BABEȘ-BOLYAI UNIVERSITY

**Faculty of Mathematics and Computer Science**
**Computer Science**

# Software Engineering

## Conference Management System

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**June 2021**

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# 1. Introduction:

- The Conference Management App aims to facilitate the whole process of organizing scientific conferences by automating the connections between the conference participants and by offering an easy to use and intuitive online platform

- The objective of a Conference Management System is to support the automatic management of information related to scientific conferences.
- Mainly there are 3 distinct phases regarding the management of the information preceded by a preliminary phase.

- In the first phase, each person interested in submitting a proposal creates its own user account fulfilling the information required. Once the account is validated, the submitter logins and submits the abstract.

- In the second phase, PC members are required to bid the proposals. Each PC member has to do a brief analysis of abstracts or papers in order to say if they are pleased to review some papers, or if they could evaluate some papers, or if they refuse to evaluate other papers. Only papers accepted and presented at the conference will be published. After receiving the acceptance decision, authors are invited to improve their accepted papers taking into account reviewers recommendations. PC members excepting the chair/co-chairs can submit proposals by logging as authors. In this case, they have not the right to see neither the reviewers of their paper nor the comments between reviewers.

- The third phase concerns the conference activities - mainly papers' presentations. Depending on the number of participants and of accepted papers, the conference is structured in different sections, some of them organized in parallel. Each section is supervised by a session chair which in most cases is a member of the Program Committee (PC member) including the chair/co-chairs. Authors presenting their accepted papers are named speakers. Participants to each section are: chair, speakers and listeners. In order to assign the most appropriate rooms for each section, in case of important conferences (having hundreds of participants) these are invited to specify which are the sections they intend to participate in. A speaker cannot be the chair of the section in which she/he presents his paper. Usually, before the presentation, speakers upload on the conference site the content of the presentation by means of a .pdf or .ppt(x) file.

# 2. Used technologies:

- Persistent storage:
  - PostgreSQL, ORM with Spring and Hibernate
- Front-end:
  - React.js, HTML, CSS
- Back-end:
  - Java with Spring Boot
- Collaboration tools
  - Task management system: Trello, Notion
  - Discord, Google Docs, Google Slides
- Version Control
  - Github
- Diagram tools
  - sequencediagram.org
  - draw.io (diagrams.net)
  - IntelliJ IDEA (class diagram generator)
- Testing
  - User testing and manual testing
  - API testing with Postman

# 3. Proposed System:

## 3.1. Functional requirements:

1. **Users** can **register** on the website for a conference as a listener after paying the registration fee
2. Any **user** can register as an **author**, providing the name, affiliation, email
3. The **author** has to **submit the paper** for phase 1 (if the deadline if not reached yet)
4. During the second phase, **PC members** analyze the **proposals** and choose which ones they want to review.
5. After the bidding process finishes, **PC members** are now **reviewers** and their page contains the papers that he was assigned to review
6. **Steering Committee** can see existing conferences and **create conferences**
7. **Steering Committee** can add **PC members**
8. **Chair/Co-Chair** can change the **deadlines**
9. During phase 2 **PC members bid papers** until the bid deadline is reached
10. In the case of **Chair/Co-chair** it will **show accepted** but not assigned papers and **assign** it to at least 2 different reviewers
11. When the bid deadline is reached the **PC members** select papers from the list of **papers assigned to review** and set their accepted/rejected evaluation qualifier
12. Then it will show the results of the evaluations for the same paper and the **authors** are announced about their **paper results**

## 3.2. Non-functional requirements:

### Security requirements:

Ensure that the user data is not accessible by everyone, just the administrators have access to it, in our case committee members, so regular users or authors do not have the permission to access other data or interfere with the conference schedule and details. With the use of cookies for session management, we have managed to guarantee secure authentication and authorization for all of our users.

### Privacy requirements:

We do not collect personal data from our users. We have used best industry standards in the design of our application in order to ensure that personal data is not leaked.

### Usability requirements

We use minimalist UI design to make sure that the user experience is on point, using suggestive tags to highlight the input fields, colored buttons and an intuitive structure.

### Performance & Scalability requirements:

The application is built using the latest web technologies, enabling industry leading performance and scalability. Compared with the best in class MVC application, our solution delivers up to 5 times* more performance at the same cost.

*theoretical difference in performance

### Environmental requirements:

We are very interested in the environmental impact of our application. Using the latest REST web technologies, we have managed to switch a part of the processing from our Dataservers to the client's device, enabling up to 30%* energy reduction compared with the best in class MVC application. This is truly remarkable. We are committed to making updates to our application such that we can reduce our energy consumption by up to 60% in the following two years. We'll work only with web hosting facilities which guarantee 100% use of renewable energy.

*theoretical difference in performance

## **3.3** System models:

### **3.3.1** Scenarios:

Action: **Register as participant**
Actors: Bob: **User**
Flow of actions:

- Bob wants to participate at a research conference and he wants to do it quick and remote, so he does not spend a good amount of time to solve this task
- Bob accesses our platform and creates an account if he does not have one in the first place
- After registering on the platform, he logs in with the created account
- Bob can now see all the conferences that he can enroll in. He chooses the desired conference and then he is redirected to the payment page
- After the payment goes through he is registered as a listener to the conference and can check the details at anytime

Preconditions:

- User is not already logged in

- User data is valid
- Transaction is successful

Postconditions

- User is registered

Action: **Submit a paper**
Actors: Alex: **User**
Flow of actions:

- Alex worked on a research project for the past 2 years, and wants to finally publish his research paper
- He registers on our website and then logs in
- Signing up for a conference, the author has now access to the paper uploading window where he needs to fill in the required data and attach the pdf file
- Alex followed all the required steps and he can now lay back and wait for the review

