

# EE101 Final Project Report

Yifu Chen, Jialong Guo , Ziliang Guo, Aofan Jiang

2019 年 6 月 22 日



# 目录

<b>1 Overview</b>	<b>1</b>
1.1 Project File Tree . . . . .	1
1.2 Develop Environment . . . . .	1
<b>2 Front-end</b>	<b>1</b>
2.1 Index.php . . . . .	1
2.1.1 Logo . . . . .	1
2.1.2 Greeting Words . . . . .	2
2.1.3 Search box & buttons . . . . .	2
2.1.4 Copyright & Related Websites . . . . .	5
2.2 Search.php . . . . .	5
2.2.1 Navigation Bar . . . . .	6
2.2.2 Body Part & Text . . . . .	6
2.2.3 Paper Turning & "Jump to" Button . . . . .	6
2.3 Conference.php . . . . .	7
2.4 Author.php . . . . .	7
<b>3 Graphs</b>	<b>8</b>
3.1 Overview . . . . .	8
3.2 Design . . . . .	8
3.3 Searching Data . . . . .	9
3.3.1 From Mysql to Solr . . . . .	9
3.3.2 Searching in Solr . . . . .	10
3.4 Formatting Data . . . . .	10
3.5 Drawing Graph . . . . .	10
3.6 Fruits' Display . . . . .	10
<b>4 Overview</b>	<b>12</b>
<b>5 Keyword Highlighting</b>	<b>13</b>

# **1 Overview**

## **1.1 Project File Tree**

## **1.2 Develop Environment**

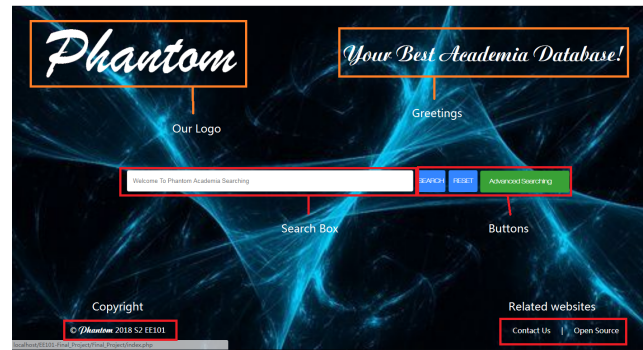
## 2 Front-end

written by Yifu Chen

I was in charge of the front-end part. I mainly used CSS and BOOTSTRAP to beautify our website. In my opinion, I hope my websites be plain and straightforward, so I did not decorate our websites deliberately, and this my idea of designing the layout for our websites.

I will introduce my work of each page respectively.

### 2.1 Index.php



Our index page is shown above. First of all, I would like to introduce the process of my designing our home page. At first, there were three search boxes in the page. The search box "Author", "Title" and "conference", and the layout of the index.php was settled. Then, we decided to use multi-searching. Therefore I cut down the number of search boxes into one. Finally, I polished the index.php and the page became what you can see now.

The elements the index page consists of was shown in the graph above, and I am going to introduce every part respectively.

By the way, the favicon of our websites was *Raffaello's The School of Athens*.

