



CS 353 - Database Systems

**Project Title: Scientific Papers Data Management
System**

Final Report

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1 Description

Scientific Papers Data Management System is a database and management system for reading, publishing and reviewing scientific papers. Authors will be able to submit their papers to journals and conferences which will then be reviewed and decided to be published by reviewers and editors. Users can also subscribe to various journals and read papers. Users can search for papers via paper title or related keywords. System will use a login system that users can register using their email addresses and login using the aforementioned address with their passwords. Journals will have distinct ID's (ISSN). Institution will be also linked to authors and therefore they will consequently be linked with the papers they publish. Both institutions and authors will have citation and publication counts regarding their cited and published papers. Also users will be able to see all papers published in a specific journal or conference.

1.1 Contributions

Gerard and Xhoana worked together dividing the parts and helping each other. They did the Sign IN/ Sign Up parts. They implemented all the functionalities of the normal User like Subscriptions and Subscribe together with the profile of the normal user. They implemented the Editor functionalities. The homepage, the profile were implemented nearly the same as the normal user's part. The Submitted papers part in the editor also the Claim Papers part together with all the functionalities of them like assign reviewers. Also the accept/reject part and the read review. In total all the parts of the Editor. Gerard and Xhoana also implemented all the functionalities of the Reviewer. Like the homepage and the profile that are nearly the same as the other homepages and profiles. Also the assigned papers part where the reviewer can write a review for a paper. All the functionalities of the reviewer like the part to write review and assign a grade. At the author part Gerard and Xhoana combined their code with the code of Busra where she had implemented partly functioning code for the upload paper and my papers part in the author. Xhoana and Busra did the specific paper page. Xhoana did the institution and conference separate pages. Gerard did the separate pages of author and journal. Busra implemented a better UI than the current one that we have, however this proved a very difficult job to combine everything in different environments and we stucked to the current UI.

2 Final E/R

- We eliminated collaborate relation in our database.
- We eliminated some attributes that were not functional.
- We added made role attribute as multivalued to which keep track of the role of the user in our database (author, editor, reviewer or just normal user).
- We added some additional attributes such as submission_date_j which indicates the date that a paper is submitted to a journal.

3 Final list of tables

User(email_address, name, lastname, password, date_of_birth, age, photo)

User_role(email_address, role)

FK: email_address references to User(email_address)

Author(author_email_address, avg_citations_per_paper, webpage)

FK: author_email_address references to User(email_address)

Reviewer(reviewer_email_address, webpage)

FK: reviewer_email_address references to User(email_address)

Editor(editor_email_address, webpage)

FK: editor_email_address references to User(email_address)

Paper(paper_id, title, abstract, date_of_publication, index_term, file, status)

Institution(institution_name, institution_webpage, avg_citations)

Conference(conference_name, date, location, description)

Journal(ISSN, journal_name, year_of_publication)

Write_paper(author_email_address, paper_id)

FK: author_email_address references to User(email_address)

FK: paper_id references to Paper(paper_id)

Review(reviewer_email_address, paper_id, review_content, review_grade)

FK: reviewer_email_address references to User(email_address)

FK: paper_id references to Paper(paper_id)

Decide(editor_email_address, paper_id, decision)

FK: editor_email_address references to User(email_address)

FK: paper_id references to Paper(paper_id)

Assign(reviewer_email_address, paper_id, editor_email_address)

FK: reviewer_email_address references to User(email_address)

FK: paper_id references to Paper(paper_id)

FK: editor_email_address references to User(email_address)

Cites(paper_id, reference_id)

FK: paper_id references to Paper(paper_id)

FK: reference_id references to Paper(paper_id)

Submit_to_conference(paper_id, conference_name, date, location, submission_date_c)

FK: paper_id references to Paper(paper_id)

FK: conference_name, date, location references to Conference(
conference_name, date, location)

Submit_to_journal(paper_id, ISSN, submission_date_j)

FK: paper_id references to Paper(paper_id)

FK: ISSN references to Journal(ISSN)

Comment(email_address, paper_id, comment_content)

FK: email_address references to User(email_address)

FK: paper_id references to Paper(paper_id)

Subscribe(email_address, ISSN, start_date, end_date)

FK: email_address references to User(email_address)

FK: ISSN references to Journal(ISSN)

Has_author(author_email_address, institution_name)

FK: author_email_address references to User(email_address)

FK: institution_name references to Institution(institution_name)

Rate(email_address, paper_id, rating_points)

FK: email_address references to User(email_address)

FK: paper_id references to Paper(paper_id)

Journal_has_editor (ISSN, editor_email_address)

FK: ISSN references to Journal(ISSN)

FK: editor_email_address references to User(email_address)

Conference_has_editor (conference_name, date, location, editor_email_address)

FK: conference_name, date, location reference to Conference(
conference_name, date, location)

FK: editor_email_address references to User(email_address)

Journal_has_reviewer(ISSN, reviewer_email_address)

FK: ISSN references to Journal(ISSN)

FK: reviewer_email_address references to User(email_address)

Conference_has_reviewer(conference_name, date, location, email_address)

FK: conference_name, date, location reference to Conference(
conference_name, date, location)

FK: reviewer_email_address references to User(email_address)