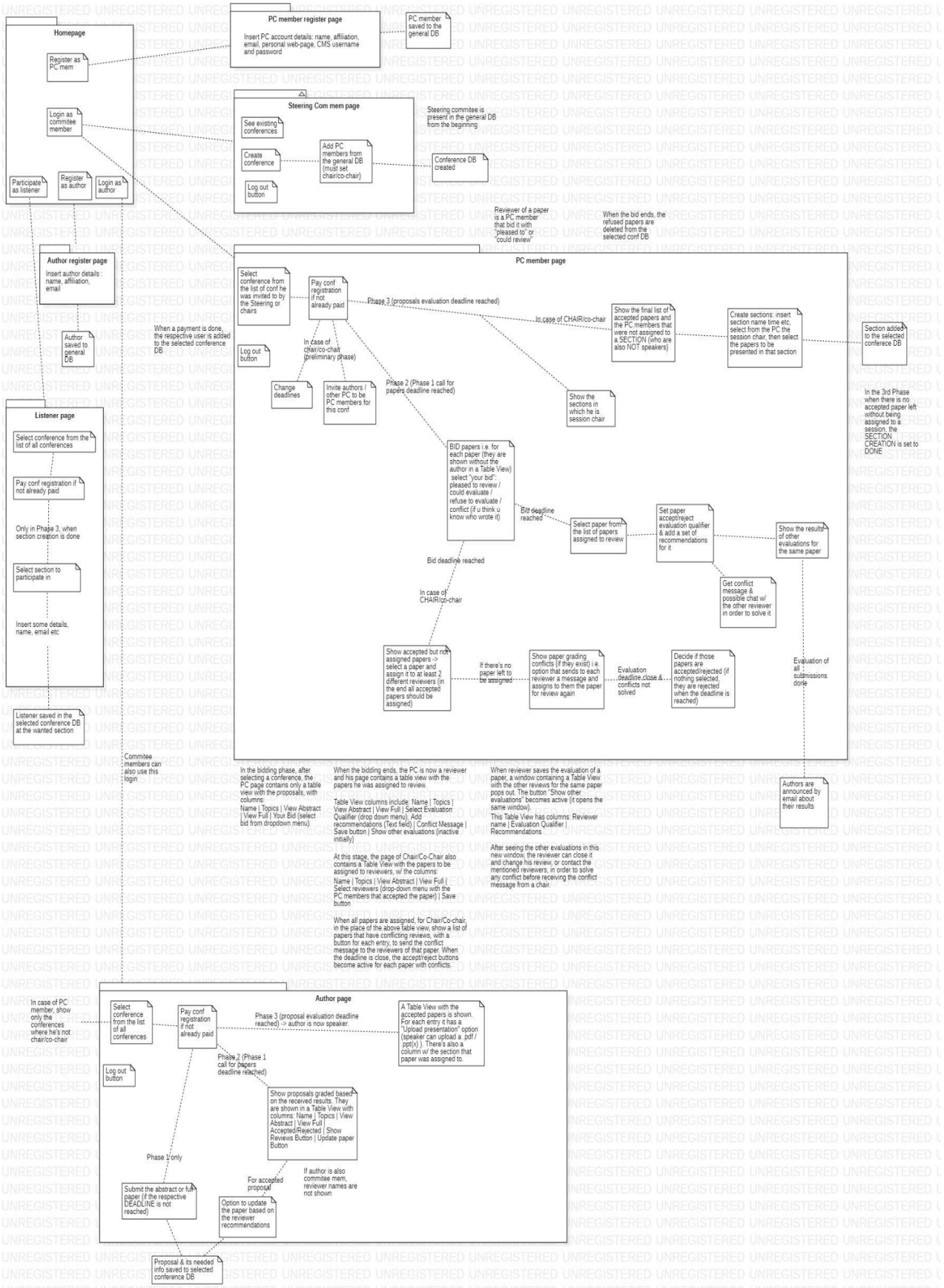
Preconditions:

- User is not already logged in
- User data is valid
- Transaction is successful
- Paper data is in order

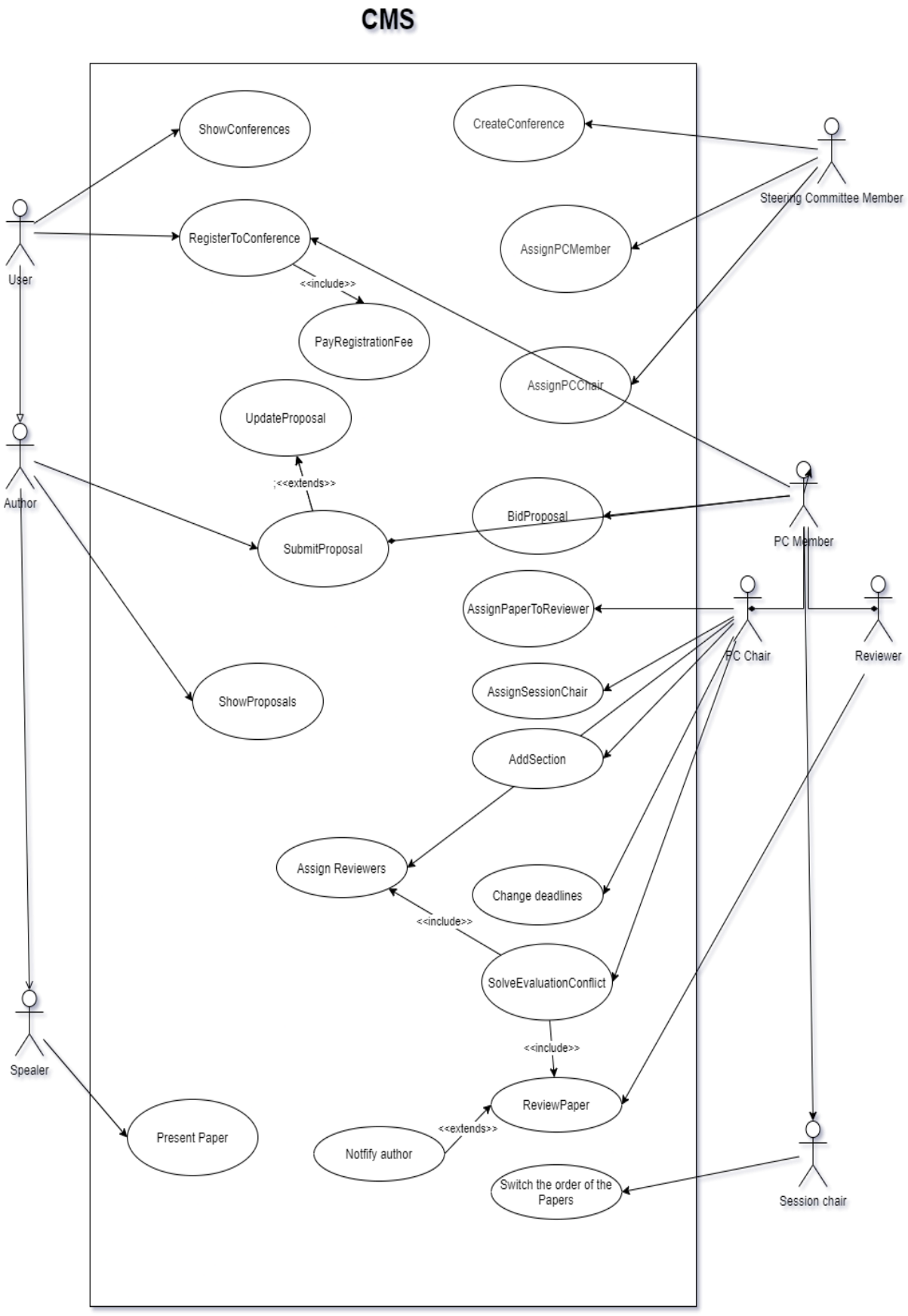
Postconditions

- Paper is submitted

## **3.3.2** System design model:



### **3.3.3** Use case diagram:




### **3.3.4** Use Cases:

User**:**

**Action:**

-User register

**Precondition:**

-User is not already logged in

-User data is valid

**Postcondition:**

-User is registered

Steering committee:

