

INFSCI 2710 - Database Management - Final Project Report

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1 Introduction

The idea, conference gate, overall is a conference registration gate which acts as a hub for conferences across disciplines. Typically users seeking in-field conferences have to rely on Google search, social media, recommendations from friends and family, and in-house advertising from conference organizers to hear about conferences they wish to attend. This tool would streamline that information transfer and registration process. The targeted users in the system are:

- Regular users (students, professors...etc). These are our main users. The user will be able to browse different subjects and all the conferences related to the selected subject. Then the user will have the choice to register through our system which will work in this case as the third party between the conference and the user.

2 Assumptions

Indeed, we built our project on several assumptions. All of which are:

- In reality, most conferences offer different ticket options such as V.I.P. All Access pass or discounted student passes. These different options attempt to attract potential conference attendees from various backgrounds. For the purposes of this project, we assume that each conference only offers one standard ticket.
- Each user can register for one conference at a time.
- Users must create an account to register for a conference.
- No user can add or edit a contribution. The website shows a predefined list of contributions. This is based on the assumption that the list is given to us by the conference organizers.
- An event can only occur at one conference.
- A contribution is only associated with one conference.
- All the events are in the same location as the conference.
- Maximum capacity for each event at a conference is not capped to a number smaller than the maximum capacity for the conference. In other words, any event does not have limited seats. This is different from conferences in real life where some events have a limited capacity and is first come first served.

3 Graphical Schema for the Database and Its Relations

As you can see from the (fig.1) below, we have nine entities (tables) some of which are associative tables and the others are main entities.

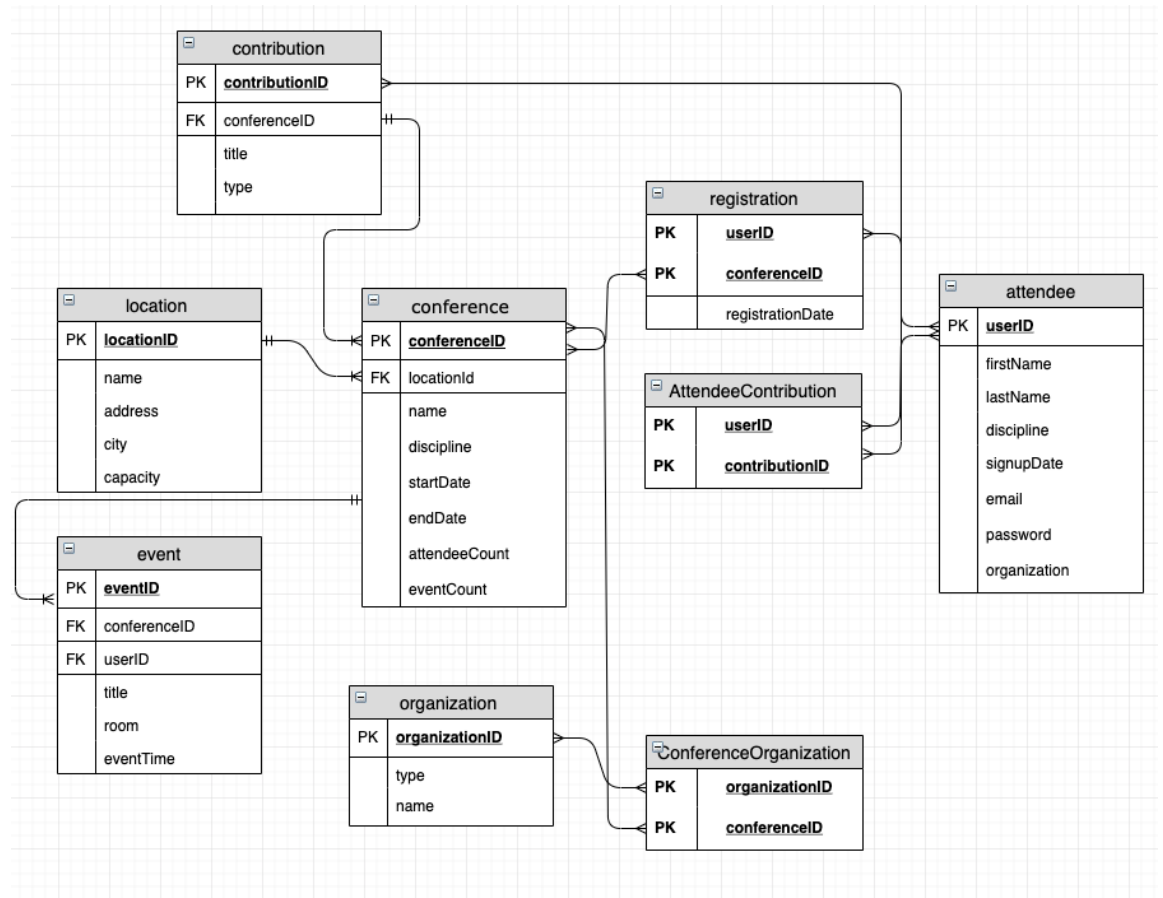


Figure 1: Entity Relationship Diagram.

