MTD 3043: ANALISIS DAN REKA BENTUK SISTEM / *SYSTEM ANALYSIS AND DESIGN*

SESI PENGAJIAN: SEM 2 (2021/2022)

KUMPULAN KULIAH MTD 3043 (A211): A

(TUTORIAL 4)

DESIGN PHASE

NAMA	NO MATRIC	NO. HP	PROGRAM
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MTD 3043 Systems Analysis and Design

Tutorial 4: Design Phase

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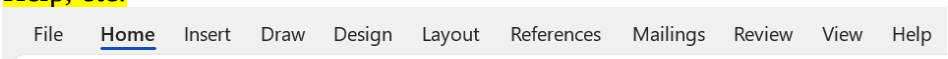
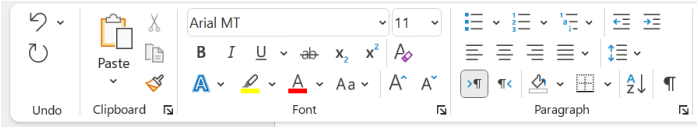
1. Explain about the following control features. Give an example for each control features.

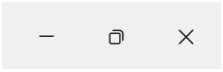
   a. Menu bar
      - In a graphical user interface (GUI), a menu bar is a narrow horizontal bar that contains the labels of menus. The menu bar is an area in a window where a user may discover the bulk of a program's main functionalities. These features include the ability to open and close files, alter text, and exit the software. Although menu bars are common in most graphical user interfaces, they might vary depending on the operating system you're running. For example, File, Home, Insert, View, Help, etc.



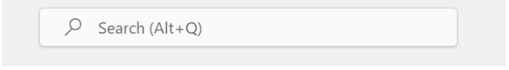
   b. Toolbar
      - The toolbar, also known as the bar or standard toolbar, is a row of buttons that controls program operations and is usually seen towards the top of an application window. The boxes are located beneath the menu bar and frequently include graphics that match to the function they control. A toolbar is frequently used to enable rapid access to functionalities that are frequently used in the software. For example, Undo, Paste, Bold, Italic, Underline, etc.



   c. Command button
      - A command button is a graphical operating system's clickable picture object. For example, when you click the close button (the X in the top-right corner of the window) in Microsoft Windows that open window is closed.

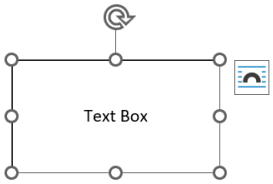


   d. Dialog box
      - A dialogue box (sometimes written dialogue box, commonly called a dialogue) is a typical form of window in an operating system's graphical user interface (GUI). The dialogue box provides more information and requests input from the user. For example, Search.



e. Text box

- A text box, often known as a text field, is a component or item on a page that allows the user to type text. On the Internet, text boxes are frequently used for sites that demand user input. When constructing a form that needs a user to enter information, you may also see a text box in a word processing tool.



f. Toggle button

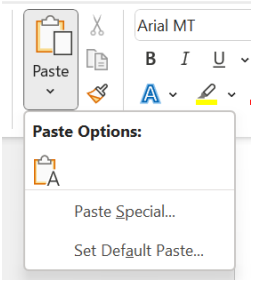
- A toggle button is a button that is used to switch between two functions or to turn a function on or off. Toggle buttons include the caps lock, number lock, and scroll lock keys, among others. A toggle button can also be used to change the input mode of keys as an accessibility feature.

g. List box – scroll bar

- A vertical or horizontal bar that lets you to shift the window viewing area up, down, left, or right. It's usually found on the far right or bottom of a window. Because practically every Internet site page requires scrolling up and down, most people are familiar with scroll bars.

h. Drop-down list box

- A drop-down list box also known as drop-down menu is a menu in a computer user interface that provides a list of options. Always visible is the menu title or the presently chosen item in the list. Other items from the list "drop-down" into view when the visible item is selected, and the user can pick from those possibilities. Many programs, for example, feature a "Paste". When you click the "Paste" text, a second menu appears with more possibilities.



i. Option button, or radio button

- The option key is a modifier for other command codes and can be used to produce special characters. For example, Control (ctrl), Windows, and Alt.

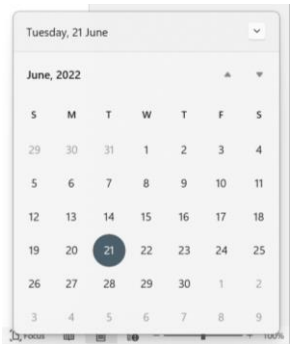
j. Check box

- A check box, also known as a selection box or tick box, is a tiny interactive box that allows the user to indicate whether they want to do anything or not. A check mark (✓) or (✕) appears inside the box when it is clicked, indicating an affirmative decision (yes). The check mark vanishes when you click it again, suggesting a negative decision (no). When more than one choice must be checked or a quick way to enable or disable a setting in a software application, check boxes are employed.

