

## Design and Production Skills of Modern Physics Experiment Report Website

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### ABSTRACT

In view of the large number of modern physics experiment reports, the situation is complex, and it is inconvenient to browse, specifically, there are 35 students in class 1, 42 students in class 2, and students do all 12 experiments, but one student chooses to do 9 experiments, and the normal modern physics experiment report has 8 pages, and the pictures provided by the students are some big and some are small; Some are in .jpg format, some are in .png format; some figures are skewed. To this end, it is proposed to make a modern physics experiment report website based on Dreamweaver that can quickly browse all students, and the problem that needs to be solved is that the pictures are named according to the student number, the experimental serial number, and the page serial number, the size of the picture is unified, and the crooked pictures are taken for correction, and the top, left, and main three frame websites are designed to be easy to browse, and the website data produced is large, but neat and easy to browse.

**Keywords:** three-frame website; HTML; image format; three-tier browsing; dreamweaver

### INTRODUCTION

Modern physics experiments are an important experimental course for cultivating students majoring in electronic science and technology. The content involves solid-state physics, atomic nuclei, ultrasound, superconductivity, single photon counting, holography, speed of light measurement, physical optics, Moiré fringes, periodic imaging, and measurement experiments based on modern sensor physical quantities [1,2]. In 2022, the Modern Physics Laboratory opened 12 experiments to 35 students in Class 201 of Electrical Engineering and 42 students in Class 202 of Electrical Engineering. Each student selected 9 experiments, and a normal Modern Physics experiment report was 8 pages long. After completing all the experiments, students will name all the experimental reports with each page as a picture name, and name them according to student ID, experiment number, and page number. For example, students with student ID "101" will select 9 experiments from 12 experiments, and each experiment will be in page order, providing a total of 72 images.

The original materials of student experimental reports are stored in the teaching and research room, while electronic materials are stored in the cloud. The information stored in the cloud should be neat, standardized, and easy to browse. Therefore, based on Dreamweaver, a modern physics experimental report website is created, which clearly saves every page of all student reports and makes browsing in web form very convenient. This way of saving materials will become an effective way to save teaching materials [2-5].

### Production of Modern Physics Experiment Report Website

Dreamweaver is a web design and development tool developed by Micromedia and later acquired by Adobe. It is a WYSIWYG editor that allows users to create, edit, and publish websites. Website development can be achieved through interface operations or coding. At the same time, Dreamweaver supports multiple programming languages and markup languages, such as HTML, CSS, JavaScript, PHP, and more.

It can be used to develop various types of websites, such as static websites, dynamic websites, responsive websites, etc. With the continuous development and change of Internet technology, Dreamweaver is also constantly updating and improving to adapt to the changing market needs and technology trends [6,7].

The Dreamweaver MX interface is shown in Figure 1. The first line is "Caption Bar", the second line is "Menu Bar", and the third line is "Tool Bar". In "Tool Bar", select the three frame structures in "Frames", with the "top" frame above it.

In the "top" frame, enter "Experiment Report"; On the left side is the "left" frame, where you can input "101", "102",... using<Shift>+<Enter>; Enter "LS2215007" in the "main" frame on the right side to obtain the following three frames as shown in Figure 1.

It is worth mentioning that the fourth line "Icons" displays different icons based on the button selected in the "Tool Bar". In the central workspace of Figure 1, the HTML language is displayed with three modes: the first is full interface, the second is full HTML, and the third is partial interface and partial HTML. Figure 1 belongs to the third mode, with HTML code above and interface below.