4 Data Definition Language Statements

As described in the previous section, we have ten relations, most of which stand as a table, and other as an associative "junction" table. In our work, we tried to achieve the second normal form (2NF) as much as we can. The following DDL shows how much we achieved in this manner.

- Create The Database:

```
CREATE DATABASE IF NOT EXISTS 'ConferenceGate'
DEFAULT CHARACTER SET latin1 COLLATE latin1_swedish_ci;
USE 'ConferenceGate';
```

- Create The Main Entities:

```
CREATE TABLE IF NOT EXISTS 'Attendee' (
  'userID' int(11) NOT NULL,
  'firstName' varchar(250) NOT NULL,
  'lastName' varchar(250) NOT NULL,
  'discipline' varchar(2500) DEFAULT NULL,
  'organization' varchar(250) NOT NULL,
  'signUpDate' datetime NOT NULL,
  'email' varchar(250) NOT NULL,
  'password' varchar(100) DEFAULT NULL,
  'username' varchar(50) DEFAULT NULL
) ENGINE=InnoDB AUTO_INCREMENT=7 DEFAULT CHARSET=latin1;
```

```
CREATE TABLE IF NOT EXISTS 'Conference' (
  'conferenceID' int(11) NOT NULL,
  'name' varchar(25000) NOT NULL,
  'locationID' int(11) DEFAULT NULL,
  'discipline' varchar(2500) DEFAULT NULL,
  'startDate' date DEFAULT NULL,
  'endDate' date DEFAULT NULL,
  'attendeeCount' int(11) DEFAULT NULL,
  'eventCount' int(11) DEFAULT NULL
) ENGINE=InnoDB AUTO_INCREMENT=2708 DEFAULT CHARSET=latin1;
```

```
CREATE TABLE IF NOT EXISTS 'Contribution' (
  'contributionID' int(11) NOT NULL,
  'title' varchar(2500) NOT NULL,
  'type' varchar(250) NOT NULL,
  'conferenceID' int(11) DEFAULT NULL
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=latin1;
```

```

CREATE TABLE IF NOT EXISTS 'Event' (
    'eventID' int(11) NOT NULL,
    'title' varchar(2500) NOT NULL,
    'conferenceID' int(11) NOT NULL,
    'userID' int(11) DEFAULT NULL,
    'room' varchar(10) NOT NULL,
    'eventTime' datetime NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

CREATE TABLE IF NOT EXISTS 'Location' (
    'locationID' int(11) NOT NULL,
    'name' varchar(2500) NOT NULL,
    'address' varchar(2500) NOT NULL,
    'city' varchar(250) NOT NULL,
    'capacity' int(11) DEFAULT NULL
) ENGINE=InnoDB AUTO_INCREMENT=1410 DEFAULT CHARSET=latin1;

CREATE TABLE IF NOT EXISTS 'Organization' (
    'organizationID' int(11) NOT NULL,
    'name' varchar(2500) NOT NULL,
    'type' varchar(2500) NOT NULL
) ENGINE=InnoDB AUTO_INCREMENT=2 DEFAULT CHARSET=latin1;

```

- Create The Junction Entities:

```
CREATE TABLE IF NOT EXISTS 'AttendeeContribution' (  
  'userID' int(11) NOT NULL DEFAULT '0',  
  'contributionID' int(11) NOT NULL DEFAULT '0'  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
CREATE TABLE IF NOT EXISTS 'ConferenceOrganization' (  
  'conferenceID' int(11) NOT NULL DEFAULT '0',  
  'organizationID' int(11) NOT NULL DEFAULT '0'  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
DROP TABLE IF EXISTS 'ConferenceOrganization';  
CREATE TABLE IF NOT EXISTS 'ConferenceOrganization' (  
  'conferenceID' int(11) NOT NULL DEFAULT '0',  
  'organizationID' int(11) NOT NULL DEFAULT '0'  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
CREATE TABLE IF NOT EXISTS 'Registration' (  
  'userID' int(11) NOT NULL DEFAULT '0',  
  'conferenceID' int(11) NOT NULL DEFAULT '0',  
  'registrationDate' datetime DEFAULT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

- Keys and Indices

```
ALTER TABLE 'Attendee'  
  ADD PRIMARY KEY ('userID');
```

```
ALTER TABLE 'AttendeeContribution'  
  ADD PRIMARY KEY ('userID','contributionID');
```

```
ALTER TABLE 'Conference'  
  ADD PRIMARY KEY ('conferenceID'),  
  ADD KEY 'locationID' ('locationID');
```

```
ALTER TABLE 'ConferenceContribution'  
  ADD PRIMARY KEY ('conferenceID','contributionID');
```

```
ALTER TABLE 'ConferenceOrganization'  
  ADD PRIMARY KEY ('conferenceID','organizationID');
```

