# Web Graphic User Interfaces

## Advanced Programming I

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Lecturer
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2024-I

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# Outline


1. Web Development
2. Model-Template-View (MTV)
3. Web Lenguages


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1 Web Development

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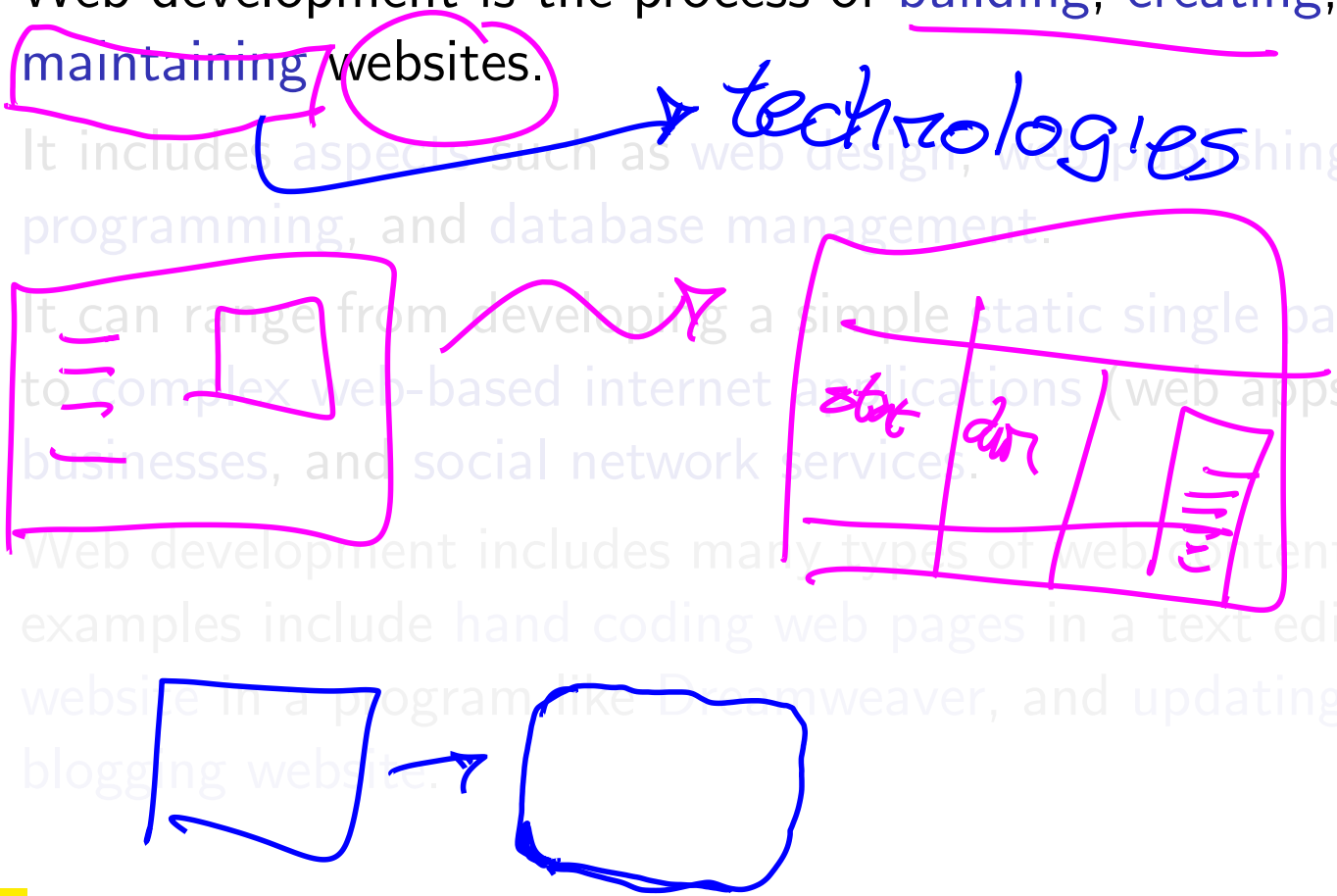
# What is web development?

- Web development is the process of building, creating, and maintaining websites.
- It includes aspects such as web design, web publishing, web programming, and database management.
- It can range from developing a simple static single page of plain text to complex web-based internet applications (web apps), electronic businesses, and social network services.
- Web development includes many types of web content creation. Some examples include hand coding web pages in a text editor, building a website in a program like Dreamweaver, and updating a blog via a blogging website.

