



Bilkent University

Department of Computer Science

CS 353 - Database Systems

ScienceKeep

Scientific Papers Data Management System

Project Final Report

Group 6

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1.Description Of The System

ScienceKeep is a web-based application with a purpose of helping to manage scientific papers in conferences and journals. In the system information about the authors, editors, conference-chairs, reviewers, journals, conferences, submitted papers and institutes can be found. In the system there are different types of memberships with different functionalities. The user types are as follows; author, subscriber, conference-chair and editor. In order to use the system a registration to the system is required. After registration, users can login to the system with their unique member ID and passwords. In the system users can search all the papers that are published, topics and authors according to the keywords they have given. In the conferences page users can see the list of conferences with their names, capacity and locations and sort those accordingly as well. Users can also enter to a conference page by clicking to the conference name from this page. In a conference page users can see the detailed information about a conference and also submit their papers to the conference. In the journals page users can see the name of the journals, their cost, place of publications and ISBN numbers and sort those accordingly as well. From this page user can enter to a journal page by clicking to the name of the journal. In a journal page users can see the detailed information about a journal and also submit their papers to the journal. In the author page users can see the name of the authors, their paper count, citation count sort those accordingly as well. User can also go to the desired authors profile from this page, where they can find detailed information about an author and information about their papers. Users also have a personal profile and they can also update their profile information. When a paper is submitted to the journal or conference those papers appear to editor as awaiting papers. In the editor page editor can see awaiting papers and list of reviewers. An editor can assign a paper to a reviewer to publish a paper submitted by an author. In the reviewer page reviewer can see the papers that are assigned to him or her and can decide whether to accept or decline it. When a paper is accepted by a reviewer it is published in the submitted journal or conference. When an author submits a paper she/he can also make a citation to another paper. If the paper submitted by this author is published then citation counts of the referenced papers and authors increase as well.

2.Participation

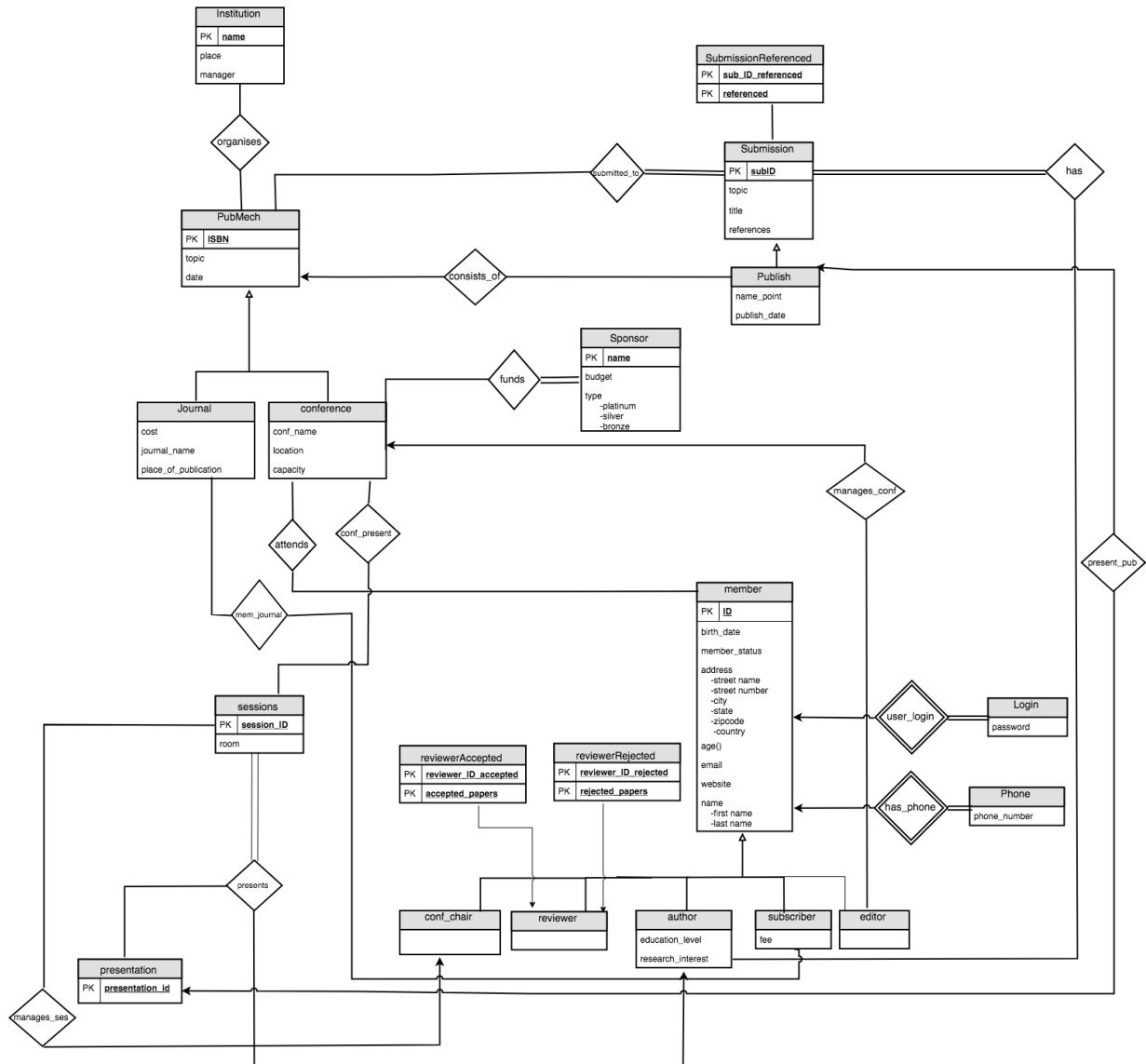
Emre Gürçay: Has written huge part of SQL's everywhere throughout the database and tested them in his dijkstra database to make sure they work. Having most SQL's beforehand have been extremely useful in coding the system, otherwise would take much longer. He also coded the submit paper page as well as journal page and edit profile page.

