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 **T.C.**

**ÇUKUROVA ÜNİVERSİTESİ**

**MÜHENDİSLİK-MİMARLIK FAKÜLTESİ**

**STAJ DEFTERİ**

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| **ÖĞRENCİNİN** | **Bölümü** | **Bilgisayar Mühendisliği** | **FOTOĞRAF** |
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| **Bu Çalışmayı Kaçıncı Devre Pratik Çalışması Olarak Yaptığı** | **1. DEVRE 2. DEVRE** |
| **Pratik Çalışmaya Başladığı Tarih** | | **31.05.2021** |
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**PRATİK ÇALIŞMALARI İNCELEME KOMİSYONUNUN KANAATİ**

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| **Yapılan pratik çalışma ........ iş günlük ...... devre çalışması olarak kabul** | |
| **Tarih**  **...../..../201..** | **İsim ve İmza :....................................................................................................................**  **İsim ve İmza :....................................................................................................................**  **İsim ve İmza :....................................................................................................................** |

**PRATİK ÇALIŞMANIN GÜNLERE DAĞILMA ÇİZELGESİ**

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| **Öğrencinin Çalıştığı Günler** | **Günlük Çalışma Saati** | **Öğrencinin Çalıştığı Konular** | |
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**Planning interface, database and functionalities**  **Index page**  **Database implementations**  **Admin panel(HTML+CSS)**  **Admin panel(PHP)**  **Computer operations(add, edit, delete …)**  **Cart system**  **User Page**  **User operations(edit, add address …)**  **Address**  **Comment System**  **Sale operations**  **Computer search page**  **Paging**  **Sort computers(sort by price, discount rate…)**  **Compare computers**  **Image operations**  **CSS**  **CSS**  **Bug fixing**  **.......................................................................................................**  **.......................................................................................................**  **.......................................................................................................**  **.......................................................................................................**  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| **Toplam İş Günü**  **20** | **Toplam Saat**  160 | **İşyeri Amirinin İmzası** | **Öğrencinin Çalıştığı Konular** |