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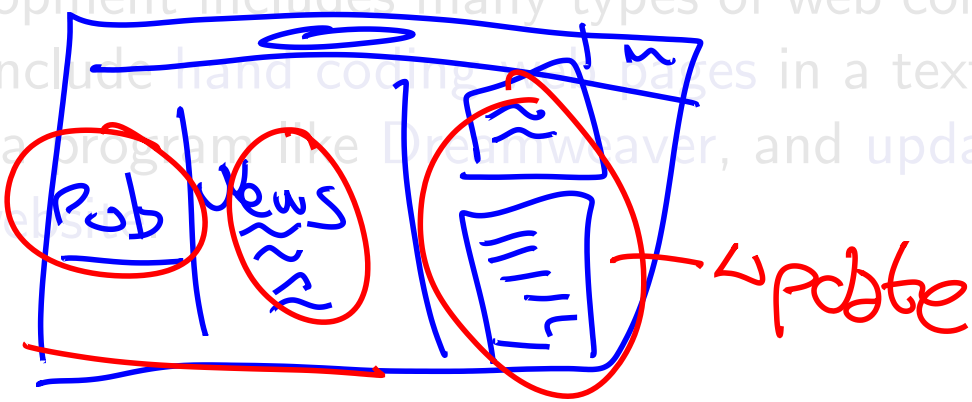


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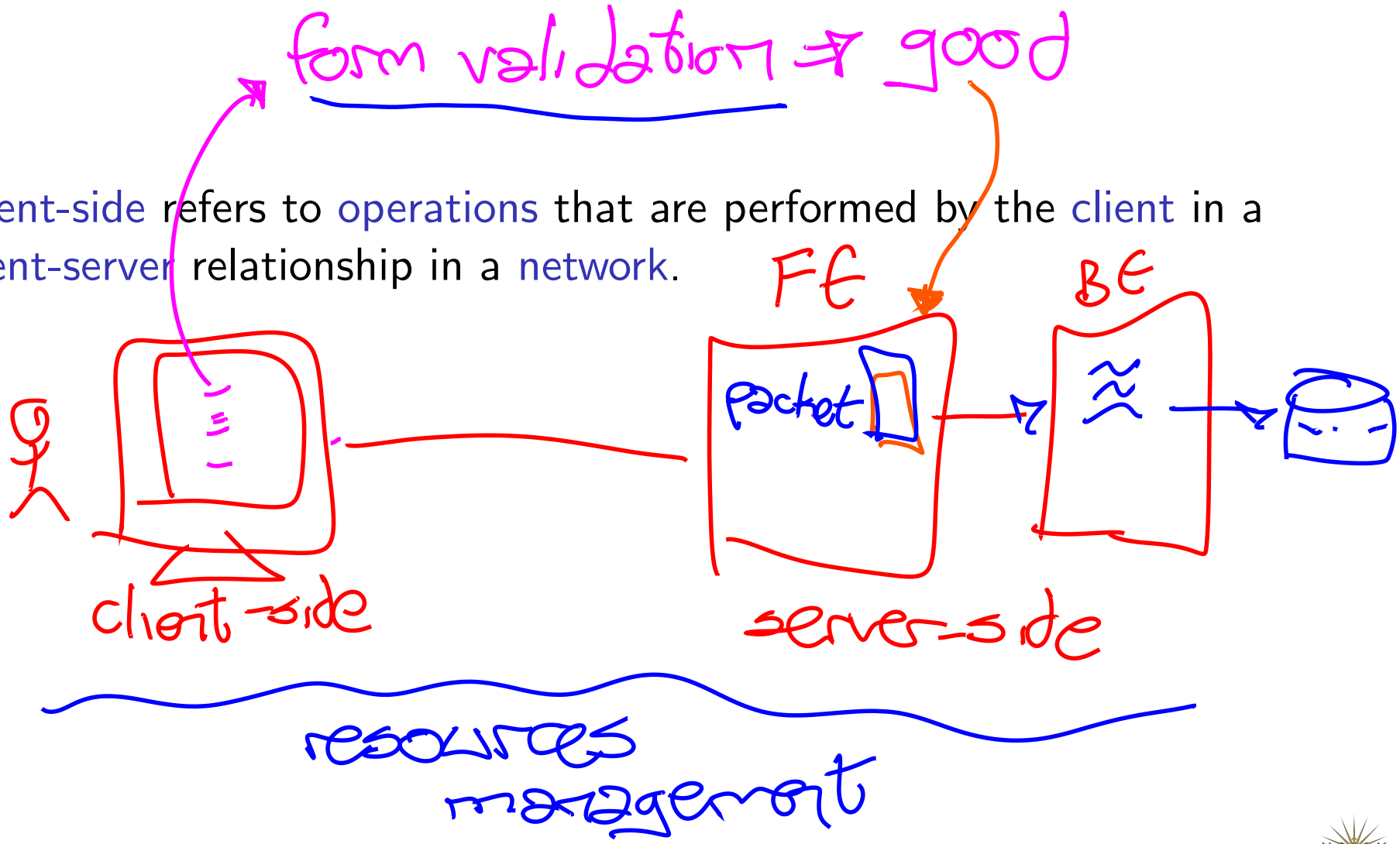
# Client-Side vs. Server-Side