Hüseyin Emre Başar: Created specific profile page, edit profile page and conference page by using PHP and HTML, fixed dynamic link bugs on the reviewer's page, helped on the PHP codes for listing all conferences, journals and authors. Debugged SQL codes and if it was not enough, rewritten it. Helped on connections which enables users to navigate among site.

Erdem Adaçal: For front-end side of the project, has written fully Homepage, responsive header menu that is included by all pages, Search Results Page, My Profile Page, responsive 'Sort By' mechanism that is used by some pages, responsive list table that is used by List All Conferences, List All Journals, Authors, Browse Topics, Search Results by using HTML, CSS, Javascript, jQuery. For back-end side of the project, I wrote Logout system, Conferences, Search box, search results page, profile page, different pages and redirections depending on member type with PHP. Fixed some SQL bugs in Authors and Journals page.

Mehmet Erim Erdal: Created small SQL statements when Emre Gürçay's SQL's were not used. Created Login and Sign Up pages (Used a Bootstrap for them, integrated in to our system), written SQL's for it and linked these pages with database, written most PHP codes for it. Written SQL for Topics section and linked it with Search button. Created and designed Contact section, PHP HTML included. Helped in coding PHP for listing Journals and Conferences. Helped in both PHP, HTML CSS design for both. Reviewer pages and Editor user specific pages.

3.E/R Diagram



4.Final List of Tables

Institution

Institution(name, place, manager)

pubMech

pubMech(ISBN, topic, date)

journal

journal(journal_ISBN, cost, journal_name, place_of_publication)

FOREIGN KEY journal_ISBN REFERENCES pubMech(ISBN)

Conference

conference(conf_ISBN, conf_name, location, capacity)

FOREIGN KEY conf_ISBN REFERENCES pubMech(ISBN)

Submission

Submission(sub_ID, topic, title)

submissionReferenced

submissionReferenced(sub_ID_ref, referenced)

FOREIGN KEY sub_ID_ref REFERENCES submission(sub_ID)

publish

publish(sub_ID_publish, name_point, publish_date)

FOREIGN KEY sub_ID_publish REFERENCES submission(sub_ID)

citation

citation(citation_name)

sponsor

sponsor(name, budget)

member

member(ID, birth_date, member_status, email, website, firstname, lastname, zip_code, city, country, street_name, street_number)

sessions

sessions(sessions_ID, room)

presentation

presentation(presentation_ID)

author

author(author_ID, education_level)

FOREIGN KEY author_ID REFERENCES member(ID)

authorInterest

authorInterest(author_ID_interest, research_interest)

FOREIGN KEY author_ID_interest REFERENCES author(author_ID)

subscriber

subscriber(subscriber_ID, fee)

FOREIGN KEY subscriber_ID REFERENCES member(ID)

student

student(student_ID, gpa)

FOREIGN KEY student_ID REFERENCES member(ID)

reviewer

reviewer(reviewer_ID)

FOREIGN KEY student_ID REFERENCES member(ID)

reviewerAccepted

reviewerAccepted(reviewer_ID_accepted, accepted_papers)

FOREIGN KEY reviewer_ID_accepted REFERENCES reviewer(reviewer_ID)

reviewerRejected

reviewerRejected(reviewer_ID_rejected, rejected_papers)

FOREIGN KEY reviewer_ID_rejected REFERENCES reviewer(reviewer_ID)

editor

editor(editor_ID)

FOREIGN KEY editor_ID REFERENCES member(ID)

confChair

confChair(conf_chair_ID)

FOREIGN KEY conf_chair_ID references member(ID)

memberPhone

memberPhone(member_phone_ID, phone_number)

FOREIGN KEY member_phone_ID REFERENCES member(ID)

login

login(login_ID, password)

FOREIGN KEY login_ID REFERENCES member(ID)

presents

presents(sessions_ID, presentation_ID, presenter_ID)

FOREIGN KEY sessions_ID REFERENCES sessions(sessions_ID)

FOREIGN KEY presentation_ID REFERENCES presentation(presentation_ID)

FOREIGN KEY presenter_ID REFERENCES member(ID)

organises

organises(org_name, org_ISBN)

FOREIGN KEY org_name REFERENCES institution(name)

FOREIGN KEY org_ISBN REFERENCES pubMech(ISBN)

submitted_to

submitted_to(submit_ID, submit_ISBN)

FOREIGN KEY submit_ID REFERENCES submission(sub_ID)