4 Implementation details

To implement our database system we used MySQL and also made use of phpMyAdmin to keep track of the insertions, deletions and updates in the tables. To implement the functions of the application we used PHPStorm. We also used HTML, CSS and JavaScript for front-end design of our project. We faced some problems about saving the email_address of the user who had logged in so s/he could traverse through the pages of the application without losing information. We solved this problem by using session. We also had some problems to pass other data through the pages but we managed to solve them passing the data as hidden values in the buttons. We faced some difficulties retrieving and showing pdf files of the papers and profile pictures of the users from the database. One of the problems that we faced was the passing of the “institution_name” or the “journal_name” from one php file to the other when a link is clicked like the institution or the journal name where the page with the information of these is displayed. We solved this problem by passing the names of the institution and journal at the URL like : `href="journalPage.php?id='.$row['ISSN'].'"`. In this way when we go to “journalPage.php” for example we get the ISSN value by GET: `$ISSN = $_GET['id'];` In this way we were able to pass the attributes that we needed through a link. We used this method to pass the id’s for institution, journal, conference, paper and author. Another problem that we faced was the multiselect-search bar that we used it to select the reviewers. When the selections had been done this bar would redirect to another php file through JavaScript. We tried to redirect at the same php file the bar was located, however we encountered problems with the database connection. Here the inclusion of the layout.php file that we have where all the database connection is set up, would not be recognised. What we did is that we created a new php file to redirect the selections of the bar, where we did not include our “layout.php” file but we created the connection to the database again. This solved the problem. We used this method to deal with the problems of the other 3 multiselect-search bars that we implemented.

5 Advanced DB features used in your project

5.1 Views

5.1.1 Editor's View

An editor cannot see all the submitted paper but just the papers that are submitted to the journal/conference s/he is part of.

```
create or replace view Submitted_editor_J as
select paper_id, title, email_address, role, name, submission_date_j, institution_name
from Paper natural join Submit_to_journal natural join Journal_has_editor natural join
Write_paper natural join User natural join Has_author natural join User_role "
where paper_id not in ( select paper_id
                        from Decide)
```

```
-----
create or replace view Submitted_editor_C as
select paper_id, title, email_address, role, name, submission_date_c, institution_name
from Paper natural join Submit_to_conference natural join Conference_has_editor
natural join Write_paper natural join User natural join Has_author natural join User_role
where paper_id not in ( "select paper_id
                        from Decide)
```

5.1.2 Reviewer's View

A reviewer can not review or see the papers that are not assigned to her/him. Also a reviewer cannot be assigned to more than 5 papers at a time. To implement this constraint we used the following views.

```
create or replace view papers_and_reviewers (assigned_reviewer, no_of_papers) as
( select reviewer_email_address, count(paper_id) as no_assigned
from Assign
group by reviewer_email_address )
```

```
-----
create or replace view reviews_and_reviewers ( reviewed_reviewers, no_of_reviews,
no) as
( select reviewer_email_address, count(paper_id) as no_reviewed,
```

```
count(review_content) as no  
from Review group by reviewer_email_address )
```

```
-----  
create or replace view reviews_and_reviewers ( reviewed_reviewers, no_of_reviews,  
no) as  
( select reviewer_email_address, count(paper_id) as no_reviewed,  
count(review_content) as no  
from Review  
group by reviewer_email_address )
```

5.2 Stored Procedures

We plan to use stored procedures when submitting a paper. For each new submission, we need to create a submitted paper tuple. For each paper published, we increase the number of publications for institutions and journals. This procedure is always the same for any publishing process. Therefore we decided to store this process as a procedure.

A similar procedure will be used for citations count with some minor differences. Because one paper can only be submitted once but can be cited infinitely, we used a procedure to update the citation count of papers for each new submission. This will be done by checking the citation part of newly submitted papers and updating the citation count of related paper, author, journal and institution accordingly. This process will also stay same for all papers and therefore using a procedure for it is logical.

A procedure will also be used for rating management. When a paper is rated by a user, her/his vote will be added to the total vote value of the paper and then be divided to the total vote count for the said paper. This averaging procedure will always be the same for each paper and therefore using a procedure will provide useful.

5.3 Reports

5.3.1 Total Number of Citations of an Institution

```
SELECT paper_id,COUNT(reference_id) AS citation_count FROM cites NATURAL JOIN  
write_paper NATURAL JOIN has_author WHERE institution_name = 'bilkent' GROUP BY  
paper_id
```

5.3.2 Publication count of an author

```
SELECT author_email_address ,COUNT(paper_id) AS no_publications FROM paper NATURAL  
JOIN write_paper WHERE status = 'Published' GROUP BY author_email_address
```


5.3.3 Publication count of an institution

```
SELECT institution_name ,COUNT(paper_id) AS no_publications FROM paper NATURAL JOIN  
write_paper NATURAL JOIN has_author WHERE status = 'Published' GROUP BY  
institution_name
```

5.3.3 Average review grade

```
SELECT paper_id,AVG(review_grade) AS average_grade FROM review NATURAL JOIN paper  
GROUP BY paper_id
```

5.3.3 Average rating points

```
SELECT paper_id,AVG(rating_points) AS average_rate FROM rate NATURAL JOIN paper  
GROUP BY paper_id
```