#### 2.1.1 Logo

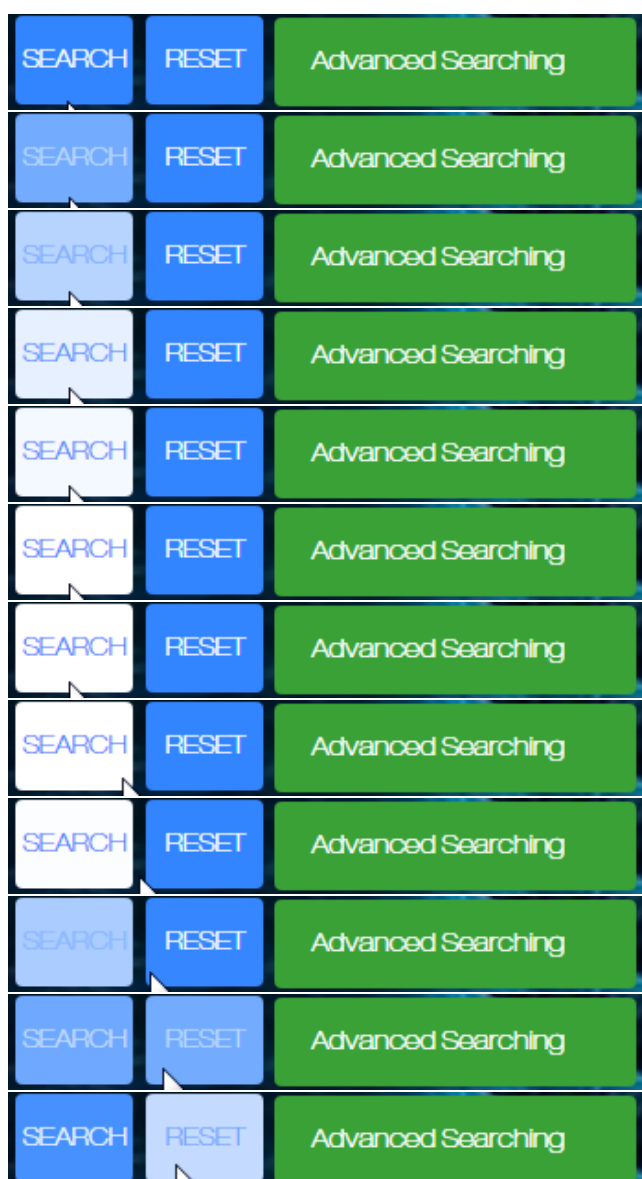
The name of our search engine came from *The Phantom of the opera*, one of my favorite films, and I hope that the speed of our searching engine can be as fast as a phantom. It took me so much time to find an appropriate font to display our logo. Finally I found out a font "书体坊兰亭体". However, the words could not be shown in terms of vector graph, which meant that the edge of the words were not smooth, and that is a defect of our logo.

### 2.1.2 Greeting Words


To display the greeting words,I also spent plenty of time to find a appropriate fonts.Finally, I found a font named "ChannelSlanted2" to present the greeting words.

### 2.1.3 Search box & buttons

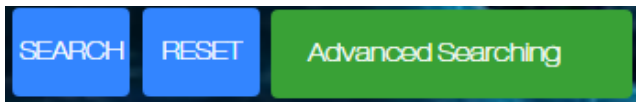
The search box and the buttons are the key part of the page,and I beautified the buttons,and the result was shown in the following pictures.





SEARCH	RESET	Advanced Searching >> 
SEARCH	RESET	Advanced Searching >> 
SEARCH	RESET	Advanced Searching >> 
SEARCH	RESET	Advanced Searching >> 
SEARCH	RESET	Advanced Searching >> 
SEARCH	RESET	Advanced Searching >>
SEARCH	RESET	Advanced Searching >>
SEARCH	RESET	Advanced Searching >>
SEARCH	RESET	Advanced Searching
SEARCH	RESET	
SEARCH	RESET	
SEARCH	RESET	Advanced Searching
SEARCH	RESET	Advanced Searching
SEARCH	RESET	Advanced Searching
SEARCH	RESET	Advanced Searching





## 2.1.4 Copyright & Related Websites

These two parts were mainly written by Ziliang Guo and Aofan Jiang and Hyperlinks were set on the texts "Contact Us" and "Open source".

## 2.2 Search.php

I am going to introduce every part of search.php respectively.