FOREIGN KEY submit_ISBN REFERENCES pubMech(ISBN)

has

has(hsub_ID, hID,)

FOREIGN KEY hsub_ID REFERENCES submission(sub_ID)

FOREIGN KEY hID REFERENCES member(ID)

mem_journal

mem_journal(mem_ISBN, mem_ID)

FOREIGN KEY mem_ISBN REFERENCES pubMech(ISBN)

FOREIGN KEY mem_ID REFERENCES member(ID)

conf_present

conf_present(conf_ISBN_present, conf_session_id)

FOREIGN KEY conf_ISBN_present REFERENCES pubMech(ISBN)

FOREIGN KEY conf_session_id REFERENCES sessions(session_ID)

present_pub

present_pub(presentation_ID, sub_ID)

FOREIGN KEY presentation_ID_pub REFERENCES presentation(presentation_ID)

FOREIGN KEY sub_ID REFERENCES submission(sub_ID)

funds

funds(funds_conf_ISBN, funds_name)

FOREIGN KEY funds_conf_ISBN REFERENCES pubMech(ISBN)

FOREIGN KEY funds_name REFERENCES sponsor(name)

reviewerAssigned

reviewerAssigned(reviewer_ID_assigned, editor_ID_assigned, assigned_paper_ID)

FOREIGN KEY reviewer_ID REFERENCES reviewer(reviewer_ID)

FOREIGN KEY assigned_paper_ID REFERENCES submission(sub_ID)

attends

attends(attend_ID, attend_conf_ISBN)

FOREIGN KEY attend_ID REFERENCES member(ID)

FOREIGN KEY attend_conf_ISBN REFERENCES conference(conf_ISBN)

manage_ses

manage_ses(man_ses_ID, man_ID)

FOREIGN KEY man_ses_ID REFERENCES sessions_ID

FOREIGN KEY man_ID REFERENCES confChair(conf_chair_ID)

5.Implementation Details

Our Scientific Paper Management System, ScienceKeep consists of two main parts, namely database component and website component. We have used the database provided by school, MariaDB which works with MySQL. In order to have a consistency between our implementations, such as a GitHub account, we have all used Cyberduck to connect to Erim Erdal's MariaDB, therefore with Cyberduck File Manager we achieved consistency between our implementations. This way we could immediately see if either of us made a change to a file. In order to automate database creation and populate the database, we created SQL statements and put them on codeshare.io, which we used them later in MariaDB from Terminal, both for testing and having a data. The data for our Scientific Paper Management system is improvised from other scientific paper database management systems.

For the user interface and application functionalities of our Scientific Paper Database Management System, we used HTML, CSS and JavaScript. HTML is used to design the user

interface and the styles of the pages are implemented using CSS. JavaScript is used to provide pop-ups and other error types situationally. To provide an even better user interface design, the current Bootstrap Framework (3.3.7) is used.

PHP is used throughout the entire system to provide system operations. PHP files are embedded with their respective HTML components for each page that Database System can redirect, and the files are named with the extension .php. Hence if one would like to check for HTML codes, they must enter the respective .php file. There are many situations where we have used HTML codes integrated with PHP codes because there are many places where we create dynamic HTML components, which require information from database, therefore we integrated PHP in those places. Also jQuery library is used to use JavaScript.

6. Advanced Database Features

View 1

```
create view author_citation_count (author_ID, author_citation_count)
as select distinct author_ID, count(*) as author_citation_count
from (author join (has join (submission join publish))), submissionReferenced
where sub_ID = sub_ID_publish and title = referenced and hID = author_ID and hsub_ID
= sub_ID
group by author_ID;
```

View 2

```
create view published_paper_count (published_author_ID, firstname, lastname,
published_paper_count)
as select author_ID, firstname, lastname ,count(title) as published_paper_count
from (member join (author join ( has join (publish join (submission )))))
where author_ID = ID and author_ID = hID and hsub_ID = sub_ID and sub_ID =
sub_ID_publish
group by firstname, lastname;
```

firstname	lastname	published_paper_count	author_citation_count
aa	aa	6	17
gg	ggg	7	18
hh	hhh	10	25
ii	iii	2	6

Output of View 1 and View 2

View 3

```
create view all_author_papers_citation (title)
as select distinct title
from (submissionReferenced join (submission natural join (has natural join author))),
publish
where sub_ID_publish = sub_ID AND author_ID = hID AND hsub_ID = sub_ID AND
referenced = title;
```

all_author_papers_citation
Algorithms Upsides
Computer Organization Downsides
MIPS Architecture Is Not Reliable
Algorithms in Life
Shortest Path
Webscale Netflix
Will Robots Replace Accountants?
Disney Complex Algorithms Theory
Tree Insertions
Is Linux Safe?
Machine Learning in Medicine
Big Data Upsides
Netflix to Future?
6 Level Paging Is The Next Level
Can Robots Do It?
Cookies

Output of View 3

View 4

```
create view submitted_not_published (title, topic, sub_ID)
as SELECT distinct title, topic, sub_ID
from submission
where not exists ( select sub_ID_publish from publish where publish.sub_ID_publish =
submission.sub_ID );
```

title	topic	sub_ID
Facebook and PHP	Webscale	18
Kaynımın Ya??ı	Graph Theory	30
Yi??itler Genç ??lür	Algorithms	31
Bal Yemek	Graph Theory	32
Kanserin Etkileri	Algorithms	33
Big Data	Webscale	34
Operating Systems	Computers	35
Data Structure	Algorithms	36
Object Oriented	Algorithms	37
Probability	Probability	38
Programming	Programming	39
Concepts	Programming	40
Statics	Programming	41
Physics	Statics	42
asdsa	asdasd	43