5.4 Triggers

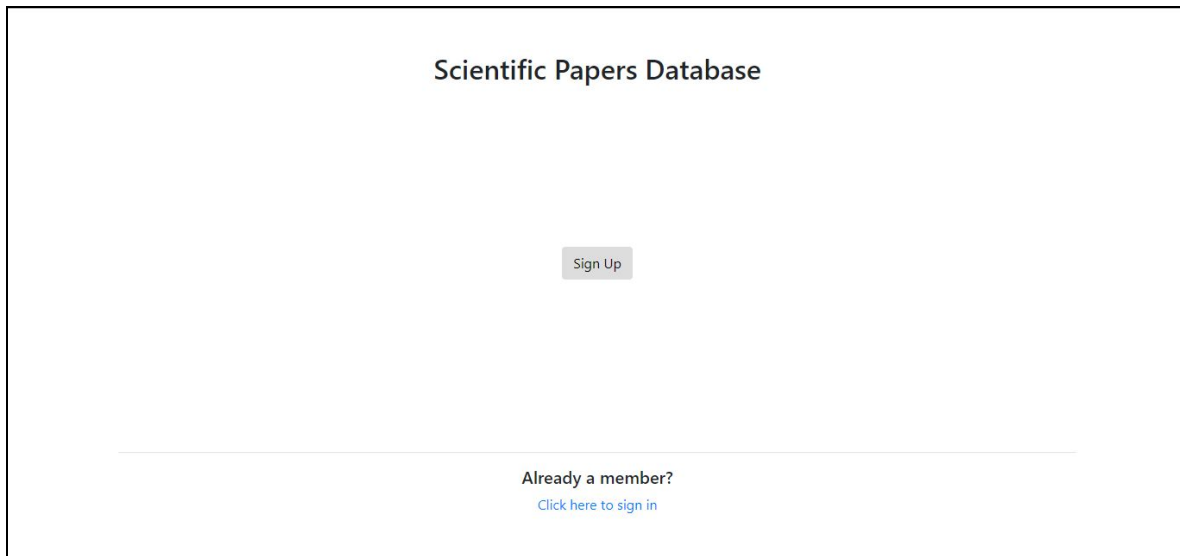
- When a reviewer is assigned to a paper by an editor, reviewer will be able to add reviews to that specific paper.
- When a paper is published by an editor, publication count of institutions and journals will be updated accordingly.
- When a paper is cited, citation count of relevant parties such as author and paper will be updated accordingly.
- When a comment is posted by a user, comments part of a paper will be updated accordingly.
- When a rating is given to a paper by any user, rating on the paper page will be updated accordingly.

5.5 Constraints

- Everyone who wants to use our application should register/login to the system.
- An editor can assign at most 3 reviewers to a paper.
- A reviewer can be assigned to at most 5 papers at a time.
- An editor and a reviewer should provide the journal title or conference name where he/she is part of in order to see the submitted papers to that specific journal or conference.

- An author can submit her/his paper at most one specific journal/conference at a time.
- If the paper of the author is rejected, he/she will have the paper to the uploaded papers and can submit it to another conference/journal.

6 User's Manual



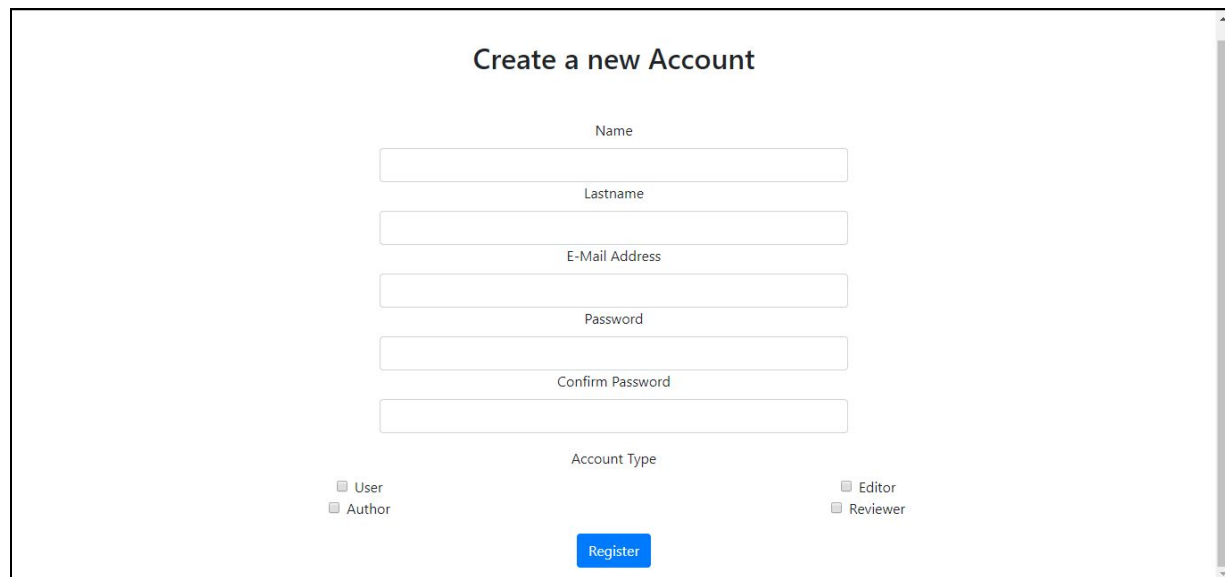
Scientific Papers Database

Sign Up

Already a member?
[Click here to sign in](#)

Fig. 1

In order for one to use this application s/he must register and sign in using the email address and password s/he provided.