**Action:**

-Create conference

**Precondition:**

-User logged in as Steering Committee Member

**Postcondition:**

-Conference saved

Author:

**Action:**

-Submit proposal

**Precondition:**

-User is logged in

**Postcondition:**

-Proposal is saved

PC Member/Reviewer:

**Action:**

-Evaluate papers

**Precondition:**

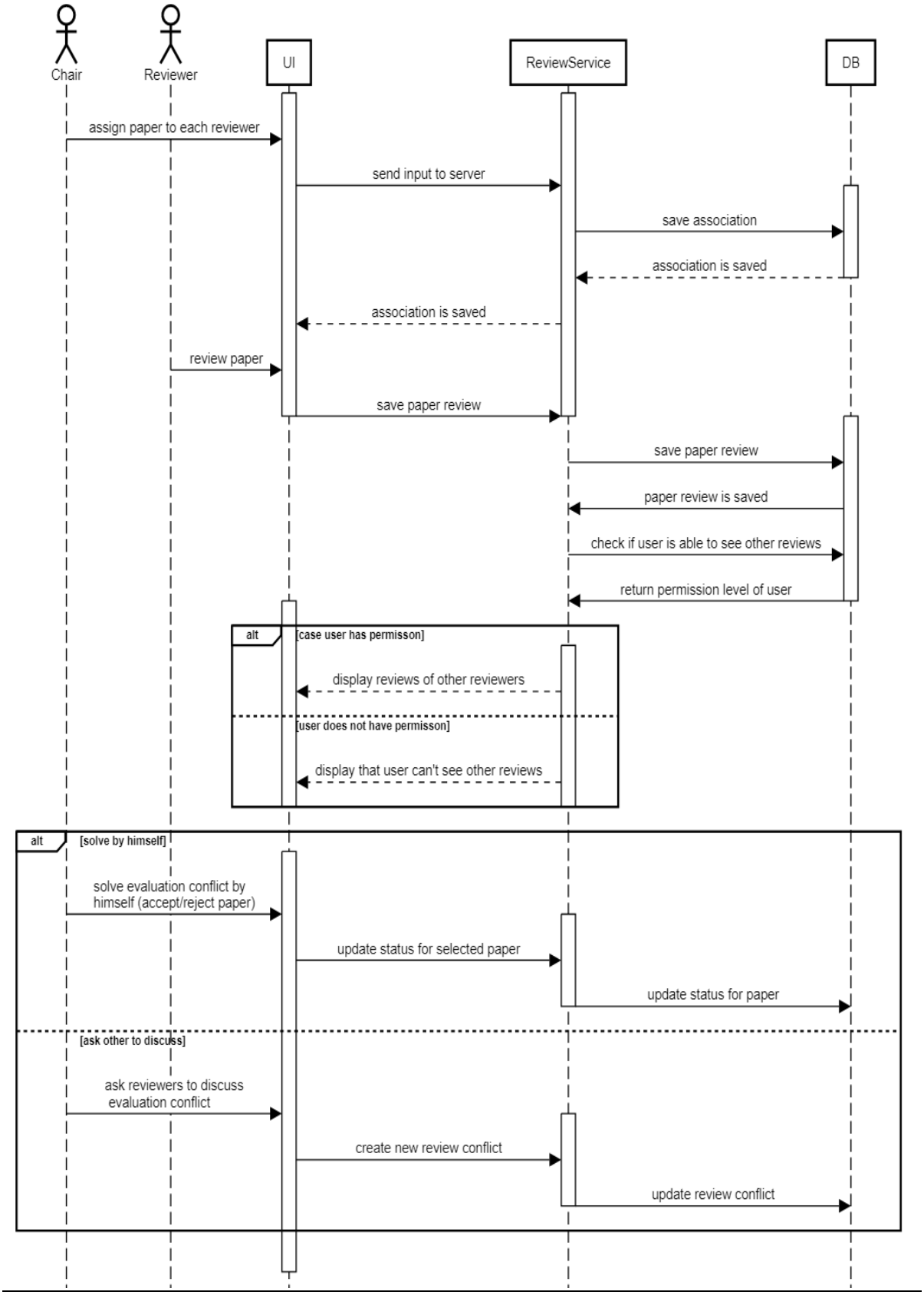
-Reviewer logged in the application

**Postcondition:**

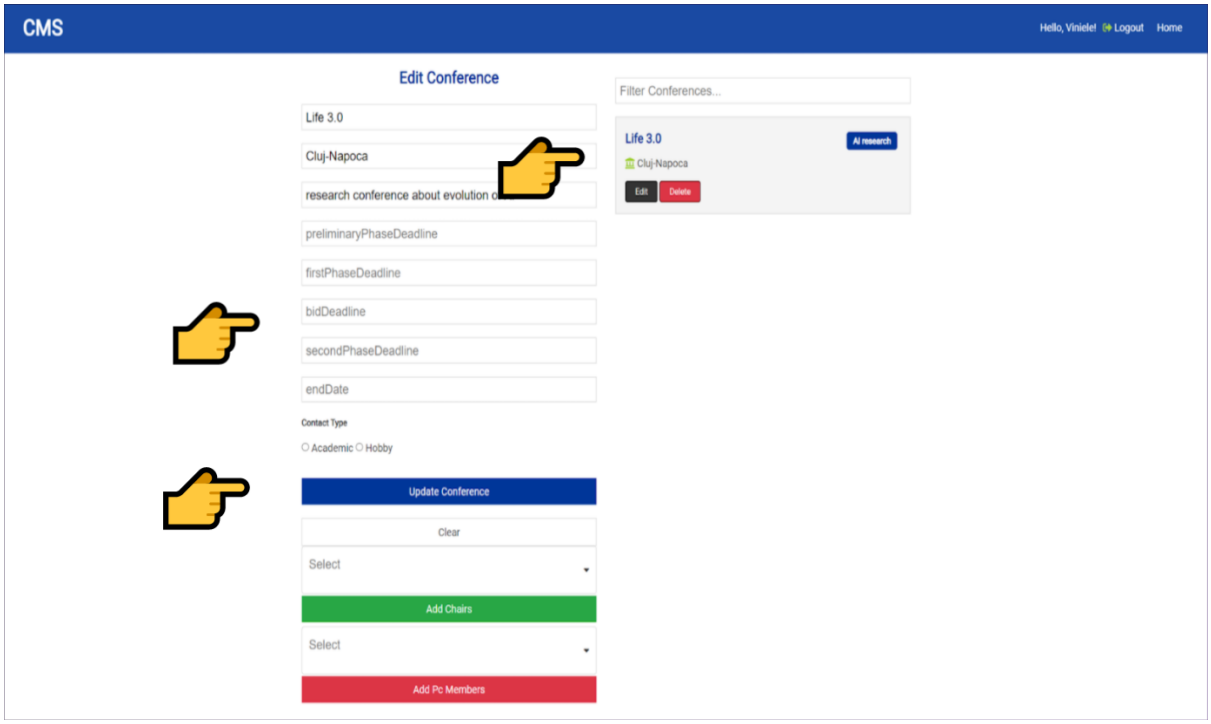
-Reviewer submits his evaluation

### **3.3.5** Sequence diagram (for the paper reviewing process):

Review Sequence Diagram



## **3.3.6** User interface (example for editing conference action):




1. First you need to press Edit on an already existing conferenceFirst you need to press Edit on an already existing conference