☐Check box 1
☒Check box 2
☐Check box 3
☒Check box 4
☐Check box 5

k. Calendar control

- The Calendar control is used to display a calendar in a window or page that is always visible. The current date can be shown, and the calendar can interact with the window or page (e.g., by displaying the schedule corresponding to the selected day).



l. Switchboard

- A board or panel equipped with apparatus for controlling the operation of a system of electric circuits, as in a telephone exchange

2. Explain about these data validation rules.

    a. Sequence check
        - A sequence check is a check that is done to ensure that data is in the correct order.

    b. Existence check
        - This is used for check mandatory data items. Completeness check. For example, check to ensure the student number filled in the field. This is means that if that part not filled, it cannot proceed to next.

    c. Data type check
        - A data type check verifies that the information entered is of the right type. A field, for example, could only take numeric input. If this is the case, the system should reject any data that contains additional characters such as letters or special symbols.

    d. Range check – limit check
        - A range check will see if the input data is inside a certain range. Latitude and longitude, for example, are frequently employed in geographic data. A latitude number should be between -90 and 90 degrees latitude, and a longitude value should be between -180 and 180 degrees longitude. Any values that fall outside of this range are considered invalid.

    e. Reasonableness check
        - A data set's reasonableness check (also known as a reasonableness test) is essentially a common-sense check. Is the data inside an acceptable range or made up of acceptable values? Is this even logical? That is the true question. To conduct a reasonableness test, you must first comprehend your data set and decide what is acceptable. It's important to remember that this is a common-sense check. So, first and foremost, you must comprehend what is common and reasonable!

    f. Validity check – referential integrity
        - The process of confirming that an idea or construct is acceptable in the context of the process or system in which it will be utilized is known as a validity check. For instance, in computer systems that revolve around the generation, consumption, and modification of data, it is critical that all data be right before processing to avoid mistakes. The input data is validated to verify that it complies with the system's requirements.

    g. Combination check
        - Performed on one or two fields to ensure that they are consistent or reasonable when considered together

h. Batch controls – hash totals

- A batch control, also known as a batch total, verifies that no records are missing. For all records in a batch, numerical fields can be added together. The batch total is input, and the computer verifies that it is valid, for example, by adding the 'Total Cost' fields of several transactions.

3. Find the meaning for each internet terminology. Explain and give an example.

a. Web browser

- A web browser, sometimes known as a "browser," is a program that allows you to access and see webpages. Microsoft Internet Explorer, Google Chrome, Mozilla Firefox, and Apple Safari are all popular online browsers.

A web browser's principal role is to render HTML, the code that is used to construct or "markup" webpages. When a browser loads a web page, it processes the HTML, which may contain text, links, and references to pictures and other elements like CSS and JavaScript functions. These things are processed by the browser, which then displays them in the browser window.

b. Web page

- The World Wide Web is made up of web pages. These papers are written in HTML (hypertext markup language), which your browser will translate. Static and dynamic web pages are both possible. Each time a static page is accessed, it displays the same content. The content of dynamic pages might vary each time they are accessed. Scripting languages like PHP, Perl, ASP, and JSP are commonly used to create these sites.

The scripts on the pages call server functions that return data such as the date and time, as well as database information. All the data is sent as HTML code, so all your browser needs to do when it receives the page is translate the HTML.

c. HTML (Hypertext Markup Language)

- HTML is the abbreviation for "Hypertext Markup Language." The language used to generate webpages is HTML. The term "hypertext" refers to the hyperlinks that may appear on an HTML page. The way tags are used to specify the page layout and items inside the page is referred to as "markup language."

Below is an example of HTML used to define a basic webpage with a title and a single paragraph of text.

```
<!doctype html>
<html>
<head>
<title>TechTerms.com</title>
</head>
<body>
<p>This is an example of a paragraph in HTML.</p>
</body>
</html>
```

d. Tags

- Tags on clothing generally list the brand, the garment's size, the textiles used, and the cleaning recommendations. Tags on Web pages specify what should appear on the screen when the page loads. In HTML (hypertext markup language) and other markup languages, such as XML, tags are the most fundamental formatting tool. The <table> element, for example, is used to build a table on a Web page. The table's data is contained within the <table> tag, and the table is closed with the </table> tag.