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| **E-COMMERCE SYSTEM**    In this project, an online shopping website was developed for a store. Several programming languages are used and there are various functionalities made with these languages. Languages and functionalties are explained in detail in the following sections.  **1.Programming Languages**  **1.1 PHP**    PHP (recursive acronym for PHP: Hypertext Preprocessor) is a widely-used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML. This feature of PHP provides great flexibility when writing code.    *Figure 1.0 PHP in HTML*    In Figure 1.0, the data from the database is received with PHP and acts as a link address with ‘href’ attribute of the a tag in the HTML page.    PHP is used for back-end development. All database, cookies, session and mathematical operations are implemented with this language.  **1.2 HTML**    The HyperText Markup Language, or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript.  A sketch of the front-end part of the website is created using HTML tags. Each tag has a different task. For example, data can be obtained from the user with a form tag, a link can be created using the a tag, the information can be displayed aligned on the screen using the table tag etc. Also, each tag has its attributes. These features can be added to the label as an extra attribute. For example, in Figure 1.0, an image can be displayed on the screen with the img tag and the path to the image can be given with the src property of this tag.  All these tags are used together to provide communication between the user and the server. User interactions are taken and processed with PHP on the server side and necessary actions are taken. Then, the processed data is conveniently displayed to the user via HTML pages.  -1-  **1.3 CSS**    Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.  Color, background, size, position, etc. Of html tags can be changed with css. In this way, HTML pages look better. For ajör :    *Figure 1.1 HTML document without CSS Figure 1.2 HTML document with CSS*  By giving some style properties to HTML tags, their above-mentioned attributes can be changed.  **1.4 JavaScript**  JavaScript is high-level, often just-in-time compiled, and multi-paradigm. It has curly-bracket syntax, dynamic typing, prototype-based object-orientation, and first-class functions.  Alongside HTML and CSS, JavaScript is one of the core ajörogies of the World Wide Web.Over 97% of websites use it ajör-side for web page behavior, often incorporating third-party libraries. All ajör web browsers have a dedicated JavaScript engine to execute the code on the user’s device.  It was not used much in this project. Used only to style undiscounted prices.    *Figure 1.3 JS code*  In figure 1.3, all elements of the price class are sent to the function using a loop and styled.  -2-  **2.Database**  MySQL is used as database in this project. MySQL is a widely used relational database management system (RDBMS). It is free and open-source and ideal for both small and large applications.    *Figure 2.0 MySQL PHP implementation*  The code block that provides the PHP and database connection is shown in Figure 2.0. It is run by writing database commands in PHP and thanks to these commands, the data can be saved, called for use or edited.  For example, for user transactions, we use the database as follows :   * The user who wants to register fills in the registration form. * With the entered information, it is checked whether a person has been registered before. * If the user has not registered before, the user's name, surname, email address and password(The password is encrypted one-way using a hash algorithm called MD5. In this way, the password is protected from everyone, including the system administrator.) are saved in the database. * The user writes her/his own e-mail address and password to the login form to log in. * If there is a database record that matches the entered information, the user is logged into the system.   In addition to the user table address, admin, comment, computer, image, sale, text tables are also kept in the database. Tables appear in Figure 2.1.    *Figure 2.1 All tables in Database*  -3-  **3.Systems**  In this project, systems that are (or should be) on an e-commerce site have been implemented. Thanks to these components, the system has become dynamic. Administrators and users can easily use the site using the components.  For xample, when the user wants to buy a product, there is a page where he can review this product. This page contains information such as product features, product price information, product photos and other user comments. Using this information, the user can decide on the quality of the product and purchase it.  Another xample, the administrator can respond to the needs of the system and the user in a short time by managing operations such as adding products, changing product information, managing orders from a single panel.  These systems are described in detail below.  **3.1 Computer Operations**  For computers, there are operations to add computers, edit computers, delete computers and add images. These operations are controlled by the administrator. Coding was done on the basis of object-oriented programming. There is a class for the computer. This class is located in the computer.php file. In addition, Operation codes are located in the computerManager.php file.   * add: Adds a new computer. * delete: Deletes a computer (However, all the images belonging to that computer are also deleted. Because the images of the deleted computer should no longer occupy space in the system. The deleteAllImages method does the deleting all images.) * connectionWithDBorForm: Associates information from the database or form with a computer object and returns that object. * edit: Edits computer informations. * nameCheck: Computers cannot have the same name. The name rule is checked by calling this method in the add method. If a computer with the same name already exists in the system, it cannot be added. * getImages: Returns the path of all images belonging to a computer as an array.   **3.2 Cart System**  In the cart system, the user can add the products to the shopping cart just like in a real store and continue shopping to view other products. When a computer is added to the shopping cart, it behaves as if it were purchased and the stock quantity decreases.  -4-  Several functions are defined for cart operations. These are add to cart, remove all products from cart and remove a product from cart functions. When adding a product to the cart, a cookie is created using the computer id. The lifetime of the cookie is 1 hour. The product added using cookies is saved in the user’s browser. When the user wants to see his/her own cart, all the products added to the cart so far are shown and the total price of the cart is shown to the user. In addition, next to all products there is a button to remove them from the cart. When this button is clicked, 1 hour is subtracted from the lifetime of the cookie with the id value of the relevant computer. Thus, the lifetime of the cookie is consumed manually and the cookie is deleted. A similar process is done to delete all products in the cart function. All of these operations are included in the cart\_functions.php file.    *Figure 3.0 Cart*    *Figure 3.1 Cookies in the user browser of the computers in the cart*  Computers added to the cart in figure 3.0, cookies created with the ids of these computers in figure 3.1.  -5-  **3.3 User Operations**  There are many features for users in the system. They can perform operations such as registering, logging in, adding products to the cart, commenting on the product, rating the product, placing an order for the product at any address, canceling the order. In addition, user login is required for many operations in the system. User login is controlled by cookies, just like adding computers to cart. The cookie lifetime for a user login is 1 hour. In addition, there is a user operation class named userManager for the mentioned user operations. User operations can be done by the methods in this class.    