2. Then modify or fill in the information

3. Make sure that all the information is in order and press the Update Conference button

# 4. Glossary:

## **4.1** User manual:

**Content:**

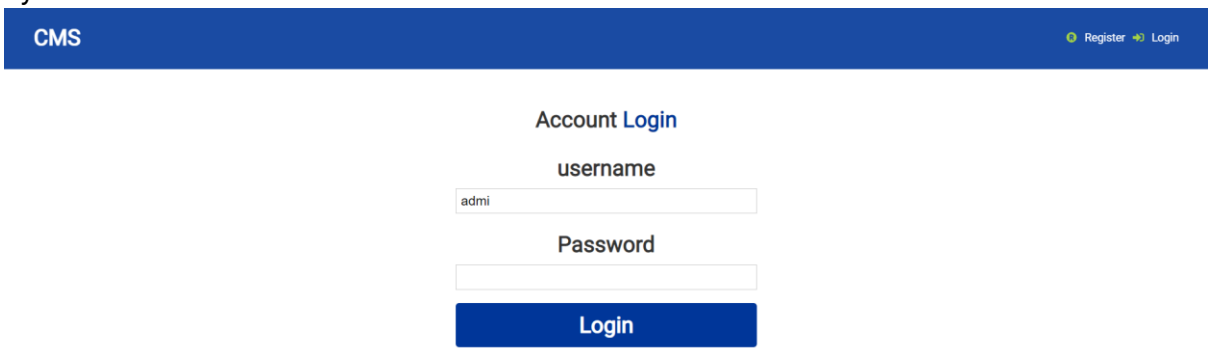

1. Introduction
2. Home page
    2.1 Register button
    2.2 Login button
3. Listener account
    3.1 View Details
    3.2 Enroll
4. Steering committee
    4.1 Add conference
    4.2 Edit conference
    4.3 Delete conference
5. Author account
    5.1 Submit proposal
    5.2 Preview paper
6. PC Member account
    6.1 Review paper

## 1. Introduction:

CMS is an application which helps a team to create, manage and sell tickets for a conference they want present. Here is everything you need to know to use the application properly!

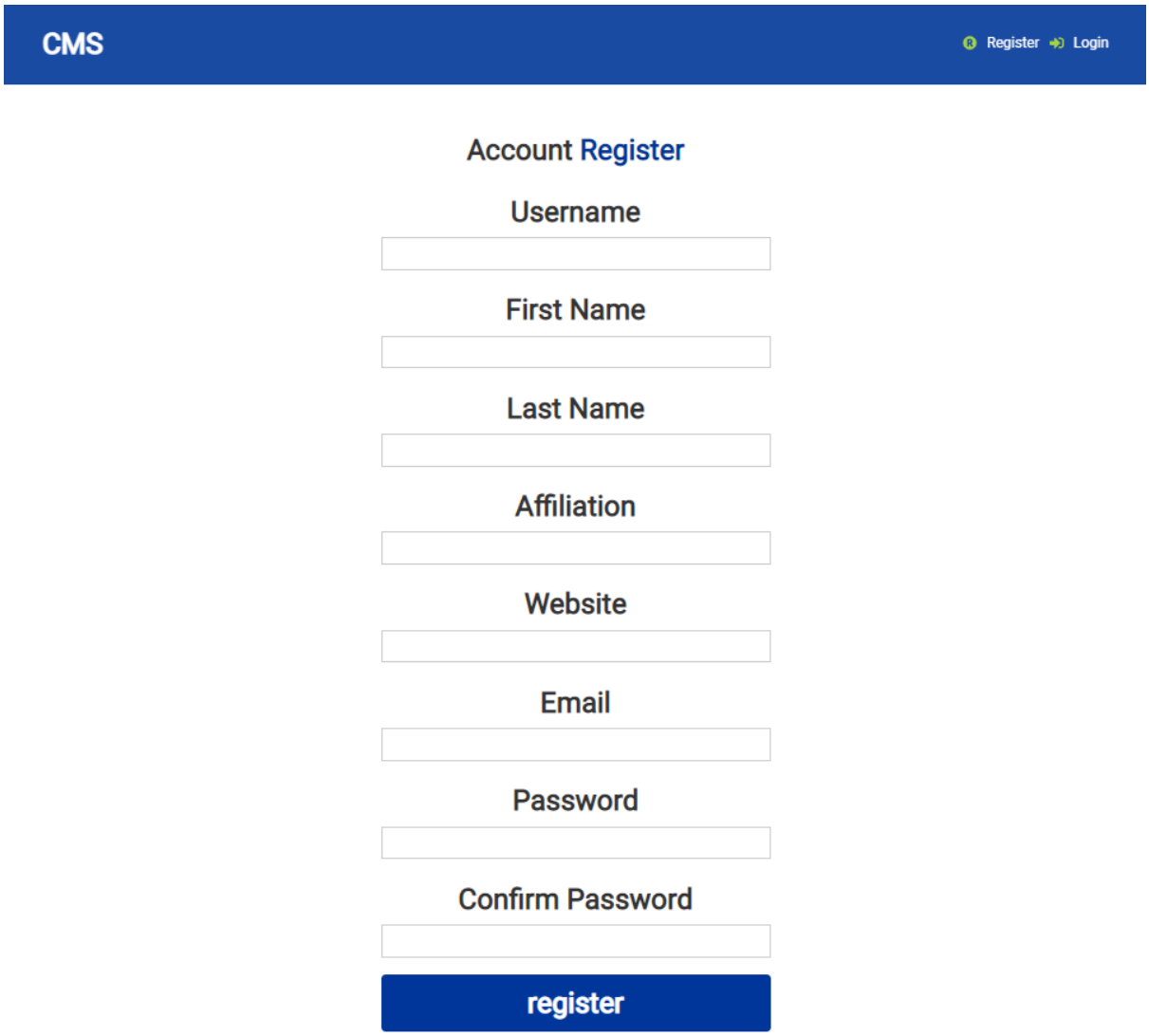
## 2. Home page:

First off, there is the home page. It presents you with two buttons, lets take them one by one:



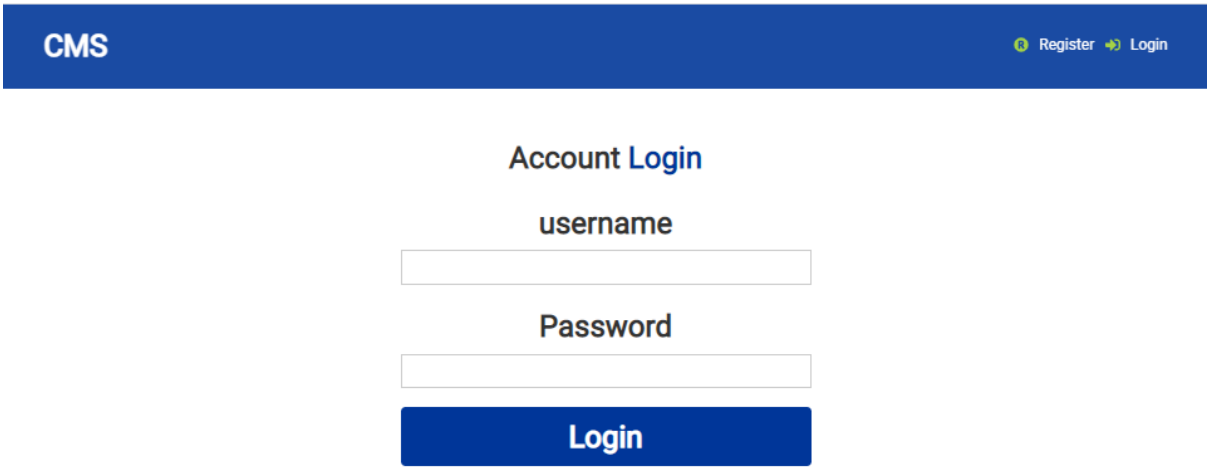
**2.1** There is the “Register” button, which allows you to register to the site as an “Listener”, which gives you access to the right of participating in a conference. If you submit any paper you automatically become an “Author”. This means you can submit papers from your author account and take part into the paper competition. If you want to be a higher member of the committee, which means being a part of the reviewers of even create your own conferences, you need to be invited by an already registered Chair. In order to register to the page you need to enter some basic credentials.

The register page looks like this:



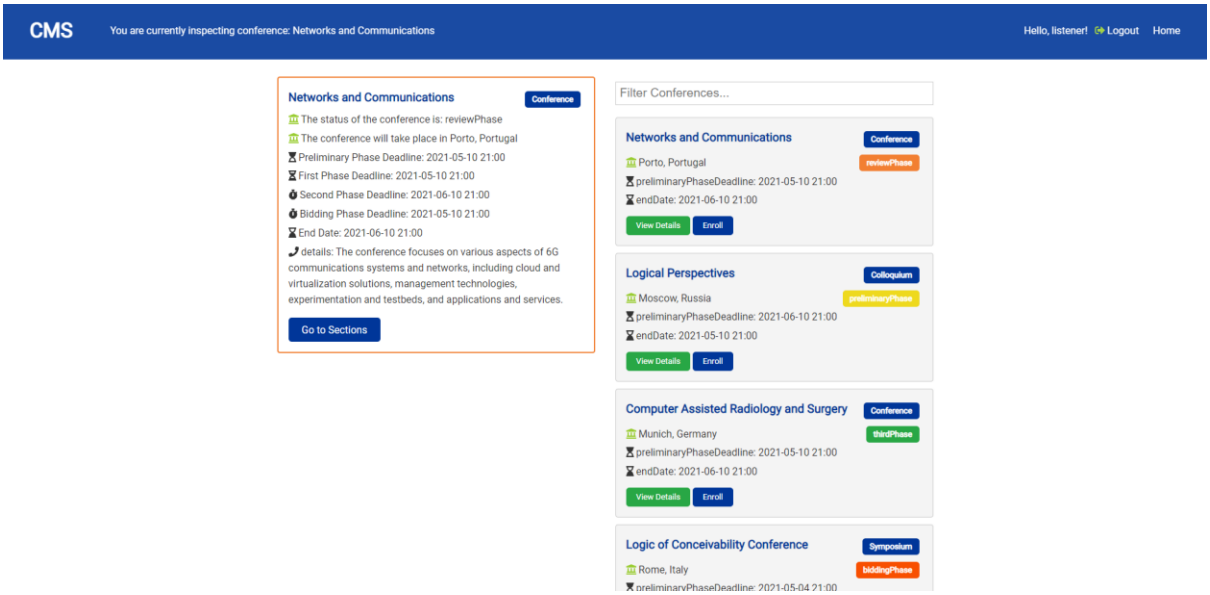
**2.2** There is the “Login” button, which you can use in order to login to the site. This will take into consideration everything, this means, for example, if you login with an author account, it will recognize you are an author and allow you to submit proposals. If you are a Chair, it will let you evaluate papers.

