



CS 353

Database Management Systems

Project

Project Final Report

Scientific Papers Data Management System

Section 3 / Group 1

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1. DESCRIPTION OF APPLICATION SYSTEM

Named Scientific Papers Data Management System, the focus is to keep the data available in a proper manner with fine query efficiency. This database project aims to store, manipulate, and retrieve the information of people who serve as authors in academic environments, and the data of academic papers with certain attributes. The project will be implemented with SQL standard language.

Database will be available for several user types and these are described as follows: Author, editor, reviewer, subscriber. Author can add new academic papers to the system. They can be uniquely identified with ID issued by the system. Another user type is called reviewer and this user type can create reviews about existing journals. They have unique ID just like authors. Last user type editor also and assign reviewers to certain papers. ID is created also for editors. Subscribers are not as active as the other user types and can join the notification group when new posts become available and existing ones are updated in the database. Each of the users are required to login to the system in order to access the functionalities described above.

Journal specifications are another important element of this database system. Each journal is unique due to the composition of title and date. The journals can be subscribed by the subscribers so that in case of any update, notifications may be received. Information about the editor of journal is also available for purposes of contact. Additionally, journals are assembled of multiple publications that have different identification numbers. Just like journals, the publications have title and date, yet these attributes are not composed to uniquely define a publication. Information of citation count and scientific area will also be available to stick with academic regulations and better querying. The publication review is allowed to be done by reviewers.

In the database, there is also information related to the conferences. Conferences are identified with specific date, name and location. Each conference is concerned with a scientific area and each of them can be subscribed by the users. Papers and their authors are published in conferences, and each paper that is used in the conference is registered into database alongside their authors.

Contributions

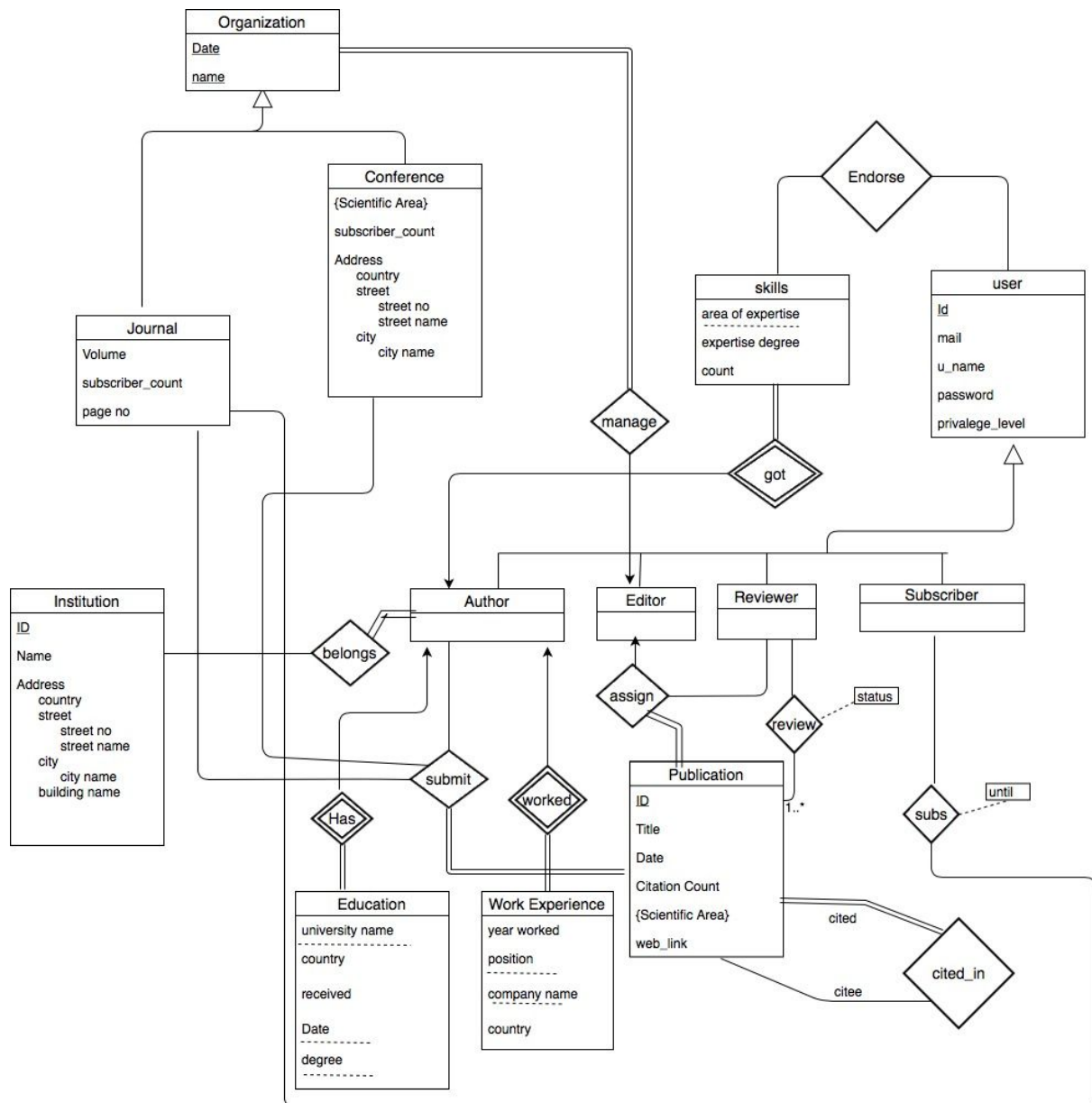
Oğuz Kaan Ağac : Implemented all MySQL, PHP, JS, jQuery codes. Fixed and changed the design of Graphical User Interface.