```

ALTER TABLE 'Attendee'
  ADD PRIMARY KEY ('userID');

ALTER TABLE 'AttendeeContribution'
  ADD PRIMARY KEY ('userID','contributionID');

ALTER TABLE 'Conference'
  ADD PRIMARY KEY ('conferenceID'),
  ADD KEY 'locationID' ('locationID');

ALTER TABLE 'ConferenceOrganization'
  ADD PRIMARY KEY ('conferenceID','organizationID');

ALTER TABLE 'Contribution'
  ADD PRIMARY KEY ('contributionID'),
  ADD KEY 'conferenceID' ('conferenceID');

ALTER TABLE 'Event'
  ADD PRIMARY KEY ('eventID'),
  ADD KEY 'conferenceID' ('conferenceID');

ALTER TABLE 'Location'
  ADD PRIMARY KEY ('locationID');

ALTER TABLE 'Organization'
  ADD PRIMARY KEY ('organizationID');

ALTER TABLE 'Registration'
  ADD PRIMARY KEY ('userID','conferenceID'),
  ADD KEY 'conferenceID_FK' ('conferenceID');

ALTER TABLE 'Attendee'
  MODIFY 'userID' int(11) NOT NULL AUTO_INCREMENT,AUTO_INCREMENT=7;

ALTER TABLE 'Conference'
  MODIFY 'conferenceID' int(11) NOT NULL AUTO_INCREMENT,AUTO_INCREMENT=2708;

ALTER TABLE 'Contribution'
  MODIFY 'contributionID' int(11) NOT NULL AUTO_INCREMENT,AUTO_INCREMENT=2;

ALTER TABLE 'Event'
  MODIFY 'eventID' int(11) NOT NULL AUTO_INCREMENT;

ALTER TABLE 'Location'
  MODIFY 'locationID' int(11) NOT NULL AUTO_INCREMENT,AUTO_INCREMENT=1410;

```

```

ALTER TABLE 'Organization'
  MODIFY 'organizationID' int(11) NOT NULL AUTO_INCREMENT,AUTO_INCREMENT=2;

ALTER TABLE 'Conference'
  ADD CONSTRAINT 'conference_ibfk_1' FOREIGN KEY ('locationID')
  REFERENCES 'Location' ('locationID') ON DELETE CASCADE;

ALTER TABLE 'Contribution'
  ADD CONSTRAINT 'contribution_ibfk_1' FOREIGN KEY ('conferenceID')
  REFERENCES 'Conference' ('conferenceID');

ALTER TABLE 'Event'
  ADD CONSTRAINT 'event_ibfk_1' FOREIGN KEY ('conferenceID')
  REFERENCES 'Conference' ('conferenceID') ON DELETE CASCADE;