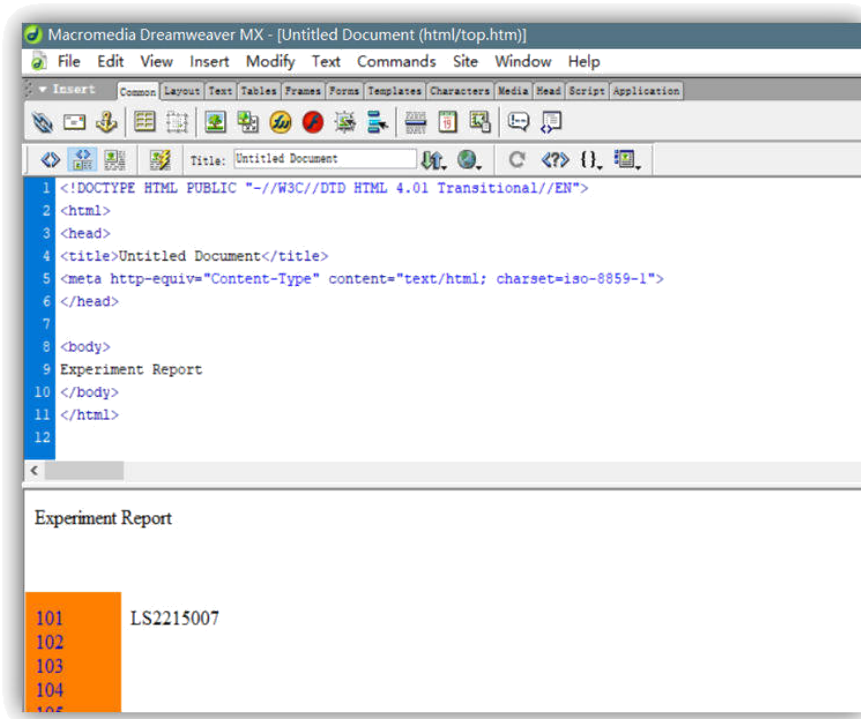


FIGURE 1: Dreamweaver Software Working Interface.

**Interface Design**

The designed modern physics experiment report website is used to display 35 students from Class 201 of Electrical Engineering and 42 students from Class 202 of Electrical Engineering. Each student has 9 experiment reports, with 8 pages for each experiment, which means 72 pictures for each student.

Taking Class 201 of Electronic Science and Technology is as an example.

In the "top" framework, use Photoshop to create long bars with W: 1280 pixels and H: 100 pixels, and type "Report on Modern Physics Experiment of Class 201 in Electronic Science and Technology", as shown in Figure 2.

FIGURE 2: "Top" Framework Diagram.

In the "left" framework, it is divided into three levels. The first level is "101, 102,..., 135" from top to bottom. When double clicking "101", the second level is displayed in the "left" framework; In the second level, the position of "101" represents 12 experiments, namely "10101, 10102,..., 10112", occupying 12 rows, while the others are sequentially extended downwards. When double clicking "10101", it enters the third level, indicating that each

experiment has 8 pages; In the third level, the position of "10101" has been changed to "101011, 101012,..., 101018", occupying 8 rows, while the others are sequentially extended downwards. The content and corresponding HTML displayed on the first level interface are shown in Figure 3, the content and corresponding HTML displayed on the second level interface are shown in Figure 4, and the content and corresponding HTML displayed on the third level interface are shown in Figure 5.

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101 Macromedia Dreamweaver MX - [Untitled Document (html/left)]
102 File Edit View Insert Modify Text Commands Site Window Help
103 Insert Common Layout Text Tables Frames Forms Templates Characters Media Head/Script Appl
104
105 Title: Untitled Document
106 1 <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
107 2 <html>
108 3 <head>
109 4 <title>Untitled Document</title>
110 5 <meta http-equiv="Content-Type" content="text/html; charset=gb2312">
111 6 </head>
112 7
113 8 <body>
114 9 <a href="left101.htm">101</a><br>
115 10 <a href="left102.htm">102</a><br>
116 11 <a href="left103.htm">103</a><br>
117 12 <a href="left104.htm">104</a><br>
118 13 <a href="left105.htm">105</a><br>
119 14 <a href="left106.htm">106</a><br>
120 15 <a href="left107.htm">107</a><br>
121 16 <a href="left108.htm">108</a><br>
122 17 <a href="left109.htm">109</a><br>
123 18 <a href="left110.htm">110</a><br>
124 19 <a href="left111.htm">111</a><br>
125 20 <a href="left112.htm">112</a><br>
21 <a href="left113.htm">113</a><br>
22 <a href="left114.htm">114</a><br>
23 <a href="left115.htm">115</a><br>
    