Berke Deniz Başaran: Implementation of Graphical User Interface

Mert Özerdem: Implementation of Graphical User Interface

Ceren Uysal: Implementation of Graphical User Interface

2. FINAL ER MODEL



3. RELATION SCHEMAS

3.1. Organization

Relational Model:

Organization(Date,name)

3.2. Conference

Relational Model:

Conference(Date, name, ID, Id, {Scientific Area}, subscriber_count, country, street_no, street_name, city_name)

Foreign Key: Date REFERENCES Organization

Foreign Key: name REFERENCES Organization

Foreign Key: ID REFERENCES Publication

Foreign Key: Id REFERENCES User

3.3. Journal

Relational Model:

Journal(Date, name, ID, volume, subscriber_count, page no, Id)

Foreign Key: Date REFERENCES Organization

Foreign Key: name REFERENCES Organization

Foreign Key: ID REFERENCES Publication

Foreign Key: Id REFERENCES User

3.4. User

Relational Model:

User(Id, mail, u_name, password, privilege_level)

3.5. Institution

Relational Model:

Institution(ID, Id, name, country, street no, street name, city name, building name)

Foreign Key: Id REFERENCES User

3.6. Publication

Relational Model:

Publication(ID, Id, title, date, citation count, {Scientific Area}, web_link)

Primary Key: ID

Foreign Key: Id REFERENCES User

3.7. Subscriber

Relational Model:

Subscriber(Id)

Foreign Key: Id REFERENCES User

3.8. Reviewer

Relational Model:

Reviewer(Id)

Foreign Key: Id REFERENCES User

3.9. Author

Relational Model:

Author(Id)

Foreign Key: Id REFERENCES User

3.10. Skills

Relational Model:

Skills(Id, area of expertise, expertise degree, count)

Foreign Key: Id REFERENCES User

3.11. Education

Relational Model:

Education(Id, university name, date, degree, country, received)

Foreign Key: Id REFERENCES User

3.12. Work Experience

Relational Model:

Work Experience(Id, position, company name, year worked, country)

Foreign Key: Id REFERENCES User

3.13. Endorse

Relational Model:

Endorse(Id, area of expertise)

Foreign Key: Id REFERENCES User

Foreign Key: area of expertise REFERENCES skills

3.14. Submit

Relational Model:

Submit(ID, Date, name, Id)

Foreign Key: ID REFERENCES Publication

Foreign Key: Date REFERENCES Organization

Foreign Key: name REFERENCES Organization

Foreign Key: Id REFERENCES User

3.15. Assign

Relational Model:

Assign(ID, Id)

Foreign Key: ID REFERENCES Publication

Foreign Key: Id REFERENCES User

3.16. Review

Relational Model:

Review(ID, Id, status)

Foreign Key: ID REFERENCES Publication

Foreign Key: Id REFERENCES User

3.17. Subs

Relational Model:

Subs(Date, name, Id, until)

Foreign Key: Date REFERENCES Organization

Foreign Key: name REFERENCES Organization

Foreign Key: Id REFERENCES User

3.18. Belongs

Relational Model:

Belongs(ID, Id)

Foreign Key: ID REFERENCES Institution

Foreign Key: Id REFERENCES User

4. IMPLEMENTATION DETAILS

The web site and the database are the main components of our Scientific Papers Data Management System.

The creation and implementation of the database is done with the help of MySQL. Firstly, we have created the main tables of our database, then provide some data in order to test the codes that are written so far, whether they are working well or not. Also some advanced database features of the system are implemented and tested.

The user interface and the functionalities of the application have crucial importance for us. The design of the user interface is done by the usage of HTML. Also CSS is used for the pages' styles. In order to provide better and smoother user interface, we have made use of Bootstrap and its functionalities. JavaScript is used too. We have given some warning messages after certain types of actions such as uploading a file or endorsing some skills of the authors. These types of messages are implemented with the help of JavaScript. So that JavaScript provides some kind of input management.

Mysqli commands are used for the implementation of the pages' database queries.

The system operations are implemented by using PHP. Both the web site and the database have used PHP. PHP manages some basic and important operations such as sign up process, sign in process, some error messages and so forth.

In the implementation process of our Scientific Papers Data Management System, we have faced couple of problems. First problem is having different results of our web site in different web browsers. In Safari, there is a warning for blank parts which must be filled out and you have to complete it in order to pass to other page. But in Firefox, there is no warning and passes the other page directly (even without filling out the required part). We have solved this issue by using the functionalities which are provided by Bootstrap.

5. ADVANCED DATABASE FEATURES

5.1 Implemented Trigger:

```
delimiter |
CREATE TRIGGER userInsert_trigger AFTER INSERT ON users
  FOR EACH ROW
  BEGIN
    IF NEW.privilege_level = 0 THEN
      INSERT INTO subscribers(subscriberID) VALUES (NEW.ID);
    ELSEIF NEW.privilege_level = 1 THEN
      INSERT INTO authors(authorID) VALUES (NEW.ID);
    ELSEIF NEW.privilege_level = 2 THEN
      INSERT INTO reviewers(reviewerID) VALUES (NEW.ID);
    ELSEIF NEW.privilege_level = 3 THEN
      INSERT INTO editors(editorID) VALUES (NEW.ID);
    END IF;
  END;
|
delimiter ;
```

Trigger copies the userID to their sub-class table such as authors, reviewers, subs etc. based on their privilege level.

5.2 Implemented View:

```
CREATE VIEW paperview AS
SELECT authorID, name, lastname, publications.ID, publications.publicationDate,
organizationID, publications.title as PublicationTitle, o.title as OrganizationTitle, users.mail,
publications.weblink
FROM publications
  LEFT JOIN submitted s on publicationS.ID = S.publicationID
  LEFT JOIN organizations o on s.organizationID = o.ID
  LEFT JOIN publicationAuthors Author on publications.ID = Author.pubID
  LEFT JOIN users on users.ID = Author.authorID;
```