Output of View 4

Trigger 1

```

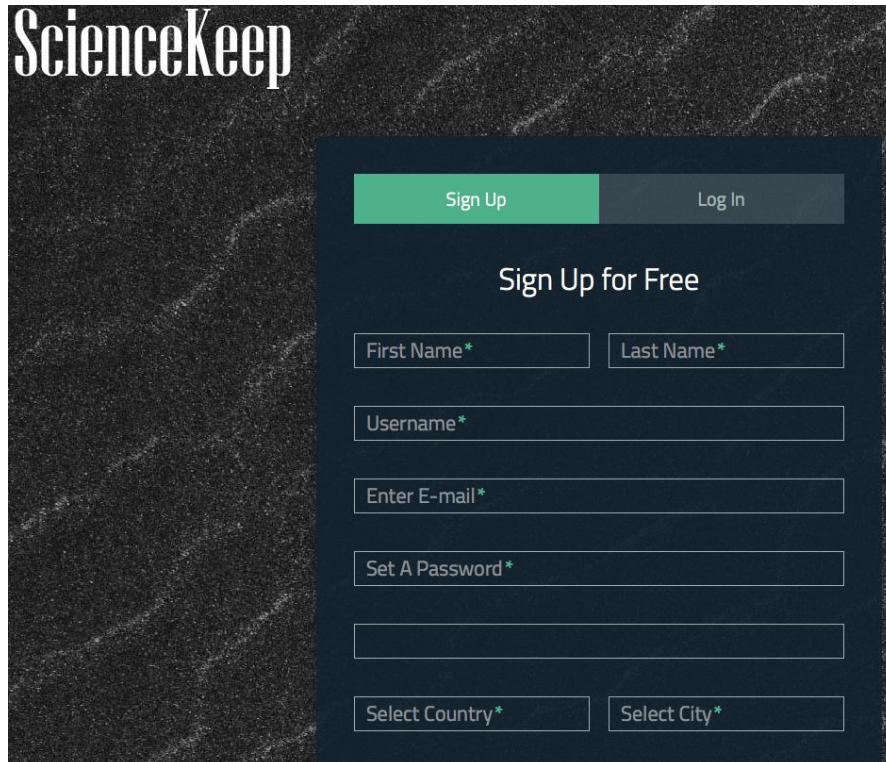
CREATE TRIGGER conference_update After INSERT ON attends
AS
BEGIN
    UPDATE conference,
    SET size = (size -1) where size > 0,
    WHERE attends.attend_conf_ISBN = conference.conf_ISBN;
END

```

7. User Manual

7.1 Sign Up

Here you can fill out the form in order to create an account. Full sign up form can not be shown in a single picture but you should select your member status too.

The image shows a web form for signing up on ScienceKeep. The background is a dark, textured image. The ScienceKeep logo is in the top left. At the top right, there are two buttons: 'Sign Up' (green) and 'Log In' (grey). Below these is the heading 'Sign Up for Free'. The form contains several input fields: 'First Name*' and 'Last Name*' (side-by-side), 'Username*', 'Enter E-mail*', 'Set A Password*', an empty text box, and 'Select Country*' and 'Select City*' (side-by-side). All fields are marked with an asterisk to indicate they are required.

ScienceKeep

Sign Up Log In

Sign Up for Free

First Name* Last Name*

Username*

Enter E-mail*

Set A Password*

Select Country* Select City*

Figure -1- Sign Up

7.2 Log In

You can use the information you provided to sign up to log in.