ALTER TABLE 'Registration'
  ADD CONSTRAINT 'conferenceID_FK' FOREIGN KEY ('conferenceID')
  REFERENCES 'Conference' ('conferenceID'),
  ADD CONSTRAINT 'userID_FK' FOREIGN KEY ('userID') REFERENCES 'Attendee' ('userID');

```


5 Front-End and Back-End Design

We used several front-end and back-end tools to build our system. All the tools that have been used are displayed in (fig.2 and fig.3).



Figure 2: Front-End Tools.



Figure 3: Back-End Tools.

6 Implementation

In this section, we are going to walk through the system by showing the pseudo-code along with screenshots from the system.

1. The main page of our system, which contains the main functions and links, which can help the user to navigate through the our system, besides some aggregation functions.

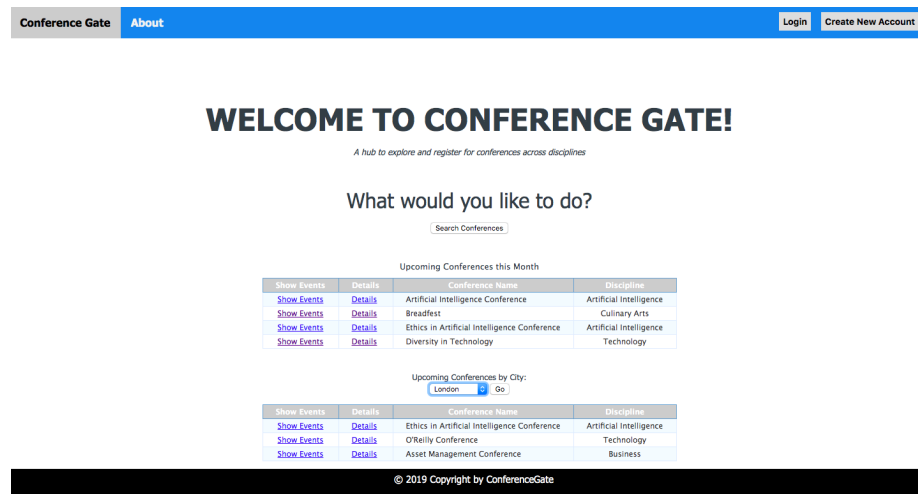
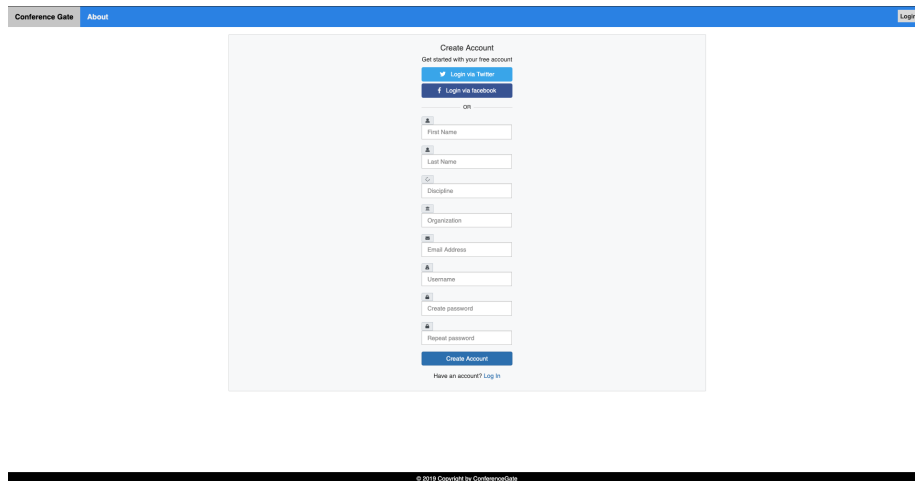


Figure 4: Main Page.

2. One of the main functions is help the user create an account. So, we create a function that can help the user to do so.



The screenshot shows the 'Create Account' page of the 'Conference Gate' application. The page has a blue header with 'Conference Gate' and 'About' links, and a 'Login' button in the top right. The main content area is titled 'Create Account' and 'Get started with your free account'. It offers two login options: 'Login via Twitter' and 'Login via Facebook'. Below these, there is a section for creating a new account with the following fields: 'First Name', 'Last Name', 'Discipline', 'Organization', 'Email Address', 'Username', 'Create password', and 'Repeat password'. A 'Create Account' button is at the bottom of the form. A link 'Have an account? Log in' is located at the bottom right of the form area. The footer of the page contains the copyright notice '© 2019 Copyright by ConferenceGate'.

Figure 5: Create an Account.

3. If a user already has an account, the user can basically just login.