  If you want something to show up in bold on a Web page, you will use the bold tag. For example, the HTML: This site is the best website ever! Would show up as: This site is the **best website** ever!

e. Web server

- A website is hosted on a Web server, which is a computer system. It uses Web server software such as Apache or Microsoft IIS to offer Internet access to hosted webpages. Most Web servers are connected to the Internet through a high-speed connection capable of transmitting data at OC-3 or higher rates. Web servers may accommodate several connections at once without slowing down if they have a fast Internet connection. Any computer that is connected to the Internet and has the necessary software installed can act as a Web server.

f. Web site

- A website, sometimes known as a Web site, is distinct from a Web page. Even though the two names are frequently used interchangeably, they should not. So, what's the difference between the two? A Web site is a collection of Web pages, to put it simply. Amazon.com, for example, is a Web site, yet it is made up of millions of Web pages.

g. Intranet

- An intranet is a secure network that only authorized users may access. The word "intra" denotes "internal," implying that an intranet is intended for internal use only. "Inter" denotes "between" or "among" (as in Internet). The term "Internet" is capitalized since there is only one Internet. Because there are so many intranets throughout the world, the word "intranet" is written in lowercase.

  Some intranets are restricted to a single local area network (LAN), whereas others are accessible over the Internet from anywhere in the world. Because they can only be accessed from within the network, local intranets are the most secure. You normally need to input login credentials to access an intranet across a wide area network (WAN). Examples of intranet services include Microsoft SharePoint, Huddle, Igloo, and Jostle.

h. Extranet

- An extranet is a hybrid of the Internet and the intranet. It uses the Internet to connect an intranet, or internal network, to other users. Most extranets include a Web interface that may be accessed with a Web browser. Extranets often require authentication for users to access them since safe or secret information is frequently available within an intranet.

Companies that need to communicate sensitive information with other firms or individuals frequently utilize extranets. For example, a supplier may utilize an extranet to give inventory data to a select group of clients while keeping the information private. A secure means of communication between the firm and its clients, such as a support ticket system or a Web-based forum, may be included in the extranet.

i. Protocols

- A protocol is a set of rules that electronic devices must follow to interact with one another. What types of data can be transferred, what instructions are used to send and receive data, and how data transfers are validated are all part of these regulations?

A protocol can be compared to a spoken language. Each language has its own set of laws and lexicon. When two persons speak the same language, they can successfully converse. Similarly, regardless of the manufacturer or kind of equipment, if two hardware devices implement the same protocol, they may interact with each other. A common mail protocol, for example, allows an Apple iPhone to send an email to an Android smartphone. A common web protocol allows a Windows-based PC to load a webpage from a Unix-based web server. Protocols are available for a variety of purposes. Wired networking, wireless networking, and Internet communication are some examples.

j. Web-centric

- The application or system has been designed for the web. For example, static home pages.

k. Clients

- Clients are important to both businesses and servers. There is a one-to-many link in both situations. A server may communicate with several customers in the same way that a company can. This is known as the client-server model in computer networking.

Any device that connects with a server is referred to as a client. It might be a computer, a laptop, a smartphone, or any other network-enabled device. "Smart" gadgets, such as Wi-Fi-enabled thermostats, lighting, and appliances, are considered clients in a home network. Clients of the file server in an office network are systems that access files from network-attached storage. Client-to-client communication is possible on most networks, but data must pass via a central point, such as a router or switch.

I. Servers

- A server is a computer that shares information with other computers. It may send data across the Internet to computers on a local area network (LAN) or a wide area network (WAN).

  There are many different sorts of servers, such as web servers, mail servers, and file servers. Each kind runs software that is specific to the server's function. For example, a Web server might run Apache HTTP Server or Microsoft IIS, both of which enable Internet access to websites. An application like Exim or iMail, which offers SMTP services for sending and receiving email, can be installed on a mail server. To distribute files over a network, a file server could utilize Samba or the operating system's built-in file sharing capabilities.

4. Explain these types of codes. Give an example.
    a. Sequence codes
        - If anything must be numbered, a number is assigned to it. As a result, it is unrelated to the data itself. As an illustration, the human resources system generates sequential employee numbers to identify employees.

    b. Block sequence codes
        - A sequence code expansion. For various classes, use blocks of numbers. Example: Science 35, Mathematics 12.

    c. Alphabetic codes
        - Use alphabet letters to set one thing apart from another based on a category, an acronym, or a value that is simple to remember.

          Identify a set of related items using a category code. For instance, a local department store uses a two-character category code, such as GN for gardening supplies and HW for hardware, to identify each department.

          Alphabetic abbreviation is the abbreviation code. MY for Malaysia, for instance, and NY for New York.

    d. Significant digit codes
        - Distinguish item by using a series of subgroups of digit. Example: inventory location code of 11208327

    e. Derivation codes
        - It combines the data from different item attributes or characteristics to build the code. Example: Magazine subscription codes

    f. Cipher codes
        - Direct replacement of one letter or number with another, or of one letter with a number. In other terms, it encoded a number using a keyword.

          A retail business may, for instance, use the ten-letter term CAMPGROUND to code wholesale rates, with the letters C denoting 1, A denoting 2, and so on. As a result, the code GRAND shows that the item cost the shop $562.90.

    g. Action codes
        - Indicates that what action is to be taken with an associated item. Example: A student records program might prompt a user to enter or click an action code such as “D” to display a record, “A” to add a record and “X” to exit the program.