**Phantom** navigation bar Welcome To Phantom Academia Searching Search

Multi Field Search: jiawei han

body part

Title	Authors	Conference
mining heterogeneous information networks	jiawei han	SIGKDD
mining frequent patterns by pattern growth methodology and implications	jiawei han jun pei	SIGKDD
mining heterogeneous information networks: a structural analysis approach	yi Zhou sur jiawei han	SIGKDD
closegraph mining closed frequent graph patterns	xifeng yan jiawei han	SIGKDD
dynamic generation and refinement of concept hierarchies for knowledge discovery in databases	jiawei han yongjian fu	SIGKDD
chinese-japanese cross language information retrieval: a han character based approach	yuli matsumoto imd maruf hasan	ACL
resource and knowledge discovery in global information systems: a preliminary design and experiment	osmar z zaiane jiawei han	SIGKDD
on trivial solution and scale transfer problems in graph regularized nmf	chris ding jiawei han quanquan gu	LUCAI
advances of the dblearn system for knowledge discovery in large databases	simon tang jiawei han yongjian fu	LUCAI
classifying large data sets using svms with hierarchical clusters	jiong yang jiawei han hwanjo yu	SIGKDD
an efficient multi relational naive bayesian classifier based on semantic relationship graph	xiaohu yin jiawei han hongyan lu	SIGKDD
collective topic modeling for heterogeneous networks	jiawei han bo zhao hongbo deng	SIGR
tensor space model for document analysis	jiawei han deng cai xianlei he	SIGR
clustering moving objects	yifan li jiong yang jiawei han	SIGKDD
metarule guided mining of multi dimensional association rules using data cubes	micheline kamber jiawei han jennifer chianq	SIGKDD
robust tensor decomposition with gross corruption	huan gu jiawei han quanquan gu	NIPS
trust analysis with clustering	manish dupic jiawei han yi Zhou sur	WWW
mining event periodicity from incomplete observations	jingqiang wang zhenhui li jiawei han	SIGKDD
ranking based clustering of heterogeneous information networks with star network schema	jiawei han yi Zhou sur yintao yu	SIGKDD
ranking based classification of heterogeneous information networks	manna dantilevsky jiawei han ming ji	SIGKDD
building enriched web page representations using link paths	tim werninger jiawei han chengxiang zhu	WWW
parallel mining of closed sequential patterns	jiawei han david padua shengnan cong	SIGKDD
spectral regression for efficient regularized subspace learning	jiawei han deng cai xianlei he	ICCV
sparse projections over graph	jiawei han deng cai xianlei he	AAAI
closest searching for the best strategies for mining frequent closed itemsets	janyong wang jiawei han jun pei	SIGKDD

Found 401 results. Each page: 25 items. Altogether: 17 pages.

Text

Phantom

Page turns 1 2 3 4 5 6 7 8 9 10 Next

Jump to:  Go

### 2.2.1 Navigation Bar

I used css and bootstrap to construct the navigation bar. I thought there was no need to build a that complicated navigation bar, so I just put our logo in the top left corner of the screen and set it with a hyperlink to the homepage, and in the top right corner if the screen was a search box to conduct multi-search.

### 2.2.2 Body Part & Text

I selected the font "Regencie" to beautify the table and "书体坊赵九江钢笔楷书" to beautify the texts.

### 2.2.3 Paper Turning & "Jump to" Button

Our idea to design the pattern of the Paper Turning is to imitate *Google's* pattern.

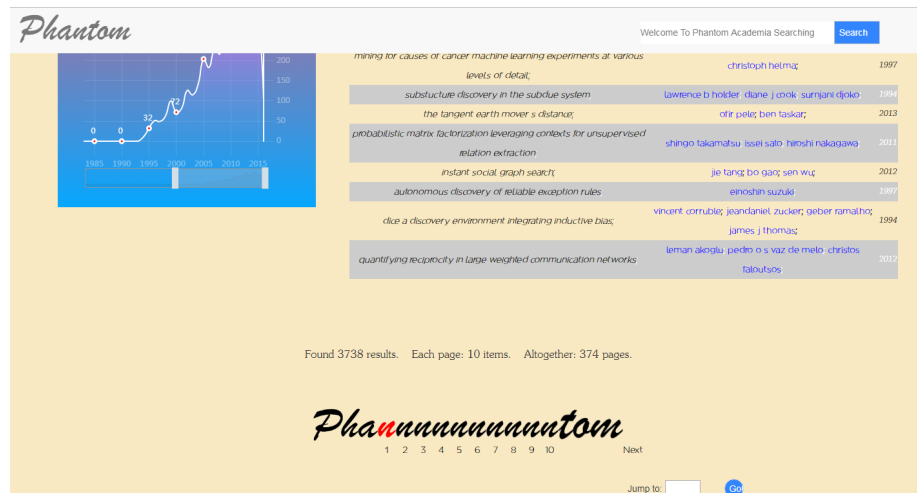


Therefore, I photoshopped some pictures and realized this idea.

I beautified the "Jump to" box, and the button "Go!" was modified by Aofan Jiang.