The screenshot shows the 'Please login' page of the 'Conference Gate' application. The page has a blue header with 'Conference Gate' and 'About' links, and a 'Login' button in the top right. The main content area is titled 'Please login' and 'Fill in your credentials to login'. It contains two input fields: 'Username' and 'Password'. A 'Login' button is positioned below the 'Password' field. A link 'Don't have an account? Sign up now.' is located at the bottom left of the form area. The background of the page is a blurred image of a conference hall with a large screen displaying a presentation. The footer of the page contains the copyright notice '© 2019 Copyright by ConferenceGate'.

Figure 6: Login.

4. Our system supports different kinds of search function, which can help the user to further investigate. Here is an example for searching for conferences located in the city of 'Halifax', followed by the result.

Conference Gate

AboutLogout

My Account

Search for a Specific Conference, Paper, or Event?

ConferenceContributionEvents

* Search by one or more:

Conference Name

Conference Name

City

halifax

Discipline

Discipline

Start Date Between

mm/dd/yyyy

And

mm/dd/yyyy

Search

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Figure 7: Conference Search.

Conference Gate

About

Logout

My Account

Search Results

Show Events	Name	Location	Address	City	Discipline	Start Date	End Date	Register Now!
Show Events	IAET International Conference on Computer Modeling, Engineering, Information Technology and Natural Sciences (CENS)	Donec Institute	9480 Eu Av.	Halifax	Data Mining	2019-10-24	2019-10-29	Register
Show Events	2019 2nd International Conference on Artificial Intelligence and Pattern Recognition (AIPR)	Donec Institute	9480 Eu Av.	Halifax	Data Mining	2019-04-24	2019-04-29	Register

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Figure 8: Conference Search Results.

Additionally, there are more ways to search, like by specific paper or event (fig. 9 and fig. 10).

Conference Gate	About	Login	Create New Account
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Search for a Specific Conference, Paper, or Event? 🔍

Conference

Contribution

Events

Contribution Name

Contribution Name

Search

Figure 9: Contribution Search.

Figure 10: Event Search.

5. Our system supports a user-friendly, elegant payment gateway so that the user can register for the conference through this platform instead of going to the official conference page.

Figure 11: Registration Form.