	a...	* name	* lastname	* ID	* publicationDate	* organizat...	* PublicationTitle	* OrganizationTitle	* mail	* weblink	*
1	6	randomname1	randomlastname1	555	2000-12-03		5 testpublication1	5th Internat...	randomauthor1@gmail.com	testurl1.com	
2	7	randomname2	randomlastname2	555	2000-12-03		5 testpublication1	5th Internat...	randomauthor2@gmail.com	testurl1.com	
3	7	randomname2	randomlastname2	666	2002-11-04		5 testpublication2	5th Internat...	randomauthor2@gmail.com	testurl2.com	
4	8	randomname3	randomlastname3	777	2005-04-02		5 testpublication3	5th Internat...	randomauthor3@gmail.com	testurl3.com	
5	9	randomname4	randomlastname4	777	2005-04-02		5 testpublication3	5th Internat...	randomauthor4@gmail.com	testurl3.com	
6	10	randomname5	randomlastname5	777	2005-04-02		5 testpublication3	5th Internat...	randomauthor5@gmail.com	testurl3.com	
7	11	randomname6	randomlastname6	888	2000-09-02		5 testpublication4	5th Internat...	randomauthor6@gmail.com	testurl4.com	

6. A USER'S MANUAL

6.1 For All Users

6.1.1 Non-login Navigator Bar

A horizontal light blue bar containing the text "CynicalApe Library", "Login", and "About" separated by small gaps.

Figure 1: Non-login Navigator Bar

Figure 1 Shows the navigator bar. This navigator bar includes Cynical Ape Library, login and about buttons. When you click “Cynical Ape Library” on the left corner of the page, you encounter with the login page. Also clicking on “Login ” next to “ Cynical Ape Library ”, directs the user to the same page. “ About ” directs the user to the page which provides general information about CynicalApe Library.

6.1.2 Login Page

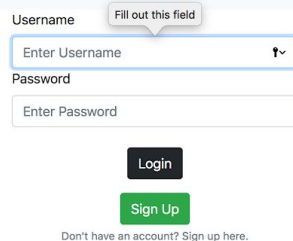
A horizontal light blue bar containing the text "CynicalApe Library", "Login", and "About" separated by small gaps.A login form with a "Username" label, a text input field with placeholder "Enter Username", a "Password" label, and a text input field with placeholder "Enter Password". A "Login" button is below the password field, and a "Sign Up" button is below it. A tooltip "Fill out this field" points to the username field. At the bottom, it says "Don't have an account? Sign up here."

Figure 2: Login Page

Figure 2 shows the login page, which includes non-login navigator bar on the top off the page. If the user has already an account, s/he directly enter the username and password. Then the “login” button is clicked. The validness of both the username and the password is checked. Based on this check, s/he logs in to Cynical Ape Library successfully or the same login page is reloaded and the error message “Wrong username or password” is displayed. If the user clicks on “login” button without providing a username and the password, s/he encounters with the message “Fill out this field”. If the user wants to create a new account, s/he should click “Sign up” button.

6.1.3 Sign Up Page

Figure 3: Sign Up Page

Figure 3 shows the sign-up page, which includes non-login navigator bar on the top of the page. If the user clicks on “ Sign Up” button without providing the necessary information such as email address, username, password, institute, and account type, s/he encounters a message “Fill out this field”. None of these necessary information can be left blank. There are 3 different types of the accounts such as Author, Editor, and Subscriber. After providing every information user can sign up to Cynical Ape Library successfully.

6.1.4 About Page

Figure 4: About Page

Figure 4 Shows the About Page for the non-registered users. The information bar, that is positioned middle-top of the screen, includes general information about Cynical Ape Library. This information is in Latin and very detailed.