## 2.3 Conference.php





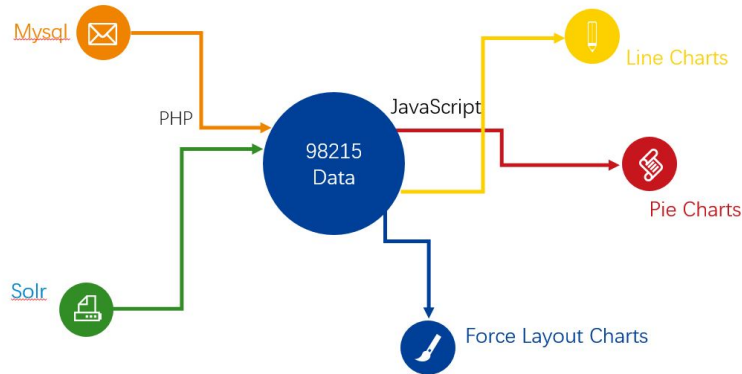
The beautification of Conference.php was similar to the search.php. Therefore I will not go into details here.

## 2.4 Author.php

## 3 Graphs

[Start] — *By Jialong Guo 518030910272* —

### 3.1 Overview



When it comes to our graph part, it can be chiefly divided into three parts:

The first of which is to get all the data we need in order to draw a graph.

The second part of which is to format all the data into the form that the corresponding graph is needed.

The last part of which is just to use specific javascript library to create graphs and make them beautiful.

### 3.2 Design

In author page' s left part, I add a column graph, which displays the number of publication the author has yearly and shows the trend of his/her academic activity to give users a clear impression about the author' s research fruit and the frequency of his/her delivery.

In author page' s left part, I also add a pie graph, which showcases how many papers the author publishes in a conference which brings a clear view on the author is mostly connected with what conference.

In paper page's upper part, there' s a line-column graph showing its yearly

citations, from which we can gain a insight into the popularity of its research field.

In paper page's lower part, I use a force directed graph to display the relations between similar papers. It gives a convience way to find related papers and messages.

In conference page, a line graph of its yearly amount of papers may reveal its academic influence.

### 3.3 Searching Data

In this subsection I mainly discuss the first part of graph drawing, get data from database. Since diverse graphs need diverse data, here I just demonstrate a specific example of getting data, which can mostly stand for my means of searching data.

#### 3.3.1 From Mysql to Solr

Taking time cost into consideration, we may need to import data into solr from mysql in advance, for searching from solr will spend more time than from mysql. Thereby, it is required that we write the referenceID of reference papers into solr's schema, which allows us to search the reference papers of a paper just from solr when needed.

The final data we put in solr is formed in this way:

```
with codecs.open(FP_out, 'w', 'utf-8-sig') as f:
    data = {"PaperID": result[0][0],
            "Title": result[0][1],
            "Authors'ID": [result[0][2]],
            "Authors'Name": [result[0][3]],
            "ConferenceID": result[0][4],
            "ConferenceName": result[0][5],
            "Year": result[0][6],
            "ReferenceID": [result[0][7]]}
    # "AffiliationID": [result[0][8]]}
    for i in range(1, len(result)):
        out_print = False
        if result[i][0] == data["PaperID"]:
            if (result[i][2] not in data["Authors'ID"]):
                data["Authors'ID"].append(result[i][2])
            if (result[i][3] not in data["Authors'Name"]):
                data["Authors'Name"].append(result[i][3])
            if (result[i][7] not in data["ReferenceID"]):
                data["ReferenceID"].append(result[i][7])
```

You can refer to the codes attached for detailed information.

### 3.3.2 Searching in Solr

The first step is getting value form user's input, then create the url link to search in solr. After this step, we can get a .json file with the result.

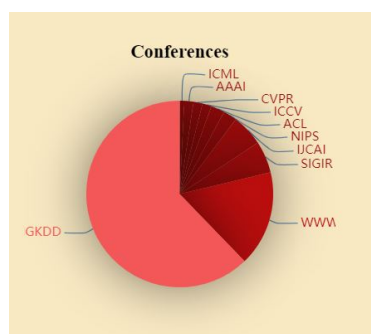
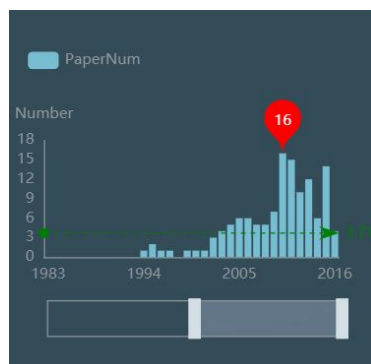
## 3.4 Formatting Data