Create a new Account

Name

Firstname

Lastname

E-Mail Address

Password

Confirm Password

Account Type

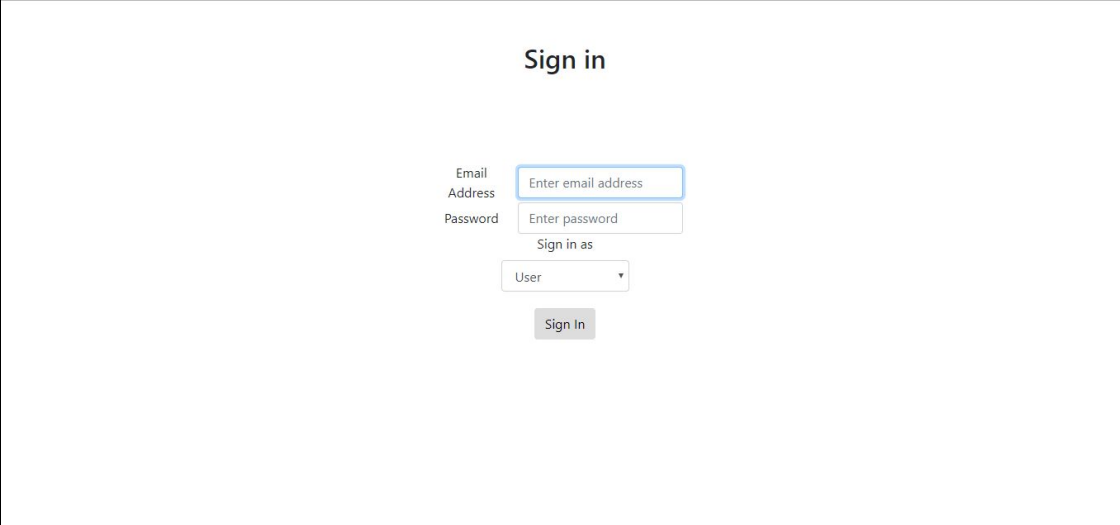
☐ User ☐ Editor

☐ Author ☐ Reviewer

Register

Fig. 2

When registering one must fill out all the information required and chose her/his role. S/he can be an author and an editor/reviewer; if one chooses to be an editor s/he cannot chose to be a reviewer and vice versa. All the roles are users so there is no need to chose user as well if one chooses another role. All the roles will have the same privileges as a user.



Sign in

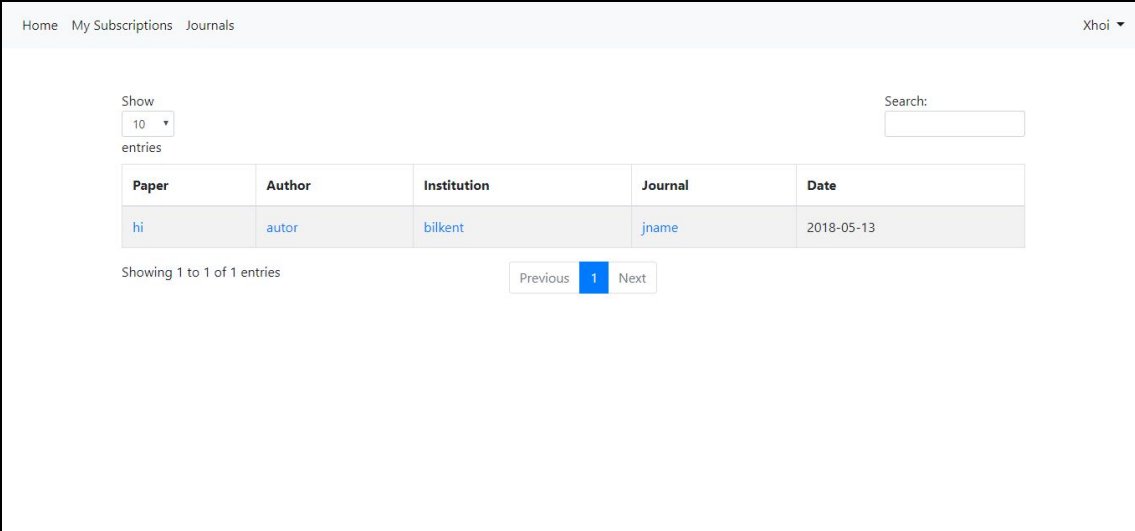
Email Address

Password

Sign in as
 User ▼

Fig. 3

When logging in one should indicate her/his role so the correct page is opened. The needed checks are made to see if the information provided is valid and the corresponding notifications pop up on the screen.



Home My Subscriptions Journals Xhoi ▼

Show 10 ▼

entries

Search:

Paper	Author	Institution	Journal	Date
hi	autor	bilkent	jname	2018-05-13

Showing 1 to 1 of 1 entries

1

Fig. 4

If one is logged in as a user, s/he will have access to all the papers published in all the journals and conferences of our database. S/he can search our system using an author name, paper title, journal name etc.

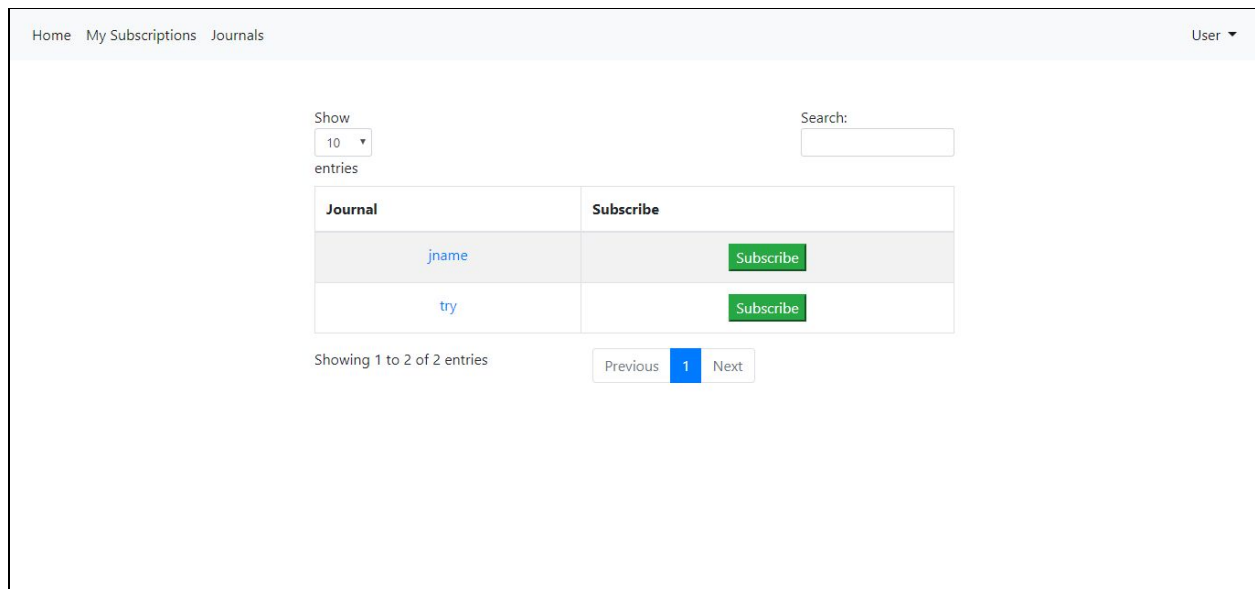


Fig. 5

The user can subscribe to journals under the Journal tab.