6.2 For Registered Users

6.2.1 Navigator Bar



CynicalApe Library Publish Library About Assign Review Endorsement Advanced Search Logout

Figure 5: Navigator Bar for registered user

Figure 5 Shows the navigator bar for the registered users. This navigator bar includes Cynical Ape Library, Publish, Library, About, Assign, Review, Endorsement, Advanced Search, Logout, List Publication Citations. When the user clicks on “CynicalApe Library” or “About”, the page which includes the general information of Cynical Ape Library, is loaded. The “publish” button navigates to publish paper page, the “Library” navigates to search library page, “Assign” button navigates to assign paper page, “Review” button navigates to review paper page, “Endorsement” button navigates to endorse skills page, “Advanced Search” button navigates to advanced search page for conference, journal, institution, user, publication, author and so forth, “Logout” button navigates to login page.

6.2.2 Publish Paper Page



CynicalApe Library Publish Library About Assign Review Endorsement Advanced Search Logout

Submit Your Paper

Congratulations on your way to submit your work!

Title

Select a journal

Non-subscriber accounts require additional confirmation.

URL

Scientific Area

Authors

Confirm your password

Figure 6: Publish Paper To Journal Page

CynicalApe Library Publish Library About Assign Review Endorsement Advanced Search Logout

Submit Your Paper

Congratulations on your way to submit your work!

Title

On the Origin of Species

Select an organization

SIGGRAPH NA

Non-subscriber accounts require additional confirmation.

URL

publication url

Scientific Area

Computer Science etc..

Authors

Separated by comma

Confirm your password

Password

Publish

Figure 12: Publish Paper To Conference Page

Figure 6, 12 Shows the Publish Paper Page for the registered users. The Publish Paper Page is only designed for the users who have Author account type. The information bar, that is positioned middle-top of the screen, provides information for the users to guide them through submission of their paper. If an author clicks on “Publish” button without providing necessary information such as the title of the paper, journal, the password, the website does not continue until it gets all the necessary information. Author can pick either journal or conference to submit his or her paper via select organization drop button. If all the needed information is given, the page will submit given paper to the Cynical Ape Library.

6.2.3 Search Library Page

CynicalApe Library Publish Library About Assign Review Endorsement Advanced Search Logout

SearchSort By

#	Journal	Volume	Date	Subscribers
1	American Journal of Computer Science and Information Technology	3	2017-11-04	0
2	Journal of Computer Science & Systems Biology	10	2017-08-21	0
3	Journal of Global Research in Computer Science	5	2014-02-12	0
4	Journal of Information Technology & Software Engineering	9	2015-01-14	0

#	Conference	Date	Country	City	Subscribers
1	5th International Conference on Big Data Analysis and Data Mining	2018-09-21	ITALY	ROME	0
2	ACM SIGGRAPH	2018-09-12	CANADA	VANCOUVER	0
3	Global Expo on Computer Graphics & Animation	2018-09-30	JAPAN	TOKYO	0
4	International conference on Data Analysis and Cloud Computing	2018-10-06	UK	LONDON	0

Figure 7: Search Library Page example search

CynicalApe Library Publish Library About Assign Review Endorsement Advanced Search Logout					
Search journal, paper, conference				Search	Sort By ▾
#	Journal	Volume	Date	Subscribers	
1	American Journal of Computer Science and Information Technology	3	2017-11-04	0	
2	Journal of Computer Science & Systems Biology	10	2017-08-21	0	
3	Journal of Global Research in Computer Science	5	2014-02-12	0	
4	Journal of Information Technology & Software Engineering	9	2015-01-14	0	
#	Conference	Date	Country	City	Subscribers
1	5th International Conference on Big Data Analysis and Data Mining	2018-09-21	ITALY	ROME	0
2	ACM SIGGRAPH	2018-09-12	CANADA	VANCOUVER	0
3	Global Expo on Computer Graphics & Animation	2018-09-30	JAPAN	TOKYO	0
4	International conference on Data Analysis and Cloud Computing	2018-10-06	UK	LONDON	0