```

FIGURE 3: "left1" framework diagram and its HTML.

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10101 Macromedia Dreamweaver MX - [Untitled Document (html/left101)]
10102 File Edit View Insert Modify Text Commands Site Window Help
10103 Insert Common Layout Text Tables Frames Forms Templates Characters Media Head/Script Appl
10104
10105 Title: Untitled Document
10106 1 <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
10107 2 <html>
10108 3 <head>
10109 4 <title>Untitled Document</title>
10110 5 <meta http-equiv="Content-Type" content="text/html; charset=gb2312">
10111 6 </head>
10112 7
102 8 <body>
103 9 <a href="left10101.htm">10101</a><br>
104 10 <a href="left10102.htm">10102</a><br>
105 11 <a href="left10103.htm">10103</a><br>
106 12 <a href="left10104.htm">10104</a><br>
107 13 <a href="left10105.htm">10105</a><br>
108 14 <a href="left10106.htm">10106</a><br>
109 15 <a href="left10107.htm">10107</a><br>
110 16 <a href="left10108.htm">10108</a><br>
111 17 <a href="left10109.htm">10109</a><br>
112 18 <a href="left10110.htm">10110</a><br>
113 19 <a href="left10111.htm">10111</a><br>
114 20 <a href="left10112.htm">10112</a><br>
21 <a href="left102.htm">102</a><br>
22 <a href="left103.htm">103</a><br>
23 <a href="left104.htm">104</a><br>
    
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FIGURE 4: "left101" framework diagram and its HTML.

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101011 Macromedia Dreamweaver MX - [Untitled Document (html/left10101)]
101012 File Edit View Insert Modify Text Commands Site Window Help
101013 Insert Common Layout Text Tables Frames Forms Templates Characters Media Head/Script Appl
101014
101015 Title: Untitled Document
101016 1 <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
101017 2 <html>
101018 3 <head>
101019 4 <title>Untitled Document</title>
101020 5 <meta http-equiv="Content-Type" content="text/html; charset=gb2312">
101021 6 </head>
101022 7
101023 8 <body>
101024 9 <a href="..../images/101011.JPG" target="_parent">101011</a><br>
101025 10 <a href="..../images/101012.JPG" target="_parent">101012</a><br>
101026 11 <a href="..../images/101013.JPG" target="_parent">101013</a><br>
101027 12 <a href="..../images/101014.JPG" target="_parent">101014</a><br>
101028 13 <a href="..../images/101015.JPG" target="_parent">101015</a><br>
101029 14 <a href="..../images/101016.JPG" target="_parent">101016</a><br>
101030 15 <a href="..../images/101017.JPG" target="_parent">101017</a><br>
101031 16 <a href="..../images/101018.JPG" target="_parent">101018</a><br>
102 17 <a href="left10102.htm">10102</a><br>
103 18 <a href="left10103.htm">10103</a><br>
104 19 <a href="left10104.htm">10104</a><br>
105 20 <a href="left10105.htm">10105</a><br>
106 21 <a href="left10106.htm">10106</a><br>
107 22 <a href="left10107.htm">10107</a><br>
23 <a href="left10108.htm">10108</a><br>
    
```

FIGURE 5: "left10101" framework diagram and its HTML.

It is worth noting that when making "102", its first level is still shown in Figure 3; However, when creating the second level of "102", the "102" position between "101" and "103" changed to "10201, 10202, ..., 10212", and so on; When creating the third

level, if you are looking at the second experiment of student "102", replace the "10202" position between "10201" and "10203" with "102021, 102022, ..., 102028", and so on.

The main framework is used to display the specific page content of the experimental report. It is worth noting that each student only conducted 9 experiments, with 24 pages appearing blank. Some students did not fill 8 pages, and there may also be blank spaces.

### Several Techniques

During the specific production process, several issues were encountered:

Firstly, the images submitted by each student, some in .jpg format and some in .png format, need to be unified into .jpg format;

Secondly, some students scan through a scanner or use their mobile phones, while others take photos with their mobile phones, with different sizes. Some have W: 1657 pixels and H: 2394 pixels; Some are W: 1805 pixels, H: 2564 pixels; Some are W: 2580 pixels and H: 3510 pixels. When displaying on a webpage, it is necessary to have a uniform width to avoid incomplete browsing;

Thirdly, some students use their mobile phones to take photos of rectangular pages with trapezoidal or even arbitrary quadrilateral shapes, which do not undergo correction and affect the browsing effect.

#### • Tip 1: Data Format Modification

For 35 students, each conducted 9 experiments with 8 pages each, totaling 2520 images. During the process of using HTML to write a program, it is necessary to save all images in .jpg format. For example, finding and changing .png format images from all images to .jpg format one by one is a considerable amount of work. Therefore, through research, it creates a .bat file to modify all image formats to .jpg format at once, as shown in Figure 6.

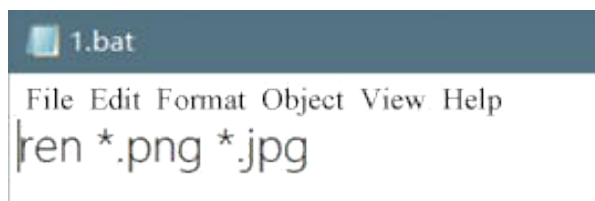


FIGURE 6: Replacing .png with .Jpg.

After writing such a .bat file, copy it to the "images" folder of all images, and then double-click to change all .png files to .jpg files.

It is worth noting that image files in .tif format can also be modified to .jpg format.