Here, our system confirmed the registration since the process passes all the conditions.

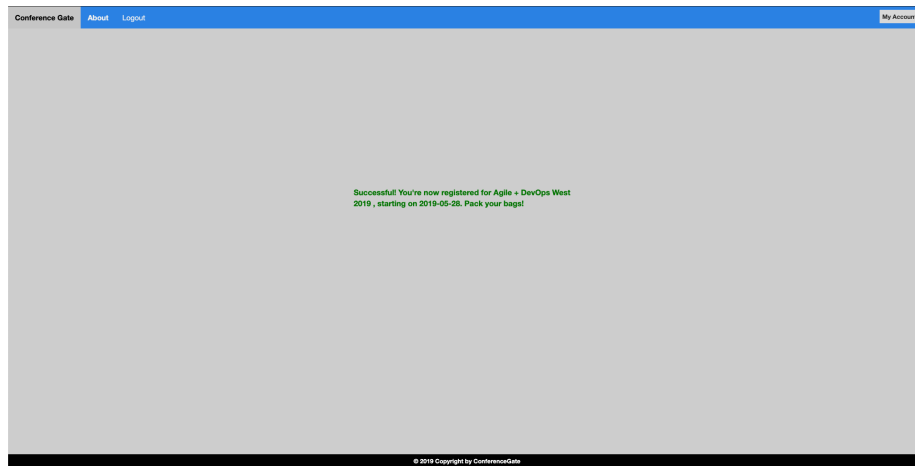


Figure 12: Successful Registration.

6. Moreover, our system supports a smart user page (dashboard) which shows the user's personal information and the conferences that he/she registered for.

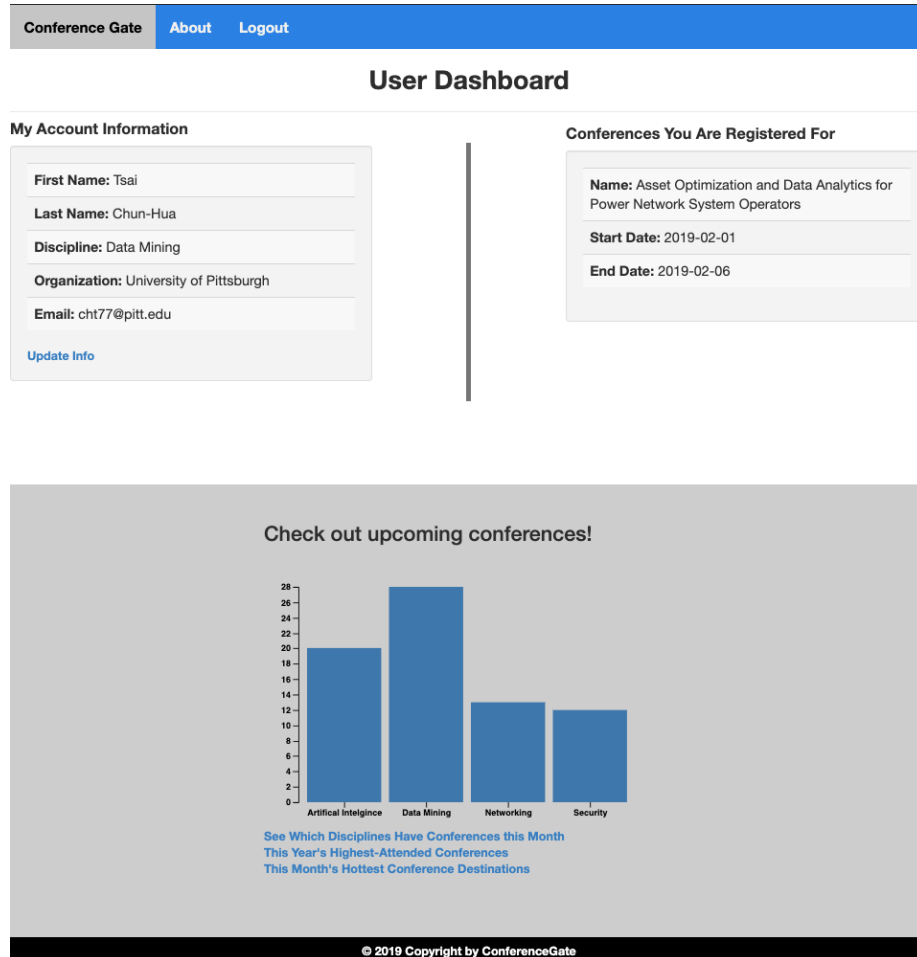


Figure 13: User Page.

6.1 Operations

- **Browsing Function.** In our system we have couple of ways to browse through conferences, one we already mentioned in the previous section, and the other one is (fig.14) below.

Conference Gate		About											Login	Create New Account
Showing All Conferences														
Previous 1 2 3 4 5 6 7 8 9 10 11 Next														
Learn More	Name	Address	City	Discipline	Start Date	End Date	Register Now!							
Learn More	2019 5th International Conference on Systems, Control and Communications (ICSCC 2019)	3813 Nlar St.	Ellon	Artificial Intelligence	2019-06-17	2019-06-22	Register							
Learn More	2nd International Conference on Manufacturing and Aviation and Engineering Sciences (IMAES)	3813 Nlar St.	Ellon	Artificial Intelligence	2019-11-24	2019-11-29	Register							
Learn More	2019 The 7th International Conference on Information Technology and Science (ICTS 2019)-EI Compendex, SCOPUS	3813 Nlar St.	Ellon	Networking	2019-10-02	2019-10-07	Register							
Learn More	6th International Communication Days	Ap #274-4120 Bielefeld, Ave	Hildesheim	Data Mining	2019-02-13	2019-03-18	Register							
Learn More	23rd International Conference on Contemporary Issues in Science, Engineering & Management (ICC-SEM)	Ap #274-4120 Bielefeld, Ave	Hildesheim	Data Mining	2019-07-15	2019-07-20	Register							
Learn More	2019 The 7th International conference on Smart Energy Grid Engineering (SEGE 2019)-IEEE Xplore	Ap #274-4120 Bielefeld, Ave	Hildesheim	Networking	2019-11-26	2019-12-01	Register							
Learn More	2019 The World Symposium on Software Engineering (WSSE 2019)-EI Compendex, Scopus	Ap #274-4120 Bielefeld, Ave	Hildesheim	Data Mining	2019-02-23	2019-03-28	Register							
Learn More	2nd International Conference on Advanced Engineering and Technology Studies 2019 (ICATTS 2019)	Ap #274-4120 Bielefeld, Ave	Hildesheim	Artificial Intelligence	2019-05-18	2019-05-23	Register							