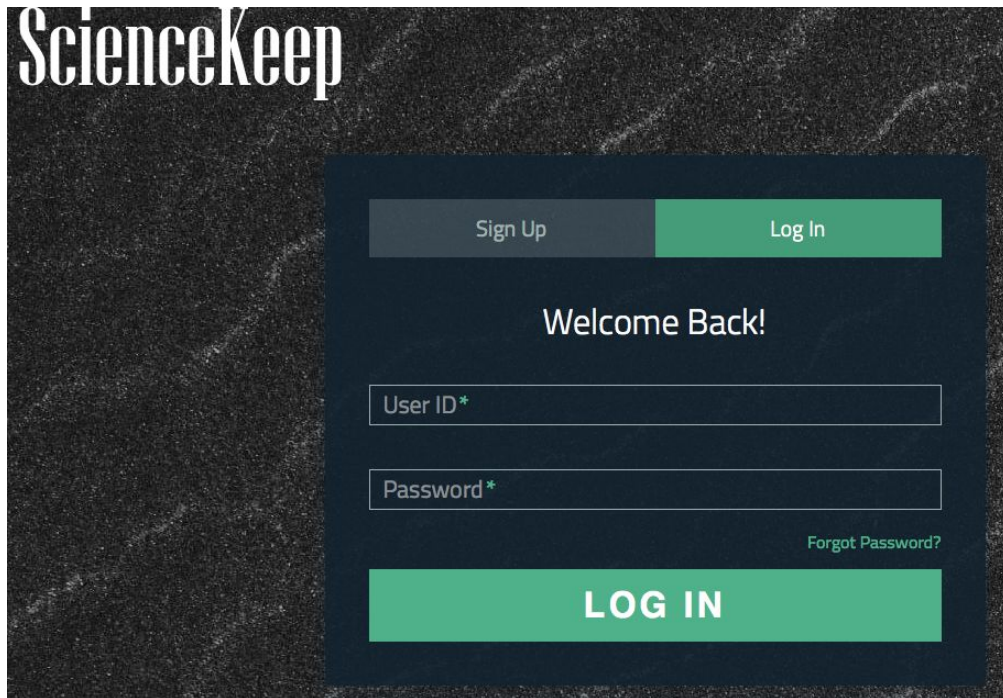
The image shows a login interface for 'ScienceKeep'. The background is a dark, textured image of a mountain range. In the top left corner, the 'ScienceKeep' logo is displayed in a white, serif font. On the right side, there is a dark blue rectangular panel. At the top of this panel are two buttons: 'Sign Up' in a grey box and 'Log In' in a green box. Below these buttons, the text 'Welcome Back!' is centered. Underneath, there are two input fields: 'User ID*' and 'Password*', both with white text on a dark background. To the right of the 'Password*' field is a link that says 'Forgot Password?'. At the bottom of the panel is a large green button with the text 'LOG IN' in white, all-caps font.

Figure -2- Log In

7.3 Home Page

From Homepage you can see the options you have to navigate through the database. You can log out by clicking Logout. In this figure, there is a section called Editor's Page. It is visible because this is a editor account.

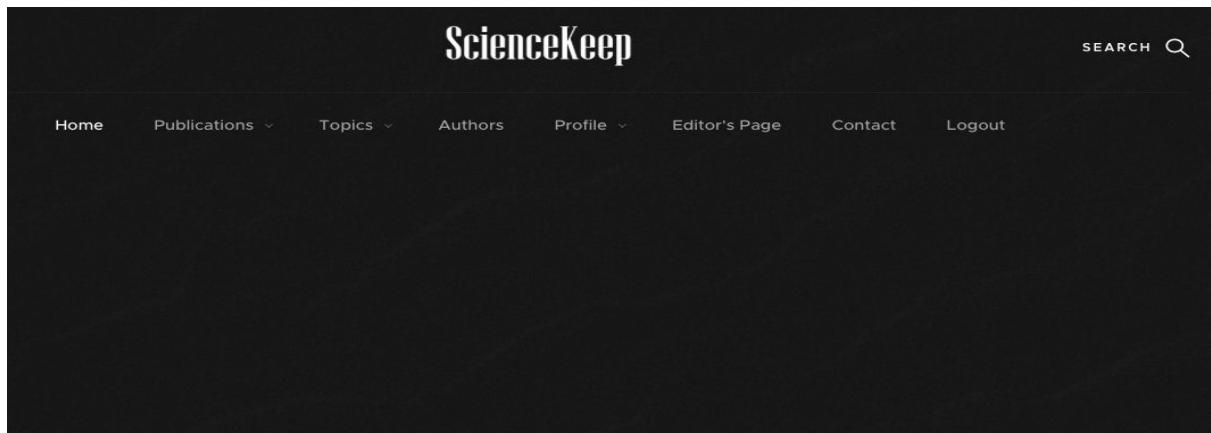


Figure -3- Home Page

7.4 List All Conferences

Here you can see all a list of all current conferences and their information. You can sort papers A-Z, Z-A, by capacity or by location name alphabetically.