Client-side refers to operations that are performed by the client in a client-server relationship in a network.

# Web Browsers

- A **web browser** is a software application for accessing information on the World Wide Web
- Each individual web page, image, and video is identified by a **distinct URL**.
- A web browser is a client in a **client-server** relationship with a web server.
- The client makes requests to the server and the server sends responses.

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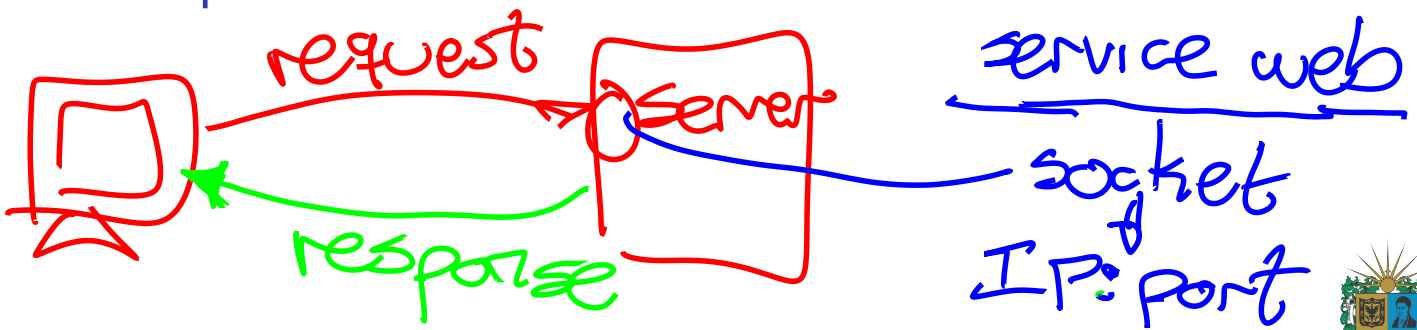


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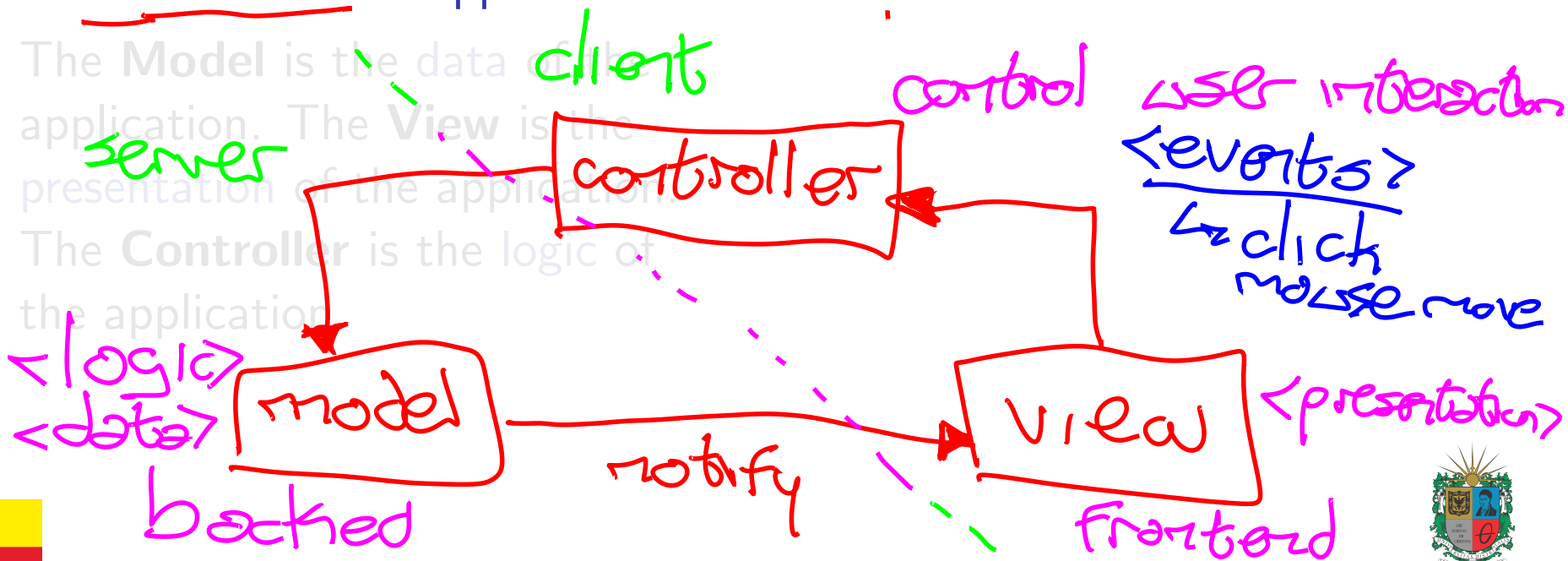
# Model-View-Controller (MVC)

