exposition"
      □ img: "https://cdn.caligram.com/uploads/event/P06/xlarge/61b8ab8c98e79.jpg"
      □ location_name: "La petite Place des Arts"
      □ next_date: "2022-03-05T00:00:00Z"
      □ url: "https://dici.ca/evenements/helene-guilmaine-a-l-origine-les-deesses-meres"
    ▶ Prototype Object
1 ► {event_id: "3", event_name: "Suzanne Ferland : Onde de choc - Effluve de l'impénétrable", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/suzanne-ferland-onde-de-choc-effluve-de-l-impenerable"}, ...
2 ► {event_id: "4", event_name: "Sarah Seené : Fovea", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/exposition-fovea", ...}
3 ► {event_id: "5", event_name: "Marie-Sol St-Onge: L'art d'avancer", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/l-art-d-avancer"}, ...
4 ► {event_id: "6", event_name: "Si la faune m'était sculptée - L'art animalier québécois", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/si-la-faune-m-est-sculpte"}, ...
5 ► {event_id: "7", event_name: "Le match parfait - Sport vs Science", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/le-match-parfait"}, ...
6 ► {event_id: "8", event_name: "L'ADN des superhéros", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/l-adn-des-superheros", ...}
7 ► {event_id: "9", event_name: "En d'dans ! La prison comme solution ?", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/en-d-dans-la-prison-comme-solution"}, ...
8 ► {event_id: "10", event_name: "Attache ta tuque ! Une virée découverte dans la culture québécoise", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/attache-ta-tuque"}, ...
9 ► {event_id: "11", event_name: "Myriam Tousignant : Maskipêche", event_type: "Exposition", next_date: "2022-03-05T00:00:00Z", url: "https://dici.ca/evenements/myriam-tousignant"}, ...

```

Figure 93. Example of returned event recommendations as a json object array

```

▼ Object
  □ itemType:"products"
  ▼ □ items: Array (10)
    0 □ Object
      □ img: "https://dici.ca/app/uploads/2022/02/katrin-hauf-jpkvklxwt98-unsplash-1680x945.jpg"
      □ product_id: "2"
      □ product_name: "Étienne Poirier : Capteur de mots"
      □ product_type: "Littérature"
      □ score: 180
      □ url: "https://dici.ca/magazine/litterature/etienne-poirier-capteur-de-mots"
    ▶ Prototype Object
1 ► {product_id: "28", product_name: "10 recueils de poésie écrits par des poètes d'ici à (re)découvrir", product_type: "Littérature", url: "https://dici.ca/magazine/litterature/10-recueils-de-poesie-ecrits-par-des-poetes-dici-a-redecouvrir"}, ...
2 ► {product_id: "9", product_name: "La littérature jeunesse, vecteur de nombreux apprentissages", product_type: "Littérature", url: "https://dici.ca/magazine/litterature-jeunesse-vecteur-de-nombreux-apprentissages"}, ...
3 ► {product_id: "37", product_name: "La poésie... dans les mots de Guy Marchamps", product_type: "Littérature", url: "https://dici.ca/magazine/litterature-la-poesie-dans-les-mots-de-guy-marchamps"}, ...
4 ► {product_id: "44", product_name: "Passionnée et passionnante Louise Lacoursière", product_type: "Littérature", url: "https://dici.ca/magazine/litterature-passionnee-et-passionnante-louise-lacoursiere"}, ...
5 ► {product_id: "30", product_name: "La poésie... dans les mots d'Alexandre Dostie", product_type: "Littérature", url: "https://dici.ca/magazine/litterature-la-poesie-dans-les-mots-d-alexandre-dostie"}, ...
6 ► {product_id: "26", product_name: "7 activités à faire cette année pour fêter l'Halloween", product_type: "Musées", url: "https://dici.ca/magazine/musees-7-activites-a-faire-cette-annee-pour-feter-l-halloween"}, ...
7 ► {product_id: "12", product_name: "Quelques livres d'ici pour des moments féériques en famille", product_type: "Littérature", url: "https://dici.ca/magazine/litterature-quelques-livres-dici-pour-des-moments-ferieques-en-famille"}, ...
8 ► {product_id: "42", product_name: "La Tuque, une ville vivante!", product_type: "Patrimoine", url: "https://dici.ca/magazine/patrimoine-la-tuque-une-ville-vivante"}, ...
9 ► {product_id: "45", product_name: "4 activités culturelles en plein air à faire cet automne", product_type: "Musées", url: "https://dici.ca/magazine/musees-4-activites-culturelles-en-plein-air-a-faire-cet-automne"}, ...

```

Figure 94. Example of returned article recommendations as a json object array

5.2 Embedding recommendation script with GUI integration:

Embedding recommendation script with GUI Integration means that the embedded script will be responsible for retrieving list of recommended items from the recommendation system and then displaying directly items on the website, without the intervention of the website developer. However, this way of embedding type is not really effective because it can break the layout of website.