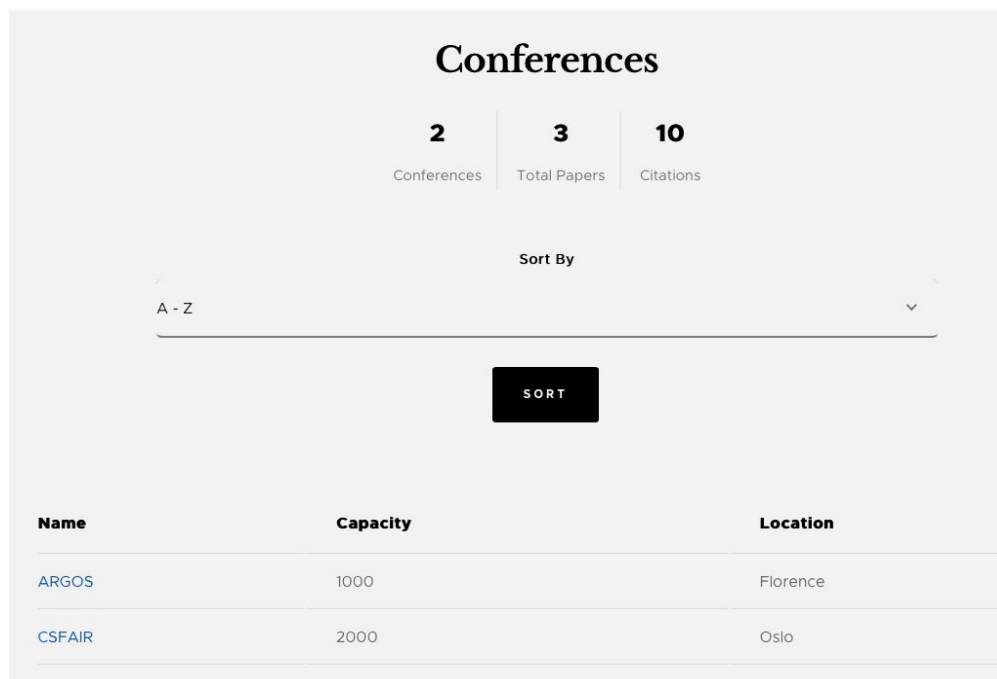
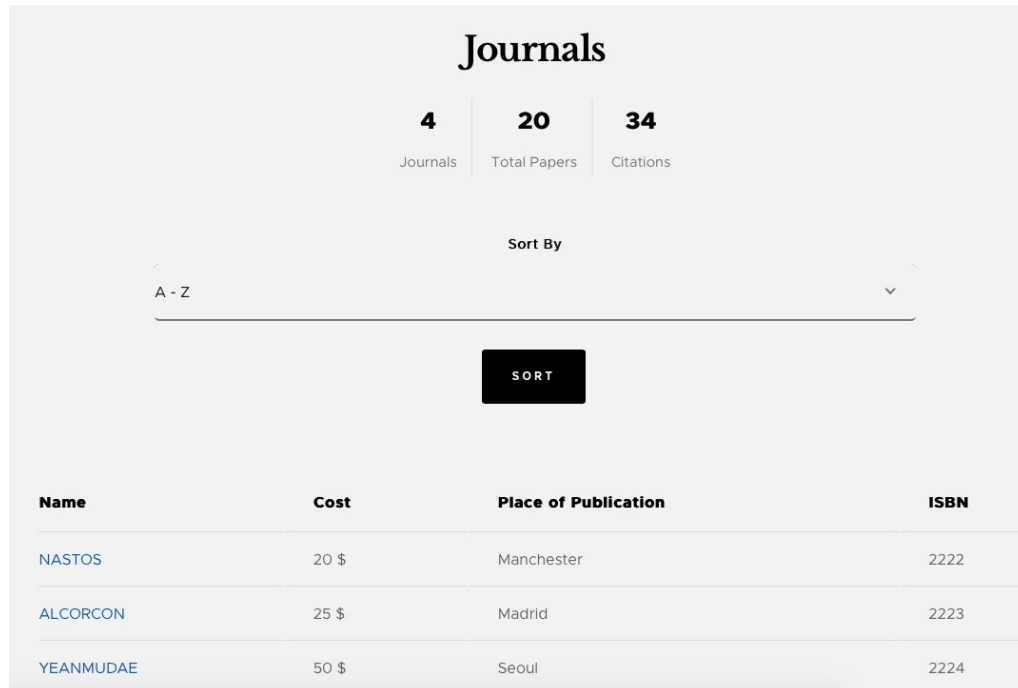


Figure -4- List All Conferences

7.5 List All Journals

Similarly, you can see all current journals and their information.



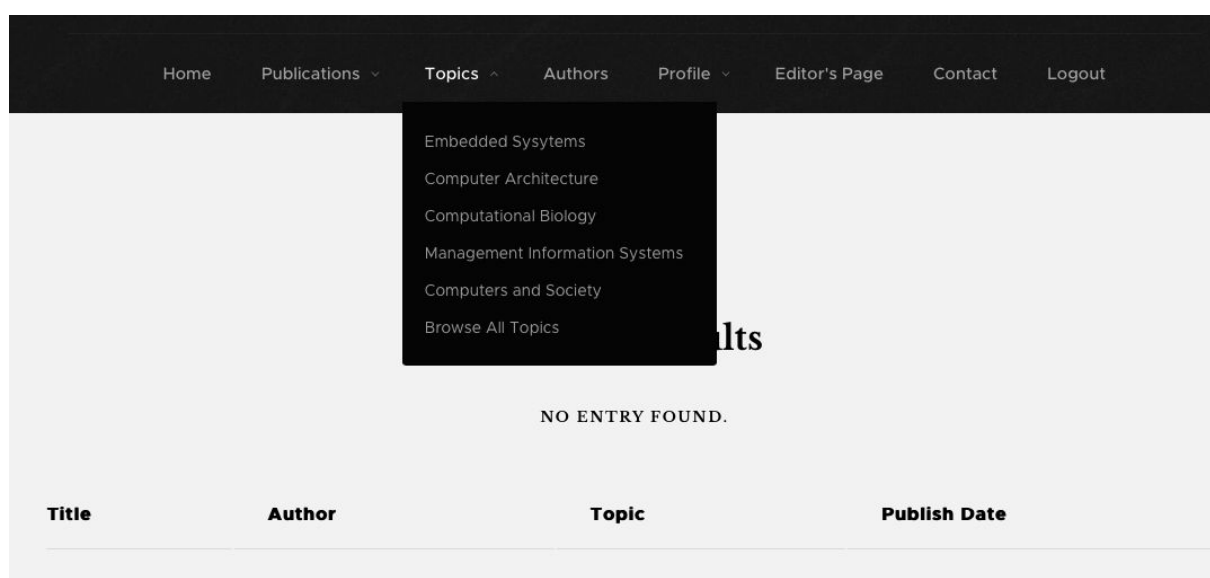
The screenshot shows a web interface for 'Journals'. At the top, there are three statistics: 4 Journals, 20 Total Papers, and 34 Citations. Below these is a 'Sort By' dropdown menu set to 'A - Z' and a 'SORT' button. The main content is a table with four columns: Name, Cost, Place of Publication, and ISBN. The table lists three journals: NASTOS, ALCORCON, and YEANMUDAE.