- The **Model-View-Controller (MVC)** is a software design pattern that is used to separate the concerns of an application.
- The **Model** is the data of the application. The **View** is the presentation of the application. The **Controller** is the logic of the application.



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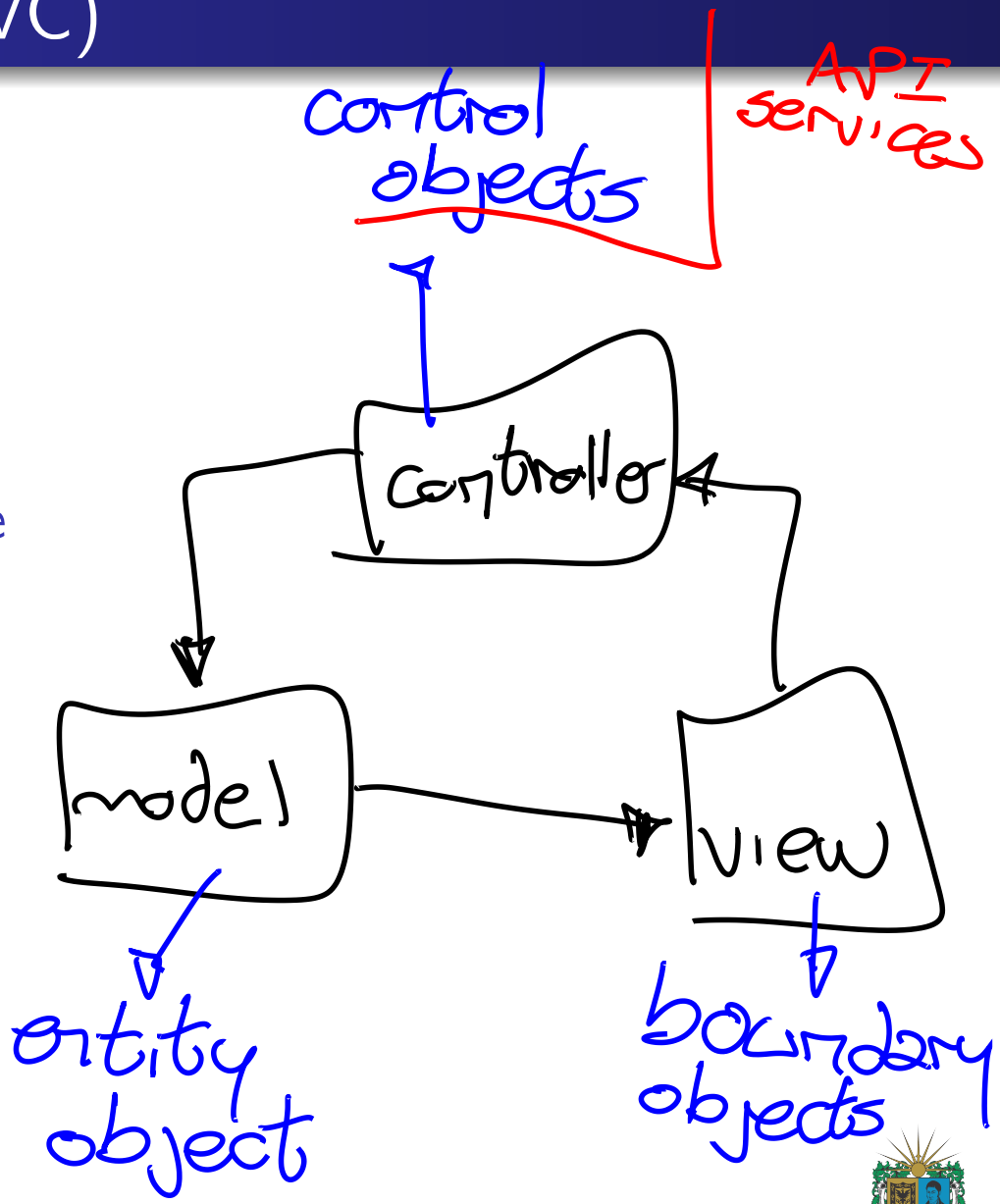