```

<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <link rel="stylesheet" href="http://localhost:8000/static/dimadb/css/recommender.css">
    <div id="recommendItem"></div>
    <script src="http://localhost:8000/static/dimadb/js/recommender.js"></script>
    <script>
        const recommendItems = getRecommend("http://localhost:8000/dimadb/get-list-recommend/");
        recommendItems.then(res => {
            //Handle recommend items here
            //Below code shows recommendation GUI
            getListView("recommendItem", res);
        });
    </script>
</body>
</html>

```

Figure 95. Example of embedding recommendation script with GUI into a HTML file

Les événements similaires



Hélène Guilmaine : À l'origine... les déesses-mères

2022-03-05-La petite Place des Arts
EXPOSITION

[En savoir plus →](#)



Suzanne FerlandL : Onde de choc - Effluve de l'impénétrable

2022-03-05-Centre d'exposition Léo-Ayotte
EXPOSITION

[En savoir plus →](#)

Figure 96. Example recommendations integrated into a website

5.3 Example of a demo website integrated recommendations

This section illustrates the steps we take to embed the recommendation script in a page on a demo wordpress website to evaluate the integration ability of the recommendation system.

- Access to the wordpress website for admin.
- Click the “Pages”, next “All pages” section on the left side bar.

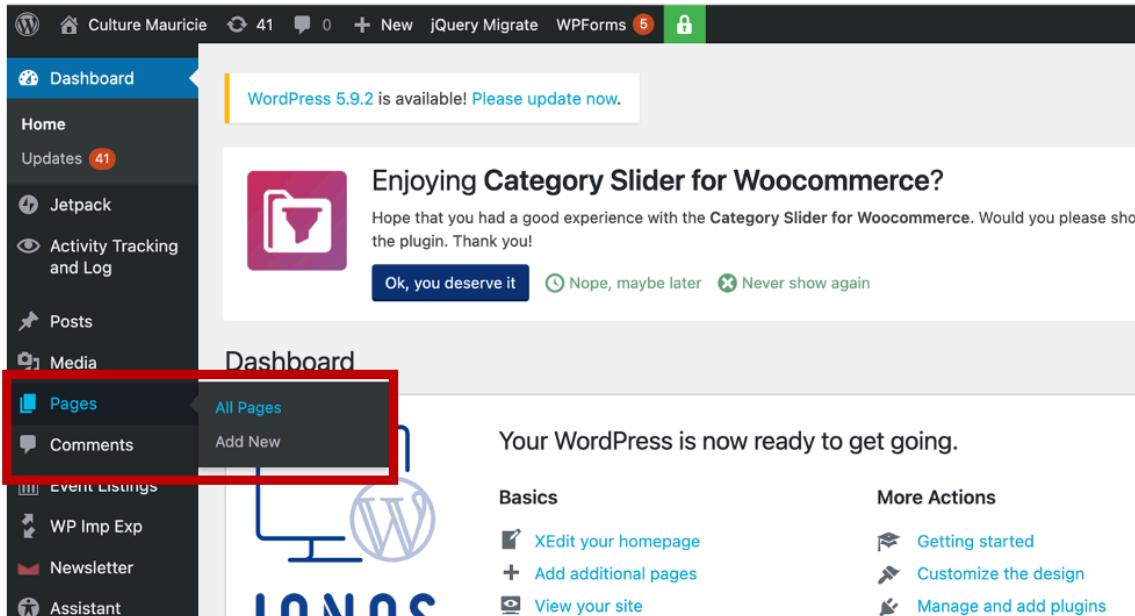


Figure 97. Wordpress admin website

- Select a page that you want to embed recommendation script.

Bulk Actions		Apply	All dates	Filter	34 items
<input type="checkbox"/>	Title				Author
<input type="checkbox"/>	PRODUCTS				Juline Schluchter
<input type="checkbox"/>	— ARTS DE LA SCENE — Elementor				dimalab
<input type="checkbox"/>	— ARTS MÉDIATIQUES				dimalab
	Edit Quick Edit Trash View Clone New Draft				