#### • Tip 2: Unified modification of image size

The second issue is that the length and width of the images provided by the students are inconsistent, some are large and some are small, which can affect the feeling when browsing images on the webpage. Some images are too large, while others are too small, which can affect the browsing effect and aesthetics. Therefore, the images provided by the students were modified to a uniform width, so that they fit perfectly on the entire screen within the

"main" frame. If we adjust the width of each image to 1080 pixels in proportion to the original image, it will definitely take a lot of time. After discussion and research, we have decided to use a one-time method to complete this task. The specific method is as follows:

- (1) Open Photoshop and enter "File/Script/Image Processor";
- (2) In the "Image Processor" dialog box, select the folder "images" where the images are stored;
- (3) Select the location where you want to save the new, resized image;
- (4) Select the preferred file type (.jpg) for resizing images;
- (5) Under the Preferences section, select the check box for Resize to Fit. Enter the pixel size required for the resized image (width 1080 pixels);
- (6) The preferred method for selecting image quality;
- (7) Click "Run" and wait for image processing.

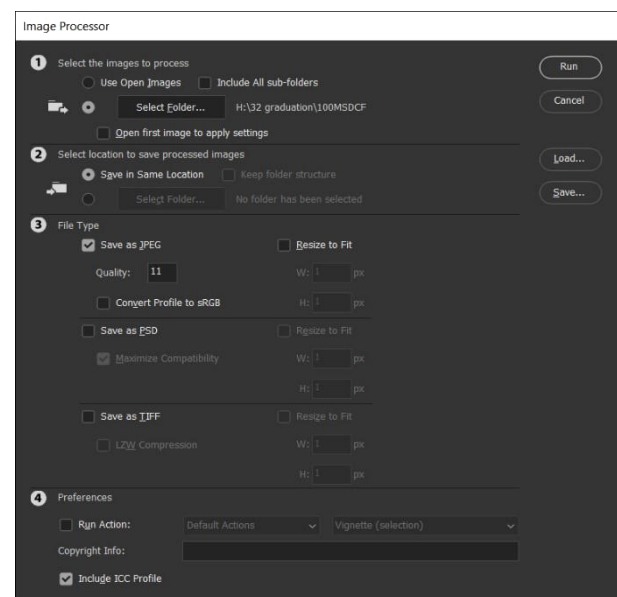


FIGURE 7: Modifying the Width of The Image.

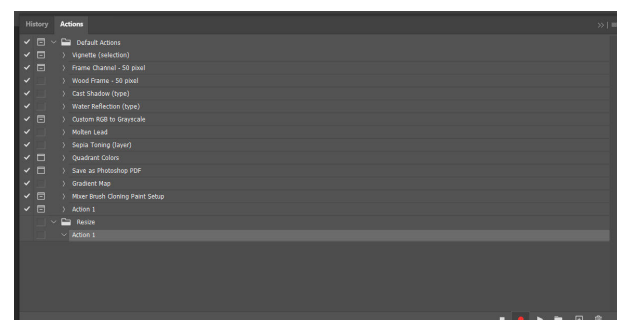


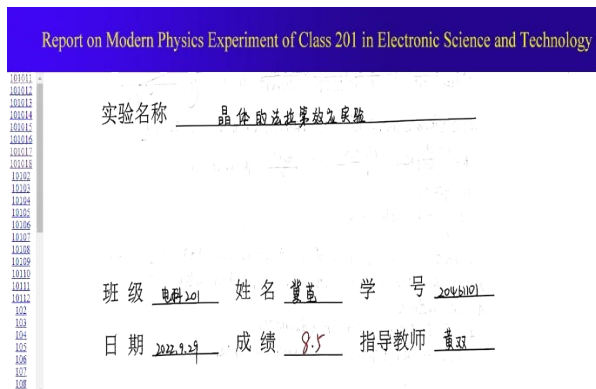
FIGURE 8: The process of modifying image size is illustrated in the following figure.

**CONCLUSION**

Using Dreamweaver to create a modern physics experiment report website is very convenient to browse. During the production process, collecting experimental reports from classmates, unifying numbering, image format, and image width size are key steps. At the same time, designing three frames for browsing web pages is also important. Each frame requires zero margin around the edges, and the object is centered on the left and right; Create a webpage header of 1280 pixels \* 100 pixels in the "top" framework, and create a three-level "left" framework. The first level is the class and serial number, the second level is the experimental serial number, and the third level is the report page number. In the third level, after each writer clicks, the corresponding page of the report will be displayed in the "main" framework. The website created in this way can be promoted to projects with standardized display of a large amount of statistical data, saved in the cloud, and browsed anytime, anywhere.

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**FIGURE 9:** Website for Modern Physics Experiment Reports.