Name	Cost	Place of Publication	ISBN
NASTOS	20 \$	Manchester	2222
ALCORCON	25 \$	Madrid	2223
YEANMUDAE	50 \$	Seoul	2224

Figure -5- List All Journals

7.6 Topics

In Topics section, you can make a search depending on the topics listed.



The screenshot shows a web interface for 'Topics'. At the top, there is a navigation bar with links: Home, Publications, Topics, Authors, Profile, Editor's Page, Contact, and Logout. Below the navigation bar, a dropdown menu is open, showing a list of topics: Embedded Systems, Computer Architecture, Computational Biology, Management Information Systems, Computers and Society, and Browse All Topics. Below the dropdown menu, there is a message 'NO ENTRY FOUND.' and a table with four columns: Title, Author, Topic, and Publish Date.

Title	Author	Topic	Publish Date
-------	--------	-------	--------------

Figure -6- Topics

7.7 Authors

In authors, you can see a list of all current authors. Links are provided in their names which can be clicked which redirects you to the profile of the author.

Authors

Sort By

A - Z

SORT


Name	Paper Count	Citation Count	ScienceKeep Points®
as as	10	20	519
gg ggg	10	21	538
hh hhh	15	25	614
ii iii	4	6	253

Figure -7- Authors

7.8 My Profile

My profile shows the profile of the currently logged in user. Where you can see the papers you have published, your ScienceKeep score etc.

Erim Erdal



www.erim.com.tr
erim.erdal@ug.bilkent.edu

139	0	0	0
ScienceKeep™ Points	Submitted Papers	Published Papers	Citations

PUBLISHED PAPERS

Sort By

A - Z

SORT

Figure -8- My Profile

7.9 Edit Profile

You can edit your profile, change the necessary information provided from here.


Edit Your Profile

Password	Re-enter Password	Email Address
Enter New Password Here	Re-Enter Password Here	Change e-mail
First Name	Last Name	Website
Change first name	Change last name	Change website
City	Country	Zip Code
Change city	Change country	Change zip-code
Street Name	Street Number	SUBMIT
Change street name	Change street number	

Figure -9- Edit Profile

7.10 Editors Page

Editors Page starts with the same look of My Profile, however it can be only reached if the user's member status is editor. Here you can see the pending submissions and a list of reviewers, which you can assign a specific paper to a reviewer to review.

Erim Erdal

[Website](#)
erim.erdal@ug.bilkent.edu

1912
ScienceKeep™ Points

0
Submitted Papers

0
Published Papers

0
Citations

PUBLISHED PAPERS
Sort By
A - Z
SORT

Figure -10- Editors Page Top

REVIEWERS

Firstname	Lastname	Reviewer ID
dd	ddd	44

Enter Paper ID	Enter Reviewer ID	Assign Paper
<input type="text"/>	<input type="text"/>	ASSIGN

AWAITING PAPERS


Title	Topic	Paper ID
Kaynının Ya?i	Graph Theory	30
Yi?itler Genç ?lür	Algorithms	31

Figure -11- Editors Page Bottom

7.11 Contact

Here you can drop an opinion, see our motto and see our contact information.