The login page looks like this:



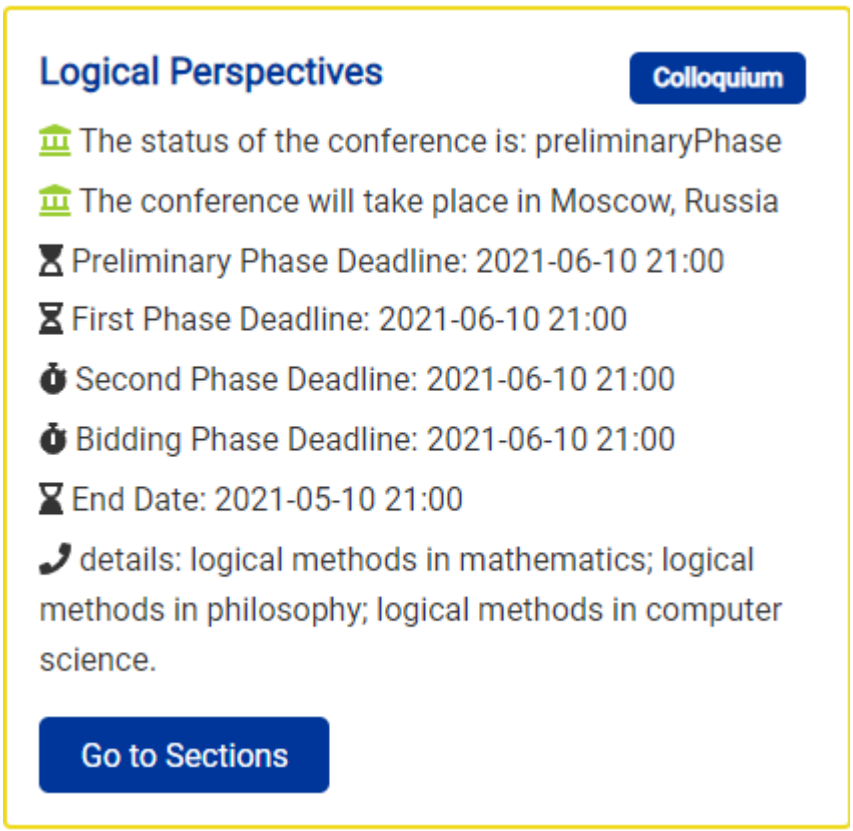

## **3**. Listener account:

Once you logged in with a “Listener” account, you will be presented with the following page.

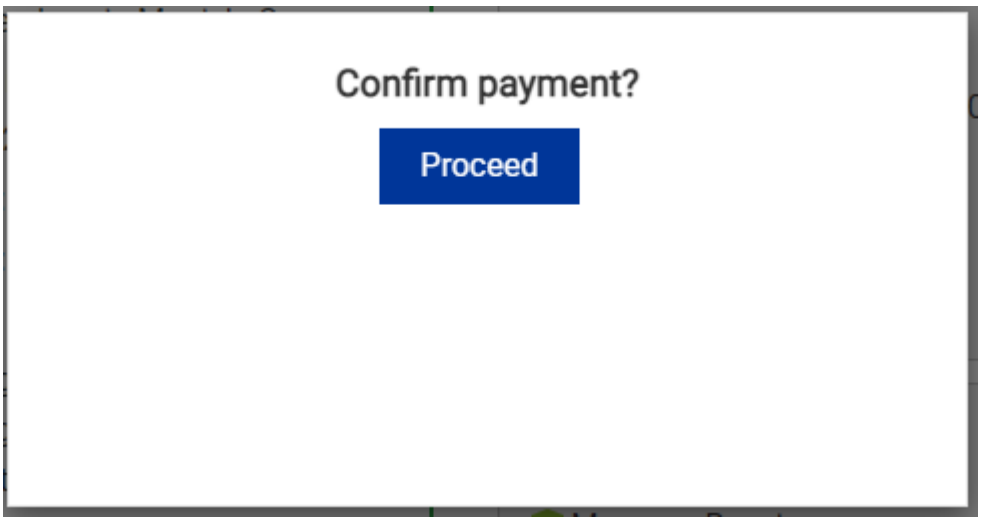


This has a logout button in the top right corner. From here you have some different options.

**3.1** View Details, which shows you the details of a conference, such as the status of the conference, the city where it will take place, first phase deadline, second phase deadline, bidding phase deadline, end date and some details about the conference

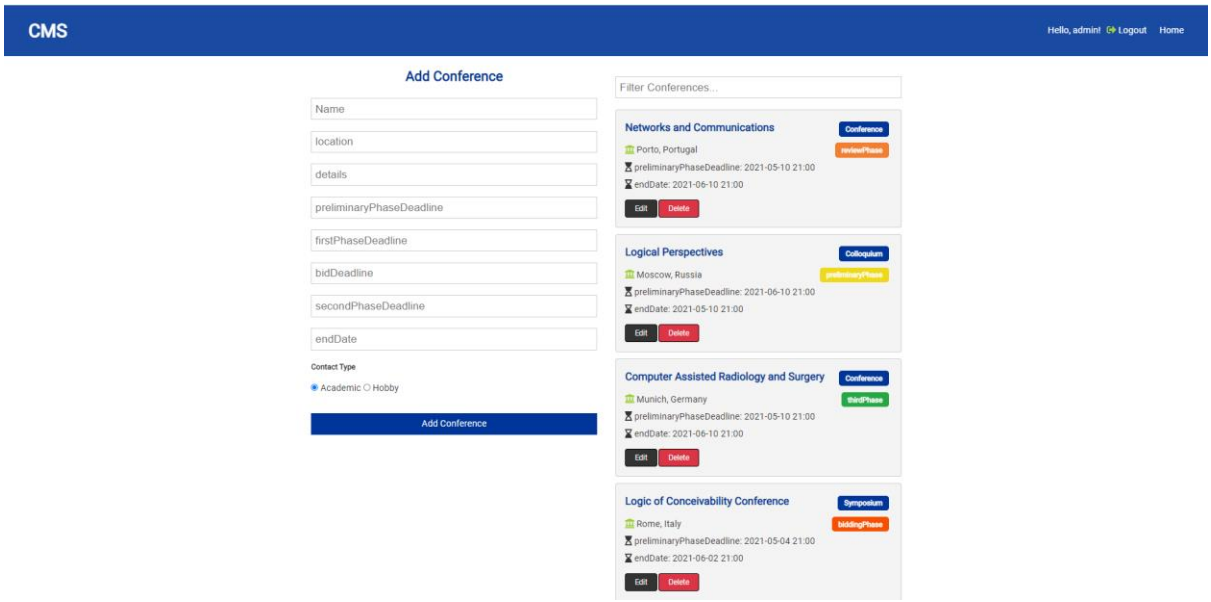



**3.2** Enroll, which opens a new menu where you are asked to confirm the payment in order to enroll to the conference.



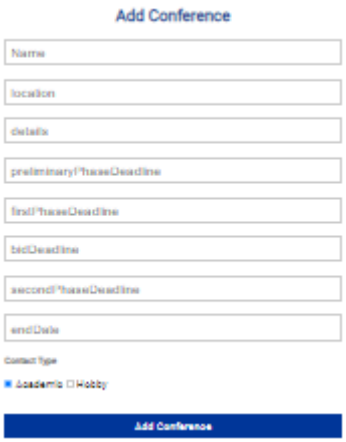
## **4**. Steering committee account:

Once you logged in with a “Steering committee” account, you will be presented with the following page.