Figure 13: Search Library Page Responsive UI

CynicalApe Library

Publish

Library

About

Assign

Review

Endorsement

Advanced Search

Logout

ACM

Search

Sort By ▾

#	Journal	Volume	Date	Subscribers
No result with that title				

#	Conference	Date	Country	City	Subscribers
1	ACM SIGGRAPH	2018-09-12	CANADA	VANCOUVER	0

Figure 14: Search Library Page example search 3

Figure 7,13 and 14 Shows example pages the Search Library Page for the registered users. The Search Library Page is designed for all the users. So that there is no limitation about the account type. The user can enter any type of information about the journal, paper or conference to the search bar. If the “Search” button is clicked with any information, the page of the result of the search is loaded. After the listing is done, by clicking on “Sort By” the user can sort the results with respect to the subscriber count, date ascending, date descending and so forth.

6.2.4 About Page

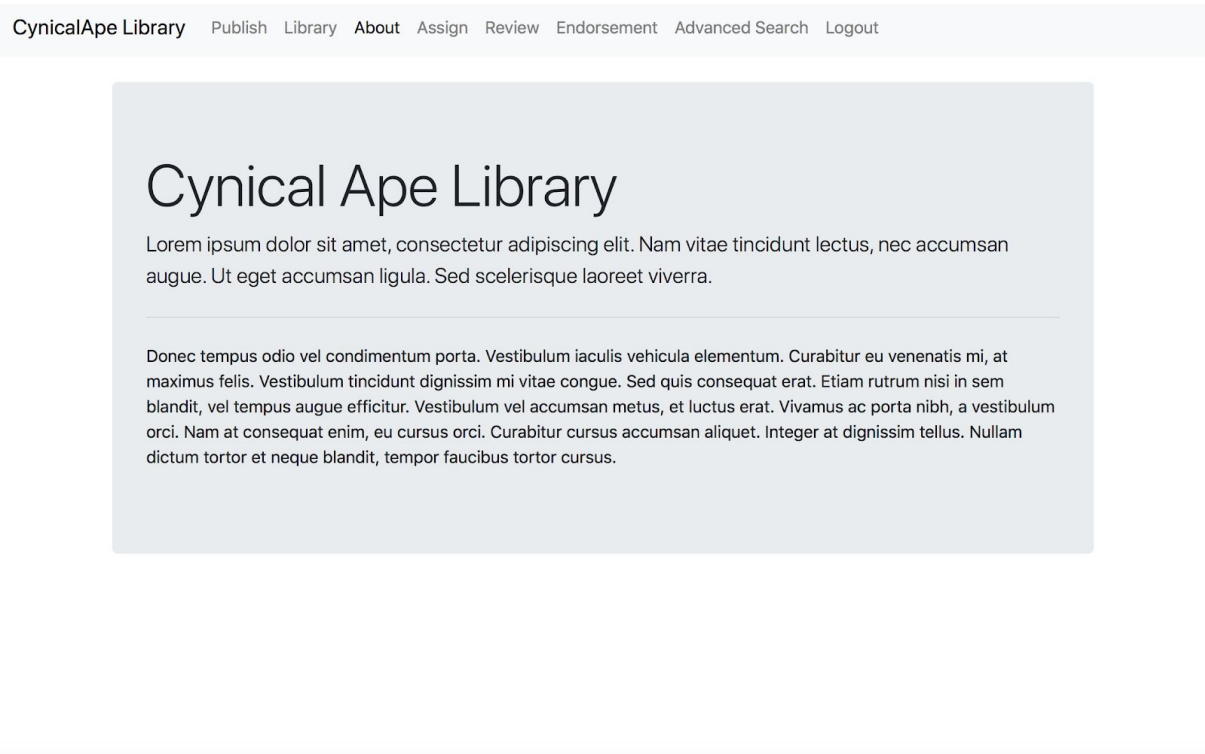


Figure 15: Registered About Page

Figure 15 Shows the About Page for the registered users. The information bar, that is positioned middle-top of the screen, includes general information about Cynical Ape Library. This information is in Latin and very detailed.

6.2.5 Assign Paper

CynicalApe Library Drive™ - Google Drive Publish Library About Assign Review Endorsement Advanced Search Logout

Assign Paper

Successfully assign the paper to the reviewers to be chosen!