Our Motto



Form Styles

Your email

erim.erdal@ug.bilkent.edu.tr

Reason for contacting

Questions

Message

Your message

☐ Send a copy to yourself

SUBMIT

Figure -12- Contact Top

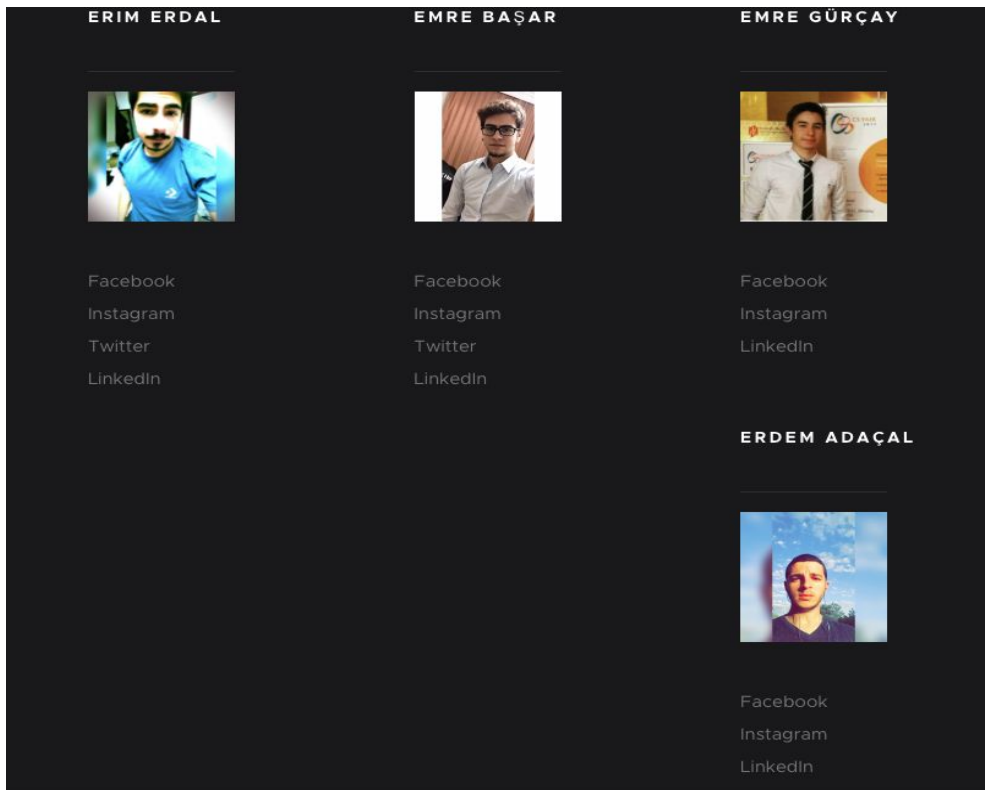



Figure -13- Figure Bottom

7.12 Search Bar

You can search through papers with options of searching paper name, author name and topic.

A dark-themed search bar interface. At the top, it says "Search Paper By" followed by three radio buttons: "Title" (selected), "Author", and "Topic". Below this, the text "Type Keywords" is displayed in a large, white, sans-serif font. Underneath, there is a horizontal line representing the input field, and at the bottom, it says "Press Enter to begin your search." in a smaller, lighter font.

Search Paper By
☒ Title ☐ Author ☐ Topic

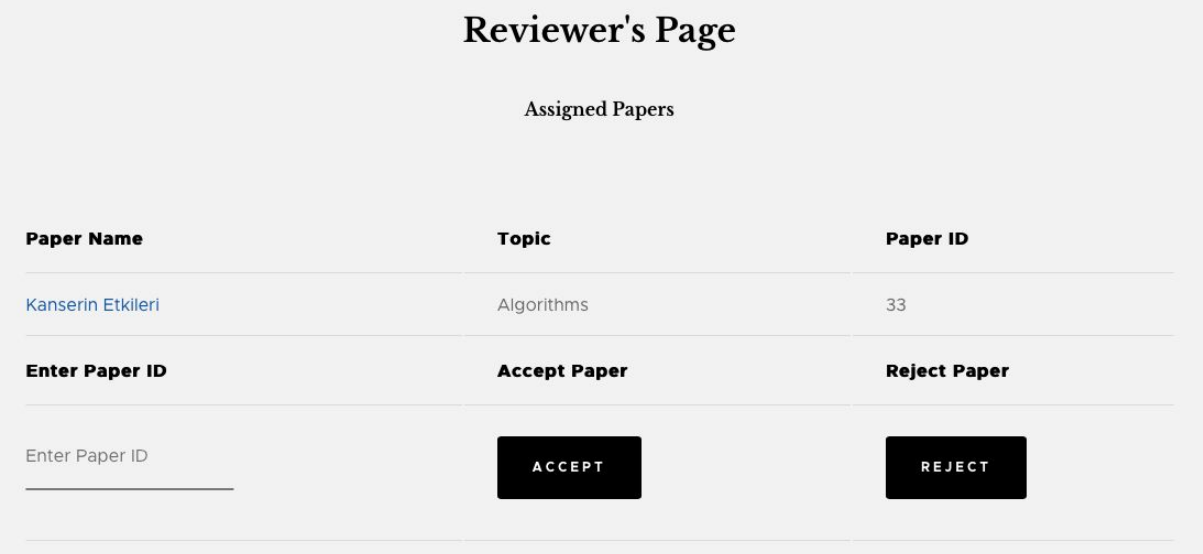
Type Keywords

Press Enter to begin your search.

Figure -14- Search Bar

7.13 Reviewer's Page

You can reach this page only if you are a reviewer. You can use this page to accept a paper to become a publication, or reject a paper.

A light gray interface for a reviewer's page. At the top, it says "Reviewer's Page" in a bold font. Below that, it says "Assigned Papers". There is a table with three columns: "Paper Name", "Topic", and "Paper ID". The first row shows "Kanserlin Etkileri", "Algorithms", and "33". Below the table, there are three sections: "Enter Paper ID" with a text input field, "Accept Paper" with a black button labeled "ACCEPT", and "Reject Paper" with a black button labeled "REJECT".

Reviewer's Page

Assigned Papers

Paper Name	Topic	Paper ID
Kanserlin Etkileri	Algorithms	33

Enter Paper ID

ACCEPT

REJECT

Figure -15- Reviewer's Page

7.14 Conference Chair's Page

Only conference chairs can reach here which provides the functionalities special to a conference chair. Conference Chair can additionally reach to his sessions except the profile top stays the same.

MY SESSIONS			
Session ID	Room	Conference Name	Location
1212	10	ARGOS	Florence
1313	9	ARGOS	Florence
1414	8	ARGOS	Florence

Figure -16- Conference Chair's Page