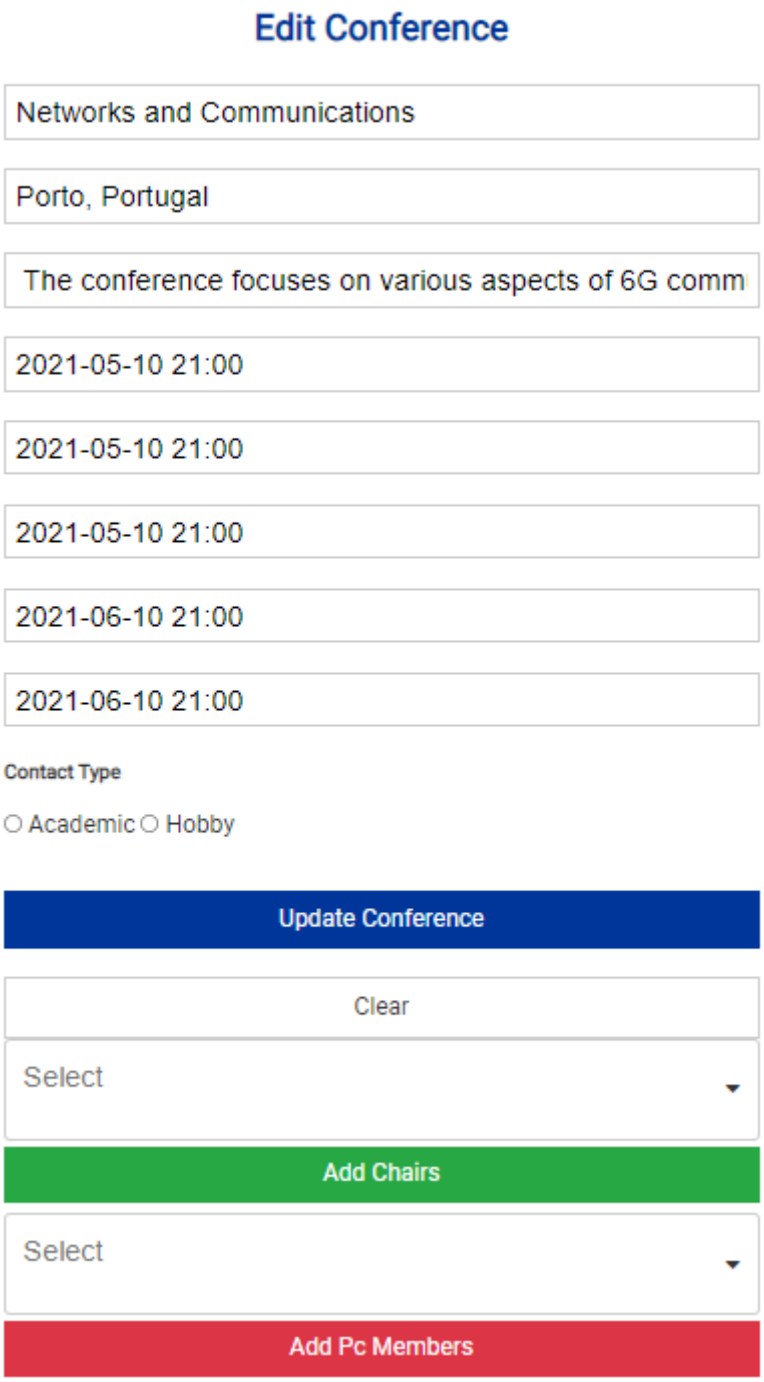



This has a logout button in the top right corner. From here you have some different options.

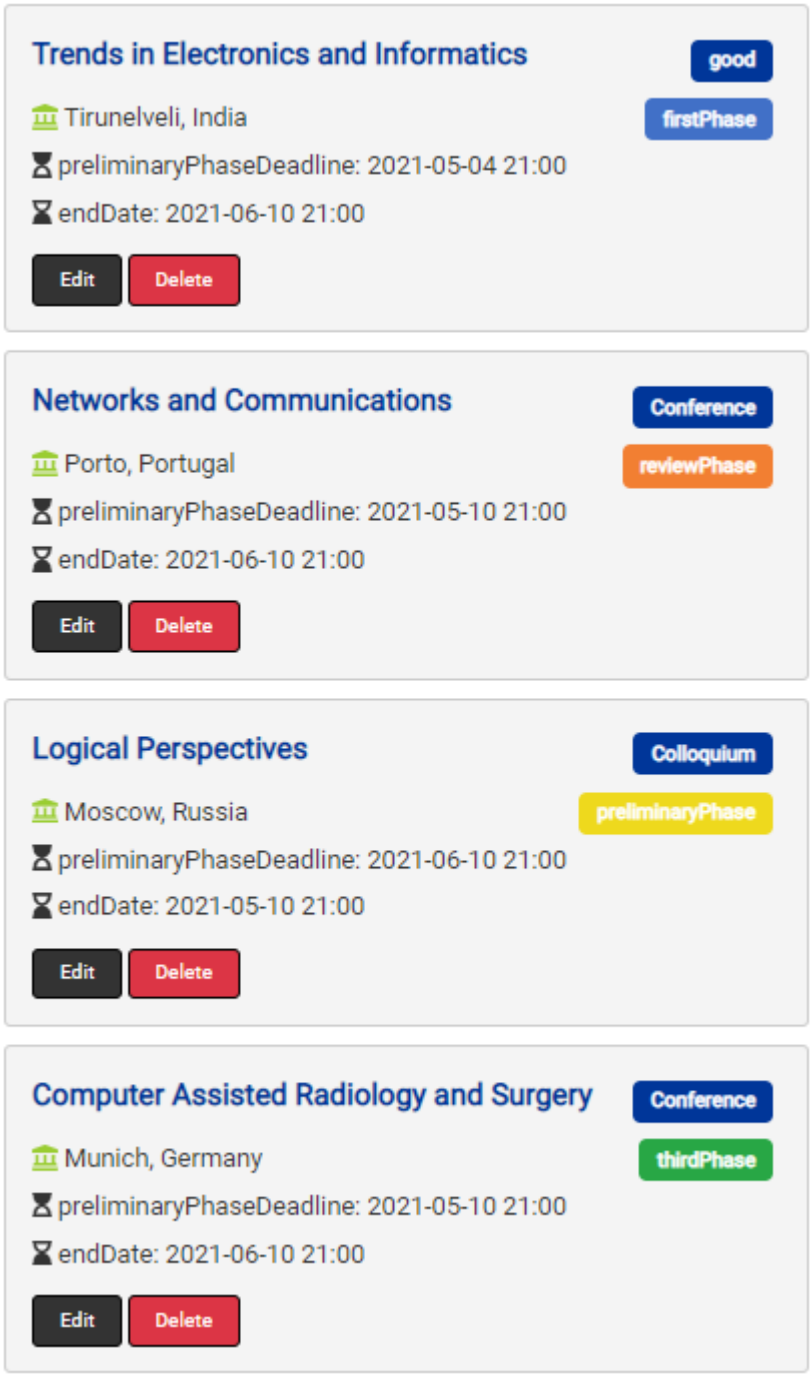
**4.1** Add Conference, which creates a conference with the name, location, details and deadlines that you are required to fill in.