Assign paper page is designed for editors exclusively, allowing them to assign the chosen paper to be reviewed by specific authors.

Paper: Adventure of joe

Search For Reviewers

Confirm your password

Assign

Figure 8: Assign Paper Page

Figure 8 Shows the Assign Paper Page for the registered users. The Assign Paper Page is only designed for the users whose account type are Editor. The information bar, that is positioned middle-top of the screen, provides information for the users to guide editor to how s/he can assign a paper to a reviewer. If an author clicks on “Assign” button without providing necessary information such as the name of the reviewer and the password, the website does not continue until it gets all the necessary information. If all the needed information is given, the page will assign the paper to the selected reviewer by the editor.

6.2.6 Review Paper

[CynicalApe Library](#) [Publish](#) [Library](#) [About](#) [Assign](#) [Review](#) [Endorsement](#) [Advanced Search](#) [Logout](#)

Send your review

Post your review assigned by your editor!

Review paper page is designed for reviewers exclusively, allowing them to post the review of assigned paper.

Paper: Origins of the species
Assigned by editor: Chris

Comment:

Confirm your password

Password

Post review

Figure 9: Review Paper Page

Figure 9 Shows the Review Paper Page for the registered users. The Review Paper Page is only designed for the users whose account type are Reviewer. The information bar, that is positioned middle-top of the screen, provides information to guide reviewers to how s/he can review a paper that assigned by an editor. If an reviewer clicks on “Post Review” button without providing necessary information, the website does not continue until it gets all the necessary information. If all the needed information is given, the page will post the reviewed publishment to CynicalApe Library.

6.2.7 Endorse Skills Page

CynicalApe Library Publish Library About Assign Review Endorsement Advanced Search Logout

Endorse Skills

Endorse the skills of the author chosen!

Any user may endorse the skills of a chosen author.

Author Chosen: Arif Usta

- ☐ Grammar
- ☐ Sentence structure
- ☐ Vocabulary
- ☐ Writing style
- ☐ Correct expressions


Endorse 

Figure 10: Endorse Skills Page

Figure 10 Shows the Endorse Skills Page for the registered users. The Endorse Skills Page is designed for all the users. So that there is no limitation for the account type. The information bar, that is positioned middle-top of the screen, provides information to guide users to how s/he can endorse any skills of the author. For the chosen author user can endorse his or her skills by checking boxes that are positioned left side of each skill then by clicking endorse button.

6.2.8 Advanced Search Page

CynicalApe Library

[Publish](#) [Library](#) [About](#) [Assign](#) [Review](#) [Endorsement](#) [Advanced Search](#) [Logout](#)

Search

Sort by ▾

#	Journal	Volume	Date	Subscribers
1	American Journal of Computer Science and Information Technology	3	2017-11-04	0
2	Journal of Computer Science & Systems Biology	10	2017-08-21	0
3	Journal of Global Research in Computer Science	5	2014-02-12	0
4	Journal of Information Technology & Software Engineering	9	2015-01-14	0

#	Conference	Date	Country	City	Subscribers
1	5th International Conference on Big Data Analysis and Data Mining	2018-09-21	ITALY	ROME	0
2	ACM SIGGRAPH	2018-09-12	CANADA	VANCOUVER	0
3	Global Expo on Computer Graphics & Animation	2018-09-30	JAPAN	TOKYO	0
4	International conference on Data Analysis and Cloud Computing	2018-10-06	UK	LONDON	0

Figure 11: Advanced Search Page

Figure 11 Shows the Advanced Search Page for the registered users. Advanced Search Page is designed for all the registered users. By using advanced search, the users can have a more advantaged search by combine filter of different variables such as author name, publish date, institution, and organization, then get the intended result of the search easily and effectively.

7. WEBSITE

The link of GitHub page of the project is the following:

<https://github.com/cerenuysal/CS-353>