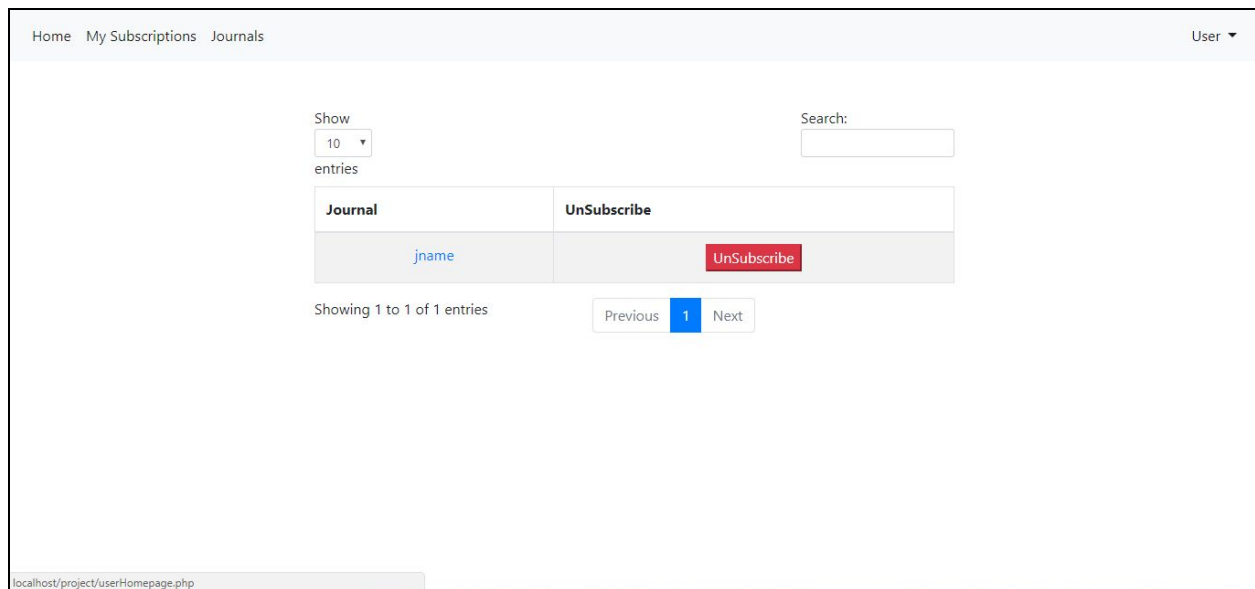


Fig. 6

Her/his subscribed journals will be shown under the Subscriptions tab.

Home My Subscriptions Journals User ▾

Xhoi's Profile

Select image to upload: No file chosen

Name
Xhoi

Lastname
Hysa

Email Address
user@g.com

Date of Birth
mm/dd/yyyy

Fig. 7

When the user clicks on the top right corner s/he can choose either to open My Profile or Logout.

If the user chooses My Profile s/he can see all her/his personal information, edit it and also add other information that is missing in our system.

Home My Subscriptions Journals Upload Paper My Papers autor ▾

Show
10 ▾
entries

Search:

Paper	Author	Institution	Journal	Date
hi	autor	bilkent	jname	2018-05-13

Showing 1 to 1 of 1 entries

Previous 1 Next

Fig. 8

If one is logged in as an author s/he will have two additional tabs called Upload Paper and My Papers.

Home My Subscriptions Journals Upload Paper My Papers autor

Paper Title:

Paper Abstract:

Select Coauthors Select Coauthor

Select References Select References

Select Journals Choose...

Select paper to upload: Choose File No file chosen

Submit

Fig. 9

When the author clicks Upload Paper tab s/he is required to fill in all the information about the paper, co authors, references and also must choose the journal or conference s/he wants to submit her/his paper to.

Home My Subscriptions Upload Paper My Papers autor

Show 10 entries

Search:

Paper	Journal	Date	Status
alo	jname		Submitted
hi	jname	2018-05-13	Published
s	try		Submitted

Showing 1 to 3 of 3 entries

Previous 1 Next

Fig. 10

When the author clicks My Papers tab, s/he can see her/his uploaded papers and also their status. The status of the paper will be “Submitted” when the paper is submitted to a journal and the decision about its publication is not given yet by the editor. The status of the paper will be “Published” when the paper is accepted to be published by the editor. The status of the paper will be “Uploaded” when the paper is rejected by the editor.