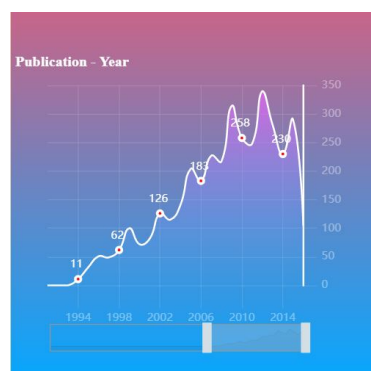
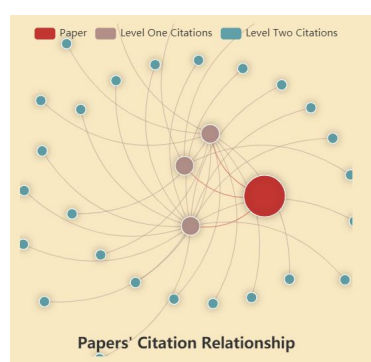
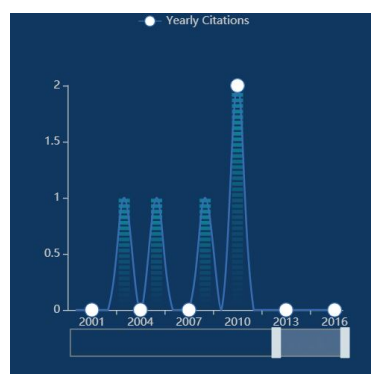
In this section, we mainly discuss how to change the search result into suitable formation of drawing a graph.

## 3.5 Drawing Graph

In the section, the process of drawing with echarts is mainly discussed.

## 3.6 Fruits' Display





[End] — By Ziliang Guo 518030910273 —

## 4 Overview

*[Start] — By Ziliang Guo 518030910273 —*

(1) I took the initiative that we take full advantage of Github to accelerate our project. I also create a document to take notes of the problems we met and the solutions.

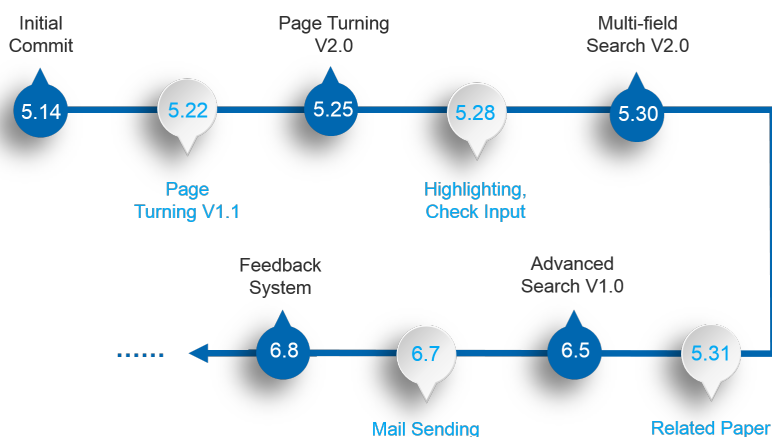
(2) Actually, I wrote the manual and uploaded my Lab 01 - 03 codes to unify the databases.

(3) I mainly focus on the back-end development.

(4) Of all my codes, I wanna highlight that approximately 85% are mainly created independently. For the remaining codes, modification is applied, with reference to some online blogs.

(5) Meanwhile, during my coding, I always remember to leave interfaces for my collaborators.

(6) As is vividly depicted in the timeline graph, I realized and improved different sections separately, in other words, term by term. Of course, my constant improvements are shown.





## 5 Keyword Highlighting

I adopted the “hl” settings of Solr. It is somehow very simple. Just echo the corresponding urls will do.

However, please notice that, for multivalued fields such as Authors\_Name, only the highlighted part is returned. So I made judgements in such special cases.

Codes:

```
$url = "http://localhost:8983/solr/
lab02/select?indent=on&q=Title:". $query. "
^1+OR+Authors_Name:". $query. "^0.7+OR+ConferenceName:
". $query. "^0.5&start=" . ($page_limit*($page-1)). "
&rows=". $page_limit. "&wt=json&hl=on&hl.fl=Title,Auth
ors_Name,ConferenceName&hl.simple.post=<%2Fb><%2Ffont>&h
l.simple.pre=<font%20color%3D%23FF0000><b>"
```

*[End] — By Ziliang Guo 518030910273 —*