Learn More	International Conference on Emerging Trends in Information Technology, Smart Materials, Engineering and Applied Sciences	Ap #274-4120 Bielefeld, Ave	Hildesheim	Artificial Intelligence	2019-09-10	2019-09-15	Register							
Learn More	ANMM 2nd International Conference on Research Advances in Engineering, ICT, Basic and Applied Sciences (ERBA)	Ap #274-4120 Bielefeld, Ave	Hildesheim	Artificial Intelligence	2019-11-30	2019-12-05	Register							
Learn More	2nd International Conference on Electrical, Electronics, Software Engineering and IT Studies	Ap #274-4120 Bielefeld, Ave	Hildesheim	Networking	2019-05-26	2019-05-31	Register							
Learn More	2019 8th International Conference on Intelligent Information Processing (ICIP 2019)	Ap #274-4120 Bielefeld, Ave	Hildesheim	Security	2019-01-01	2019-01-06	Register							
Learn More	WEASC 2nd International Conference on Engineering Sciences, ICT & Basic and Applied Sciences (IBAS)	Ap #274-4120 Bielefeld, Ave	Hildesheim	Artificial Intelligence	2019-05-29	2019-06-03	Register							
Learn More	International Conference on Information Technologies and Computer Science (ITICS)	Ap #274-4120 Bielefeld, Ave	Hildesheim	Artificial Intelligence	2019-09-10	2019-09-15	Register							
© 2019 Copyright by ConferenceGate														

Figure 14: Browsing Conferences.

- **Update Function.** Our users have the ability to update their information through a link in their account page (fig. 13), which will redirect them to the update information page (fig. 15)

Edit Information

Make sure to completely fill every field!

OR

First Name

Last Name

Discipline

Organization

Email Address

Username

Create password

Repeat password

Edit Info

Figure 15: Update User Information Page.

- **Error Checking, Security, and Testing Functions.**

In order to have more robust system, we identify several conditions and criteria that can help us to control our system. For example, the user will not be able to login if there is a problem with either the username or password. Also, if the conference is full, user will not able to register and a error message will appear (fig. 17). In addition to that, if the user already registered for a conference, the system will not let him/her register again (fig. 18). One of main security procedures that we have considered is that the password has to be encrypted using hash-encryption function (fig. 19).