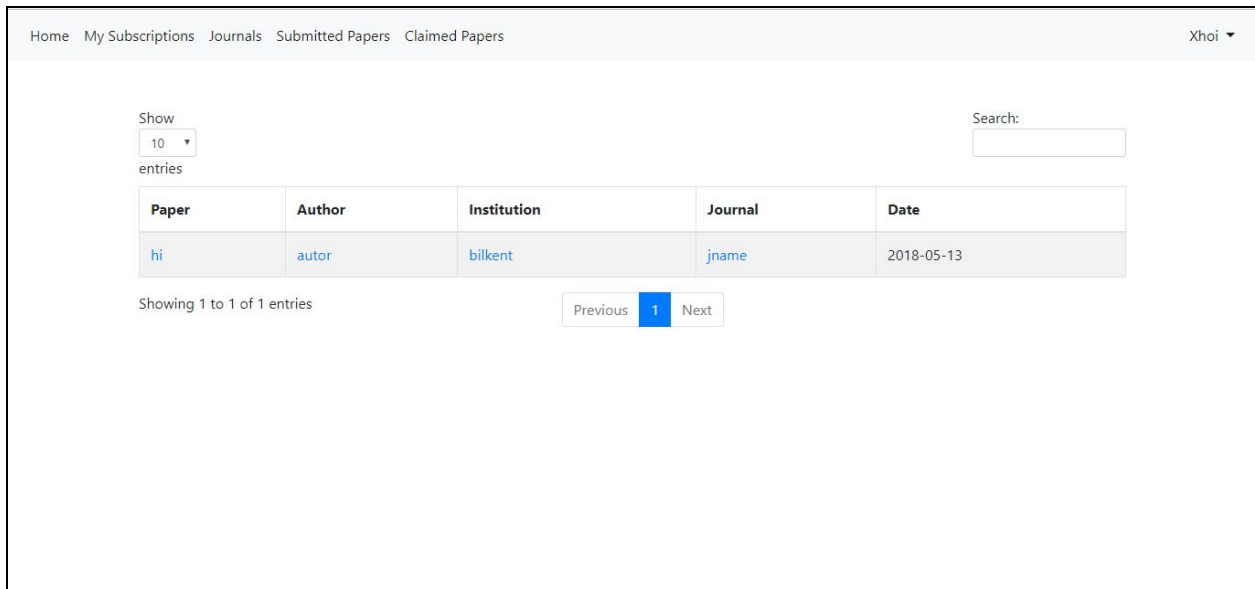


Fig. 11

If one is logged in as an editor s/he will have two additional tabs Submitted Papers and Claimed Papers.

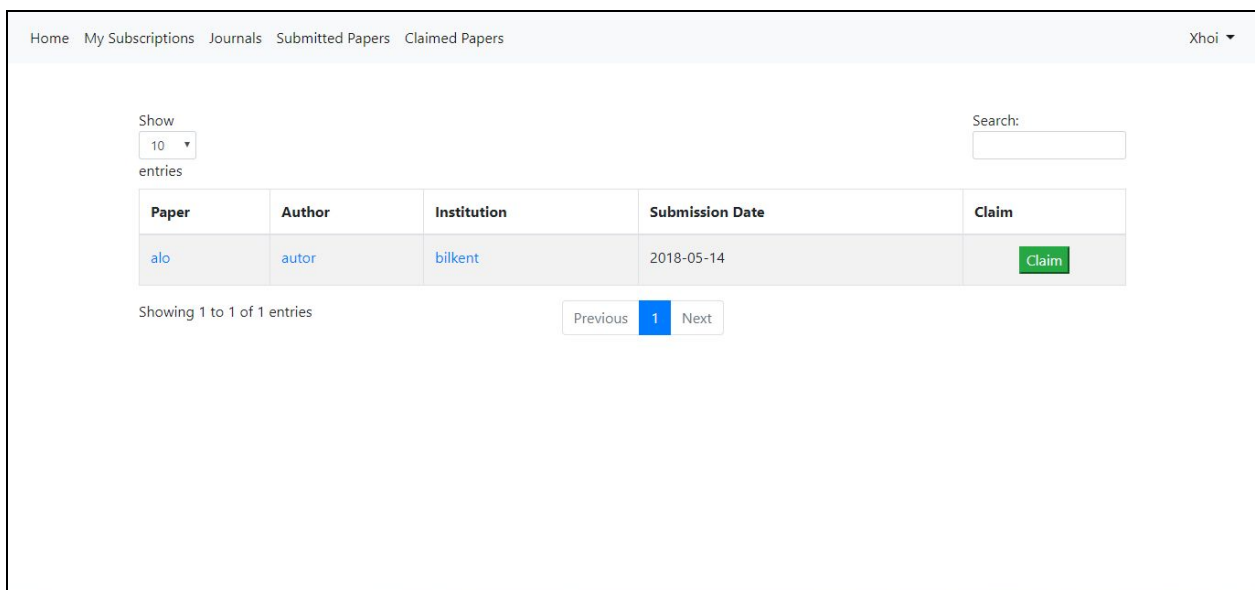


Fig. 12

When the editor clicks on Submitted Papers s/he can see all the papers that are submitted to the journal or conference s/he works on. The papers submitted to her/his paper but already claimed by another editor will not be shown.

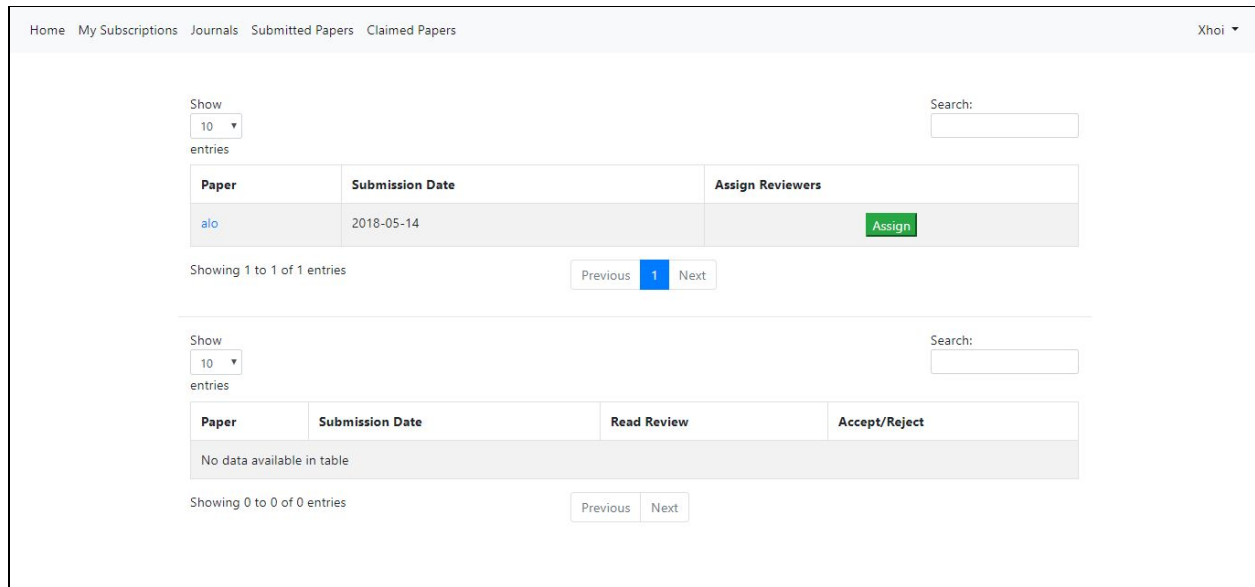


Fig. 13

When the editor clicks on Claimed Papers s/he will see all the papers s/he has claimed and also in a second table he will see the papers that s/he has already assigned reviewers to review them.