<input type="checkbox"/>	— Arts Performance — Elementor				dimalab
<input type="checkbox"/>	— ARTS VISUELS				dimalab
<input type="checkbox"/>	— LITTÉRATURE				dimalab
<input type="checkbox"/>	— MÉTIERS D'ART				dimalab

Figure 98. List pages in a Wordpress website

- Click the (+) “Add block” button.

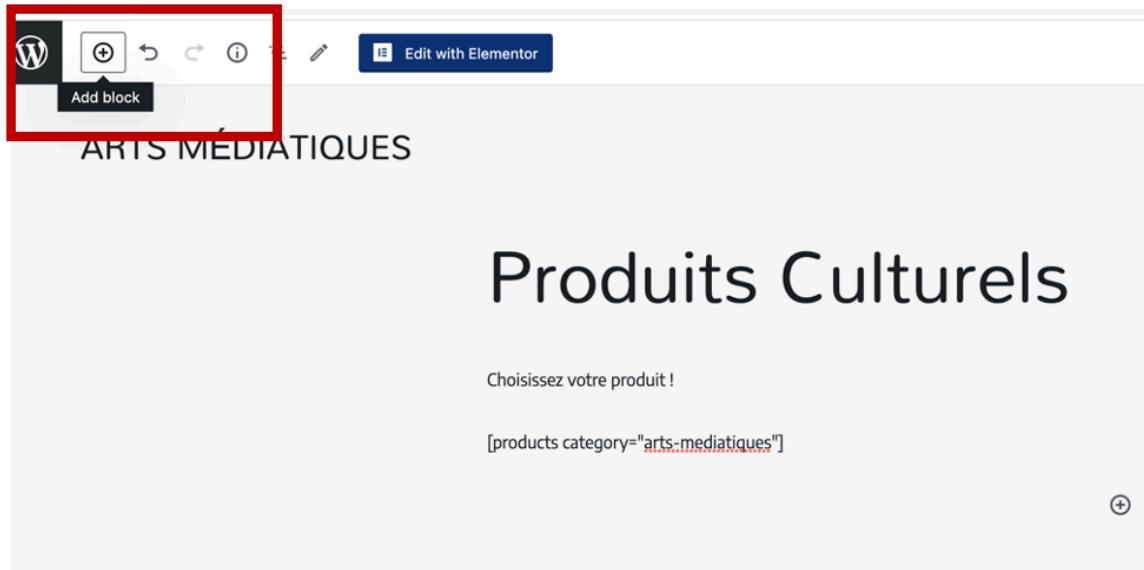


Figure 99. Add an HTML block

- Search “HTML” and then click the “Custom HTML” to add a HTML source code block on the page.

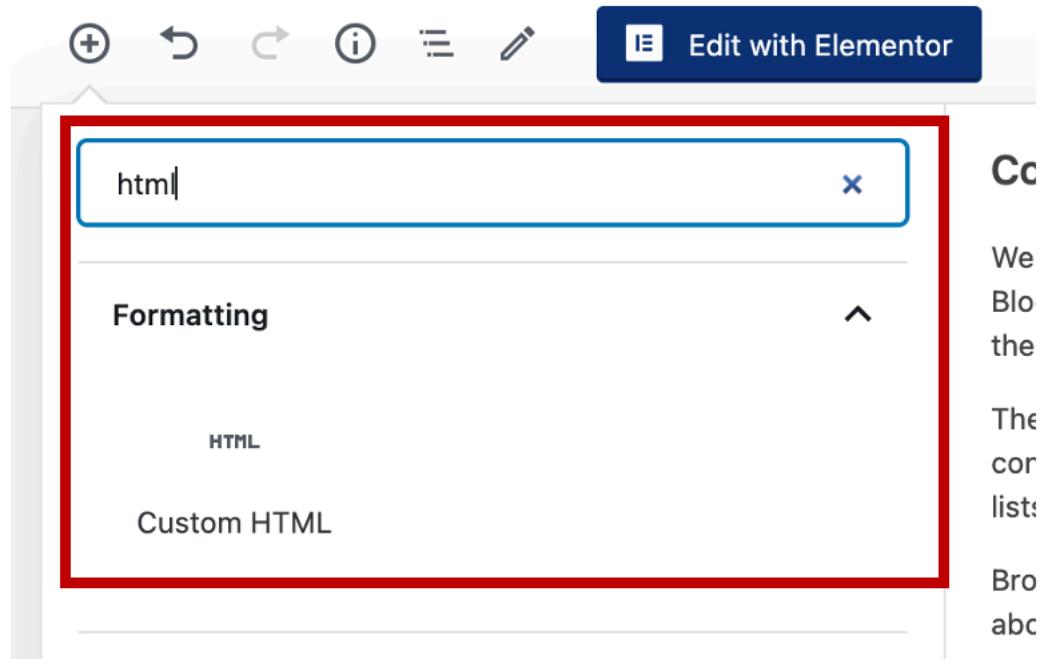


Figure 100. Search "HTML" block

- Copy and paste all source code that the recommendation system generated into the recent created block.

The screenshot shows a code editor interface with tabs for "HTML", "Preview", and "More". The "HTML" tab is selected, displaying the following code:

```

<link rel="stylesheet"
      href="http://74.208.108.4:8000/static/dimadb/css/recommender.css">
<div id="recommendations"></div>
<script
      src="http://74.208.108.4:8000/static/dimadb/js/recommender.js">
</script>
<script>
    var recommendations =
        getRecommendation("http://74.208.108.4:8000/dimadb/get-
recommendation", "culturemauricie2022");

```

Figure 101. Insert recommendation script into a HTML block

- Click the “Update” button at the right top corner.

The screenshot shows a WordPress page editor. At the top, there's a toolbar with various icons. To the right of the toolbar, there are three buttons: "Switch to draft", "Preview", and "Update". The "Update" button is highlighted with a red rectangle. Below the toolbar, the page content area shows the title "ARTS MÉDIATIQUES" and the heading "Produits Culturels".

Figure 102. "Update page" button

- Check whether list of recommended items appear on the page.



Figure 103. Recommendations in a page after inserting a recommendation script