**4.2** Edit Conference, which allows you to update the name, place or deadlines of a conference, and also to add Chairs and add PC Members to the conference.



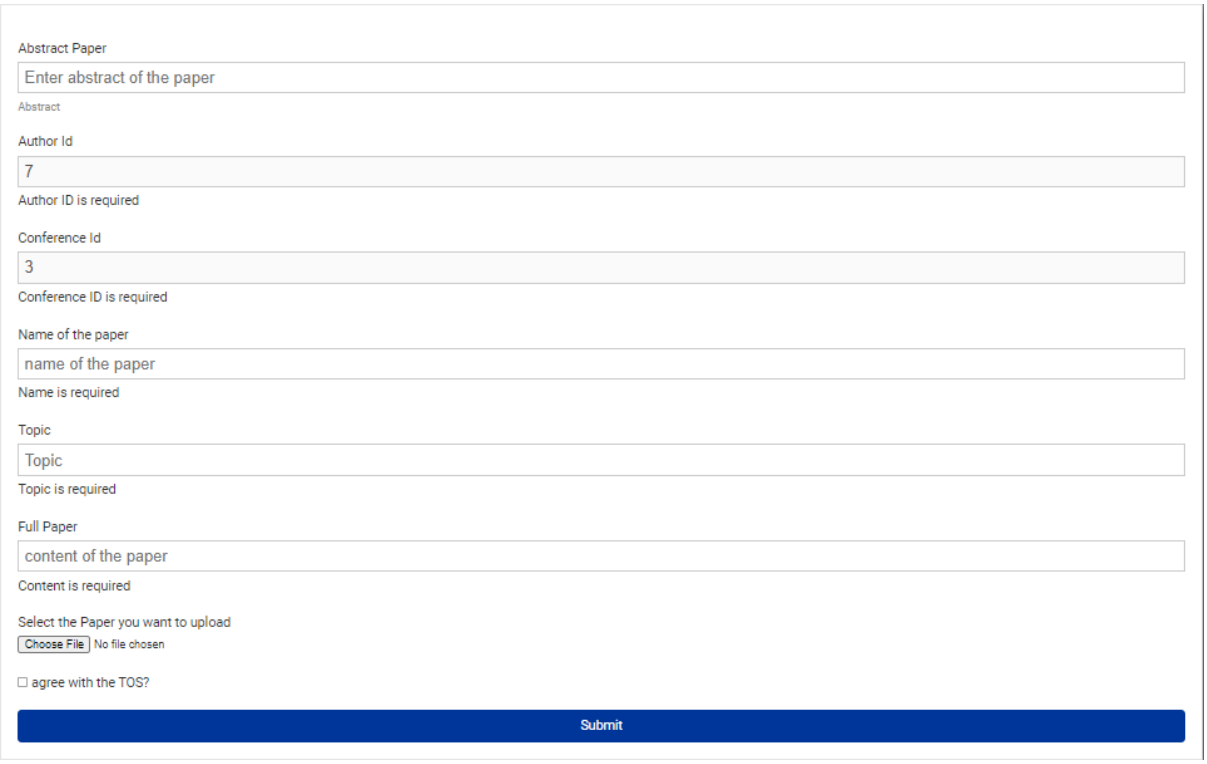
**4.3** Delete Conference, which allows you to delete a conference.



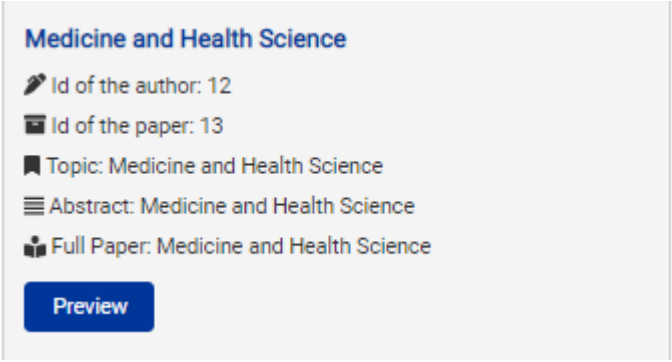

## **5**. Author account:

Once you logged in with a “Author” account, you will be presented the same page as a “Listener” account. From here, you have different options.

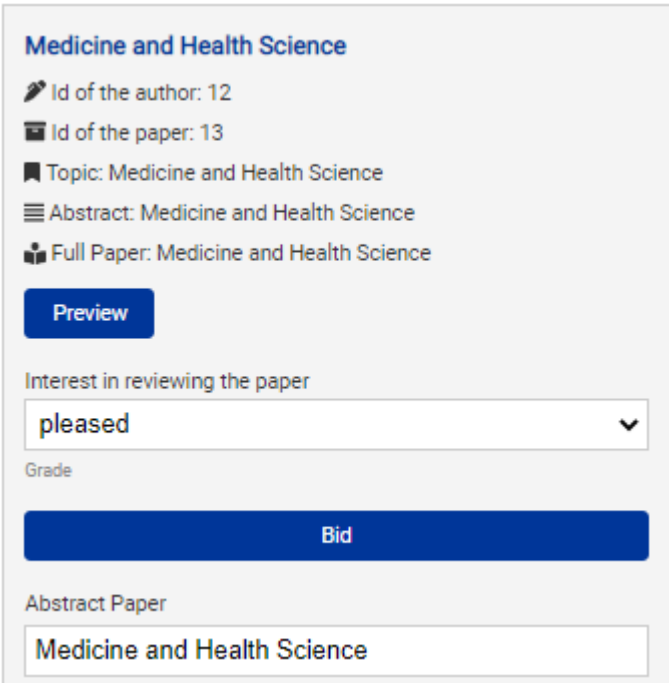
**5.1** Submit proposal, which creates a proposal with the specific details that are required to be filled in.




**5.2** Preview the paper, which allows the author to see the details of the paper.




## **6**. PC Member account:

Once you logged in with as a “Reviewer”/” PC Member”, you will be presented the same page as a “Listener” account. In order to be a reviewer you need to have a normal account and a Steering Committee will give you access to be a reviewer. From here, you have different options.

1)Review a paper, which allows you evaluate a paper once the first phase is finished.