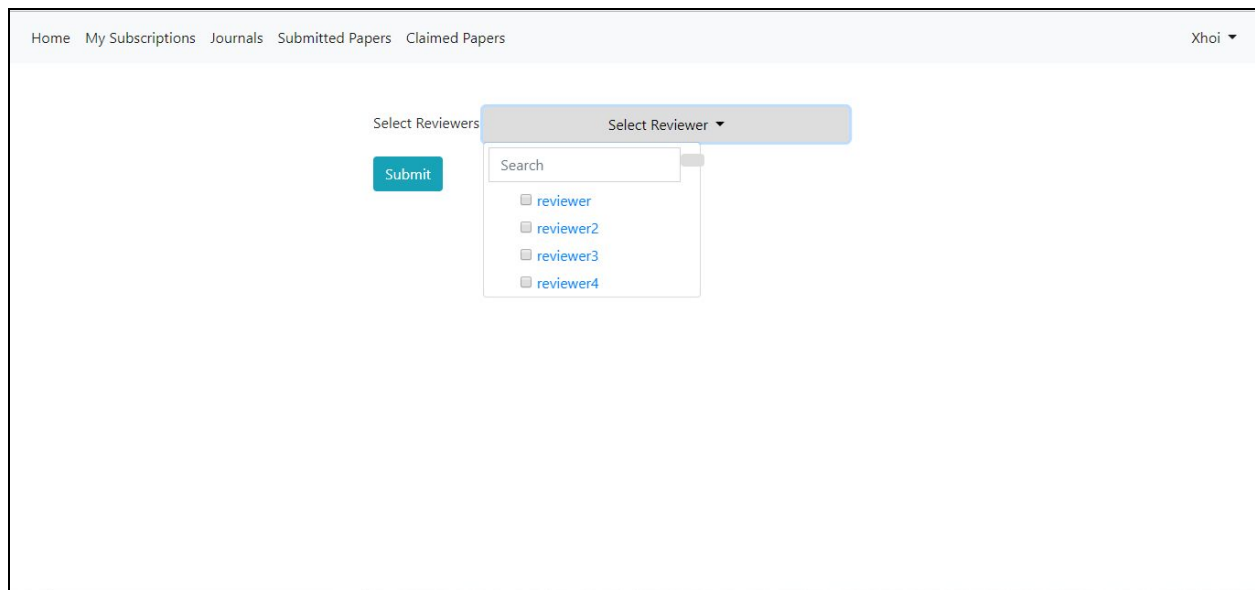


Fig. 14

When the editor clicks on Assign button of the first table paper s/he will be directed to another page where s/he can choose up to 3 reviewers to assign to a paper.

Home
My Subscriptions
Journals
Submitted Papers
Claimed Papers
Xhoi

Reviewer

reviewer

Grade

5

Review

Great Paper

Reviewer

reviewer2

Grade

4

Review

Awesome Paper

Fig. 15

When the editor clicks on Review button of the second table paper s/he will be directed to another page where s/he can read the reviews of the paper and also see the review grades.

Home
My Subscriptions
Journals
Submitted Papers
Claimed Papers
Xhoi

Show
10
entries

Search:

Paper	Submission Date	Assign Reviewers
No data available in table		

Showing 0 to 0 of 0 entries

PreviousNext

Show
10
entries

Search:

Paper	Submission Date	Read Review	Accept/Reject
alo	2018-05-14	Review	AcceptReject

Showing 1 to 1 of 1 entries

Previous1Next

Fig. 16

When the editor clicks on Accept/Reject button of the second table paper, the paper will not be shown anymore in the table.