There is a special menu for users.    *Figure 3.2 User Menu*  Thanks to the menu, they can easily do the operations.  In addition to all these user actions, users have addresses. These addresses are not kept in the user table in the database. They are located in a separate table. Because a user can have more than one address. During the purchase, an address is requested from the user and this address is included in the admin panel as the address to which the order will be sent.  **3.4 Comment System**  At the bottom of the product pages, there are areas where users can comment on that product. Thanks to these areas, users who want to buy the product get a preview by reading the comments of others. Users who are not logged in cannot comment. User name and surname are also displayed in the comment field. In addition to the comments made, a score is given in the range of 1-5. The rate of the computer is obtained by dividing the sum of the points given for a computer by the number of comments (Shown in Figure 3.3).  Comments are stored in the database. Features such as the id information of the commenter, the id information of the commented computer, the title of the comment and the content of the comment are kept.    *Figure 3.3 Rate calculation for a computer*  -6-  **3.5 Sale Operations**  The final stage of a cart is the purchasing stage. User must be logged in to purchase. When the BUY button at the bottom of the cart is pressed, an address is requested from the user. After the address is selected, the order is confirmed and appears in the admin panel. Orders are saved in the database. The information of the purchaser, purchased computers, total amount of the order, address and order status information are kept. It is assumed that the manager prepares the order according to this information and sends it to the specified address. The user can also see the status of their own orders and can cancel the order if it has not been shipped yet. The manager is responsible for checking the status of an order. There are 3 states for an order: preparing, cargo, delivered.    *Figure 3.4 Order(user-side) Figure 3.5 Order(admin-side)*  As seen in figures 3.4 and 3.5, orders are displayed to the user and administrator in a table. This notation is from the last order to the first order.  **3.6 Computer Search Page**  Spesific searches can be made with the search field on the top right of the homepage. Using the text typed in the search field, the computers table is searched and the computers containing the text are displayed on the search result page. This search is done using RegEx. Thanks to this system, users will be able to find what they are looking for easily, even if the number of computers increases.    *Figure 3.6 Search computer code*  In Figure 3.6, the search text is passed to a variable and the pattern is determined for RegEx. Then, all computers are taken one by one and it is checked whether their names match this pattern. Computers matching the pattern are displayed on the screen.  -7-  **3.7 Paging**  Up to 9 computers are displayed on one page. If there are more computers, they are transferred to other pages. Thus, the user does not constantly scroll down the page while shopping.  In order to implement this system, first of all, the information about how many computers are in the system is taken. The number of computers is divided by 9 and rounded up. In this way, the number of pages is found(Shown in Figure 3.7). Then, the information on which page we are on is determined by the GET method. In the last step, 9 computers are displayed on the screen with the LIMIT command of SQL on which page we are on.    *Figure 3.7 Determining the number of pages*    *Figure 3.8 determining which elements should be displayed according to the page number.*    *Figure 3.9 SQL query for paging and ordering*  For example, suppose there are 20 computers. In this case, according to the formula in Figure 3.7, [20/9] = 3. So there are 3 pages. If the 2nd page is clicked, 9 computers in the range (2-1)\*9 and 2\*9, that is, 9-18, will be displayed on the screen according to Figure 3.8.  -8-  **3.8 Sorting**  Users may want to sort all computers by some features. For example, lowest price, computer name, highest discount rate. The criteria selected by the user is taken with the GET method. As seen in Figure 3.9, after the ORDER BY command, this sorting criterion is retrieved from the database in the desired order.    *Figure 3.10 GET method with page and order attributes*  In Figure 3.10, it is understood that it is sorted on the first page and by price.  **3.9 Compare Computers**  Users may want to learn which computer is more efficient when buying a computer. In this case, the user uses the computer comparison system. First of all, he chooses the two computers he wants to compare and presses the Compare button. Next, both computers appear on the screen with their full specifications, with the results of the CPU and GPU performances on the right. Two separate CSV files are used to determine which is better. One contains information about modern CPUs, while the other contains information about modern GPUs. Scores are also included in this information. Using these scores, which one is better is determined as a percentage. This calculation can be seen in Figure 3.11.    *Figure 3.11 Comparison Formula*  In this formula, the one with the higher score is called ‘better’ and the other one is called ‘other’. Then, how many percent better the one with the higher score is calculated.    *Figure 3.12 Comprasion Result*  -9-  **3.10 Image Operations**  Images are added to computers by the administrator to present visual elements to users. These images are imported into system files by file operations. However, the images must be saved in the database. During this registration, the computer the image belongs to and the path information of the image in the system must be given. Attached images are located at the bottom of the page where computers are displayed. Images are large data. You have to be very careful when dealing with them.  **4.What I Learned and My Shortcomings**  First of all, I would like to state that this project has made a great contribution to me. Since I was developing with the languages ​​that I had appeared in the 1st part of this project, I gained new information about these languages. Since I mostly write code in PHP language, I think that I have taken myself to a very advanced level in this language compared to the beginner. Getting and editing data in HTML pages, database operations, cookies, sessions, arrays, array functions, object-oriented programming, etc. I learned about such things. I also think that I have improved myself in writing queries by using the SQL language frequently. Since I managed the whole process myself, I also found answers to questions such as 'what steps are in a project?', 'what problems may occur during project development?', 'how should problems be approached?'. In addition to these, I learned about the features that should be in an e-commerce system and how to implement these features into the system. As a result, I gained experience in the web where I had little previous experience. My next goal is to improve myself in PHP and JavaScript languages ​​and to learn software engineering project management systems.  Thanks to this project, I also saw my shortcomings. Chief among these is CSS. I'm weak at making visually good websites using CSS. I also aim to improve myself in this regard. I want to make more visual, animated, user-interesting sites using some CSS frameworks (like Bootstrap and Tailwind). I also need to improve myself on Javascript. Learning a language used in almost all websites will give me an advantage in my professional life. In addition to these, I need to make improvements in writing SQL queries. I can write more efficient queries by calculating the query cost and the functionality of the query.  -10- | | | |
| **Sayfa No** | **Çalışmanın** | | **KONTROL** |
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