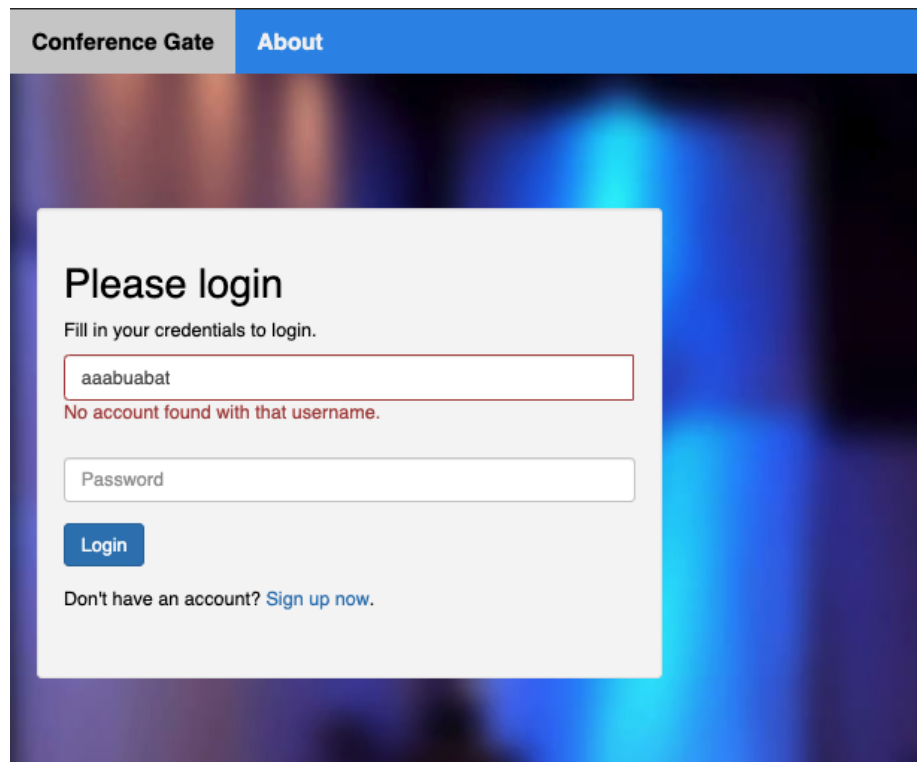


Figure 16: Login Error Message.

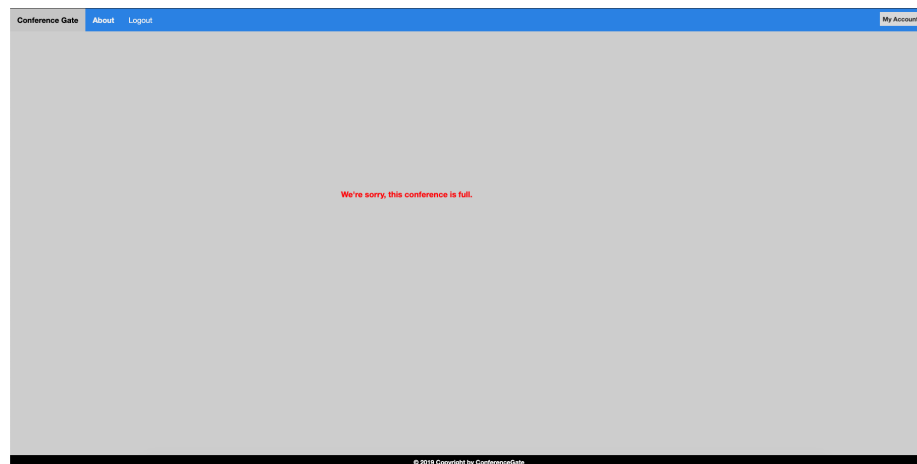


Figure 17: Conference is Full Error Message.

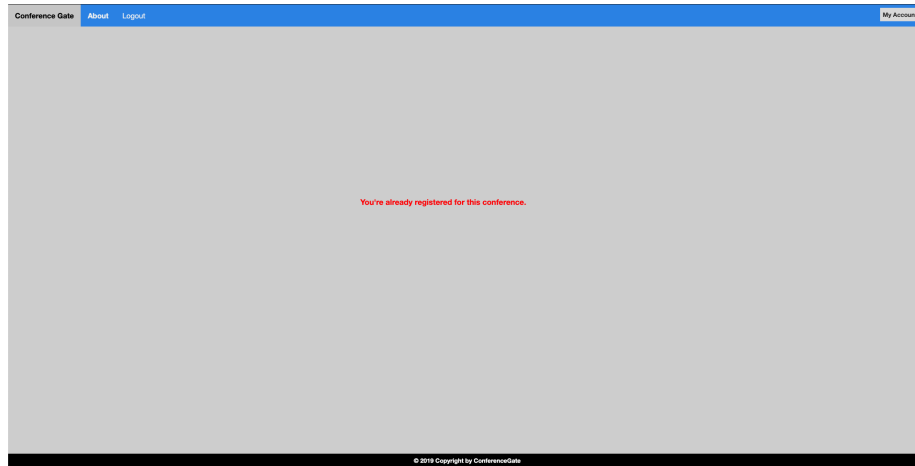


Figure 18: "Already Registered" Error Message.

password

\$2y\$10\$VSusX/ttxrq1zg14pxSUDe6p4P/RAOSOsar/QGyBqA7...

\$2y\$10\$/w9oefrni7rfOuH59vYU.uRSpQIJQU.d6feaDD1j/d4...

\$2y\$10\$pQitqcCM6OSMFPDj9Q/H7uTSpTWDcDDgV0nSxWhlxPN...

Figure 19: How the Password looks like in Our Database.

- **Data Aggregation**
 - **First Aggregation Function.** This function is located in the landing page, which can help any guest to browse through the upcoming events and conferences.

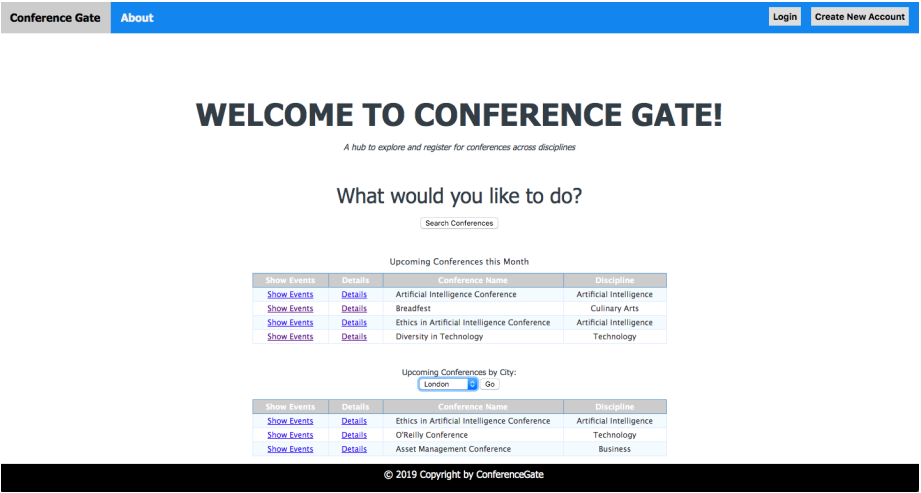


Figure 20: First Aggregation Function.

- **Second Aggregation Function.** This function is located in the user page, which can help the user to see the hottest conference destinations.

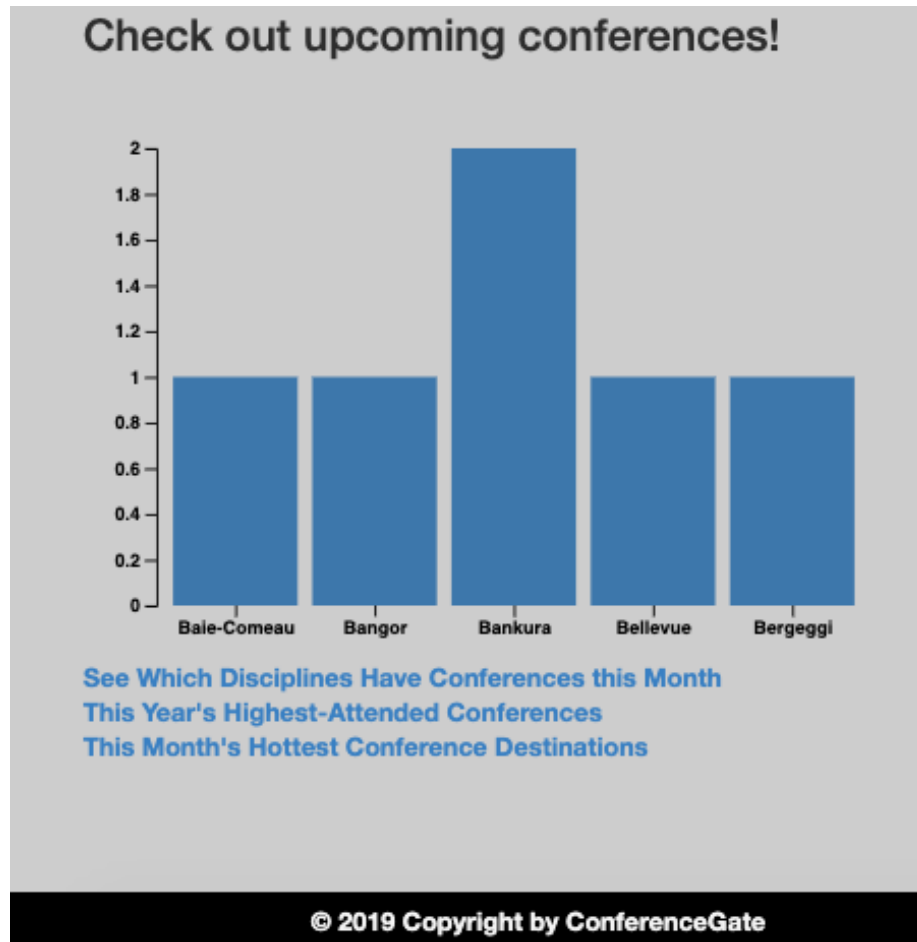


Figure 21: Hottest Conference Destinations.

- **Third Aggregation Function.** This function is located in the user page, which can help the user to see disciplines that conferences have this month.



Figure 22: Disciplines that the Conferences Have this Month.

7 Improvements and Conclusion

To conclude, our system allows users to browse through and register for conferences across disciplines. Although our system has several important and useful features, there is room for further improvements. Our future work will be focused on how to have different kinds of users in which each kind has different features and functions, such as organizations representatives and administration users. Also, we seek to have more intelligent system that will recommend conferences to users based on various factors such as past browsing history. Furthermore, other features such as that the user can 'like' and 'save' conferences he/she is interested in as well as feature that will give the user an alert before the registration due date are some ideas for potential improvements.

— The End —