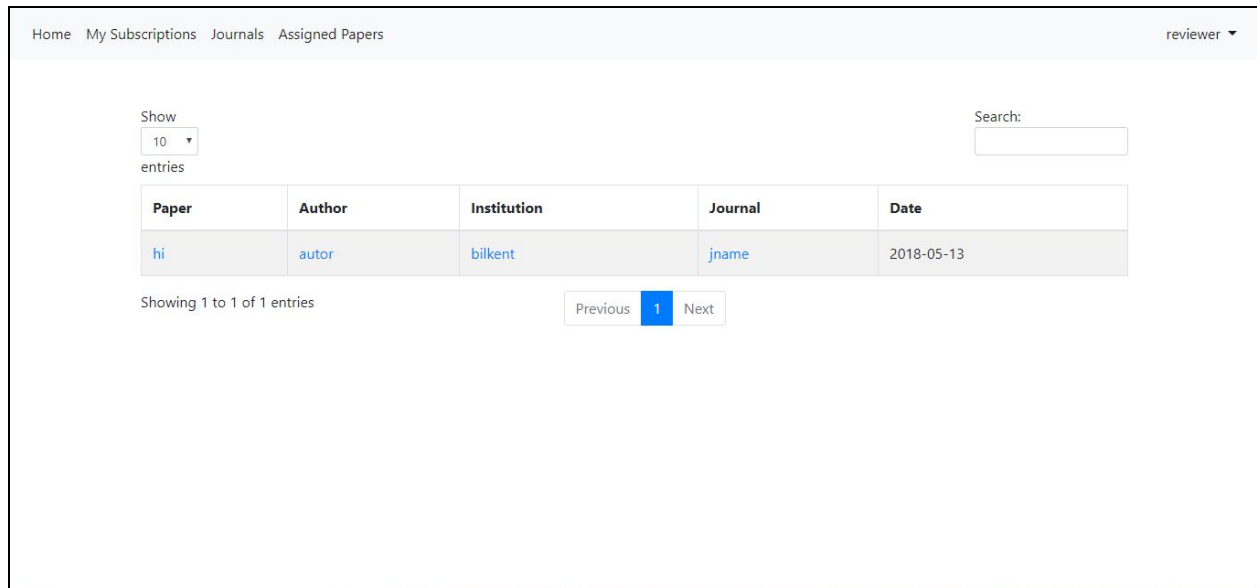


Fig. 17

If one is logged in as a reviewer s/he will have an additional tab Assigned Papers.

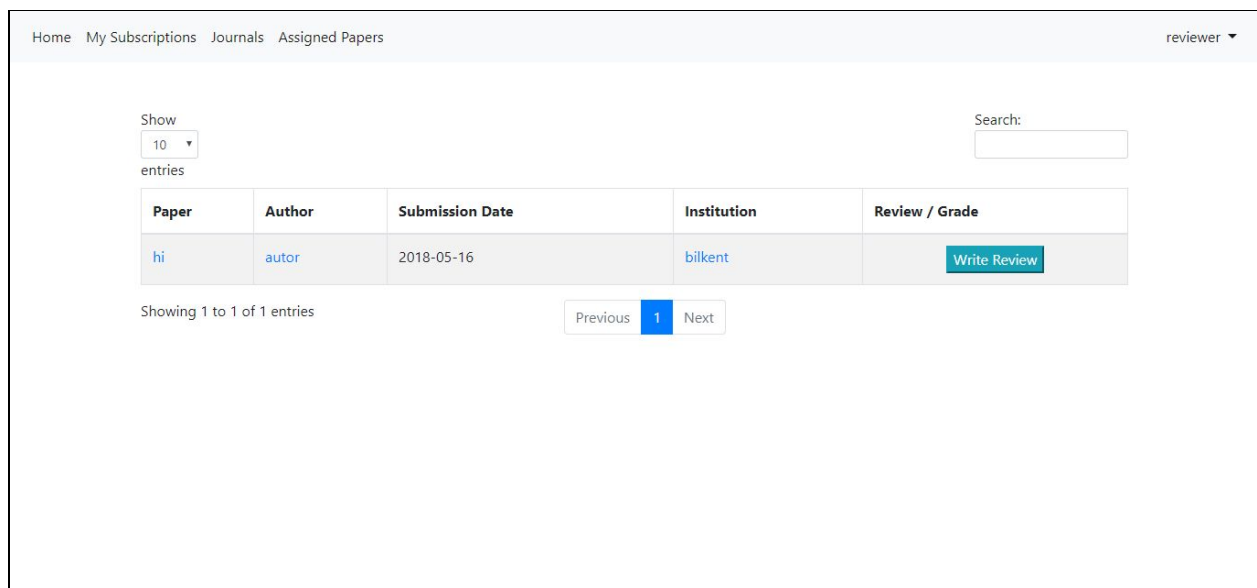


Fig. 18

When the reviewer clicks on Assigned Papers s/he will see the papers that are assigned to her/him to review.

Home My Subscriptions Journals Assigned Papers reviewer ▾

hi [Download](#)

Abstract
ckemi

Author Name
autor

Select Grade
Choose... ▾

Write Review

[Submit](#)

Fig. 19

When the reviewer clicks on Write Review button s/he will be shown information about the paper; there will be a section so the reviewer can grade the paper and also write her/his review. The reviewer can download the paper by clicking on the Download button.

On the homepage the user can click on each of the papers, authors, institutions, conferences, journals. For each of them the corresponding pages will be opened.

Home My Subscriptions Journals Xhoi ▾

[Download](#)

Abstract

Author Name

Average Rating Points
avg rate

Rate Paper
Choose... ▾

Write Comment

[Submit Comment](#)

Fig. 20

When the user clicks on a paper, s/he will be redirected to a separate page where general information about the paper will be given; s/he can download the paper; s/he can comment and/or rate the paper.

Home My Subscriptions Journals User ▾

Institution's Webpage: www.ou.com Publication Count:

Citation Count: Average Citations per Paper:

Show 10 ▾
entries

Search:

Paper	Author	Journal	Date
hi	autor	jname	2018-05-13

Showing 1 to 1 of 1 entries

Previous 1 Next

Fig. 21

When the user clicks on an institution, s/he will be redirected to a separate page where general information about the institution will be given and also a table with all the papers published by that institution will be shown.

Home My Subscriptions Journals Submitted Papers Claimed Papers Xhoi ▾

Journal: [jname](#)

Year of Publication: 2018-05-10

Show 10 ▾
entries

Search:

Paper	Author	Institution	Publication Date
hi	autor	bilkent	2018-05-13

Showing 1 to 1 of 1 entries

Previous 1 Next

Fig. 22

When the user clicks on a journal, s/he will be redirected to a separate page where general information about the journal will be given and also a table with all the papers published in that journal will be shown. Similarly, when the user clicks on a conference, s/he will be redirected to a separate page where general information about the conference will be given and also a table with all the papers published in that conference will be shown.

[Home](#) [My Subscriptions](#) [Journals](#) User ▾

Author: autor

Author's Webpage:

Publication Count:

Institution: bilkent

Show
10 ▾
entries

Search:

Paper	Journal	Date
hi	jname	2018-05-13

Showing 1 to 1 of 1 entries

Previous

1

Next

Fig. 23

When the user clicks on an author, s/he will be redirected to a separate page where general information about the author will be given and also a table with all the author's published papers will be shown.