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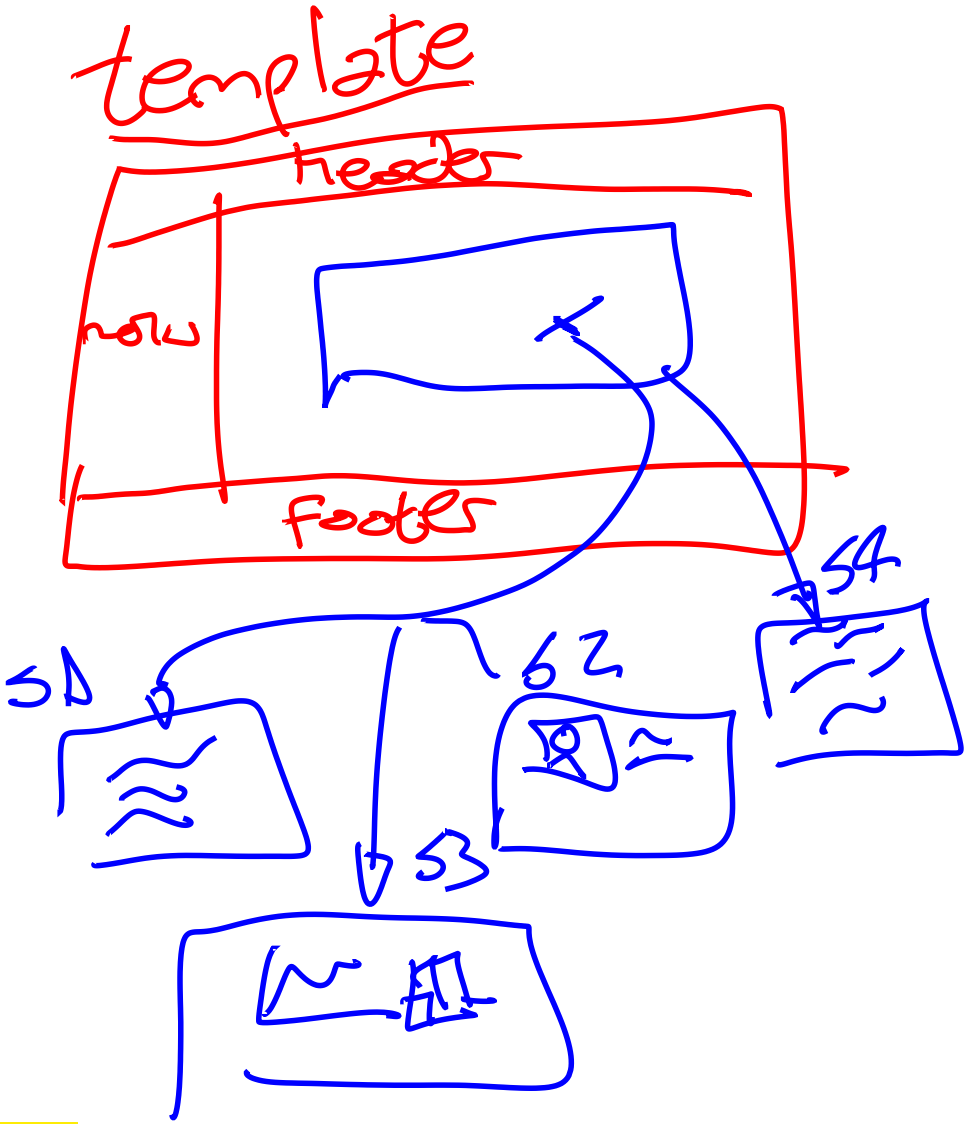


- The **Model-Template-View (MTV)** is a software design pattern that is used to separate the concerns of a web application.
- The **MTV** is a modern way of building web applications. This is because it is simple and easy to understand.
- The **Model** is the data of the application, the **Template** is the presentation of the application, and the **View** is the logic of the application.

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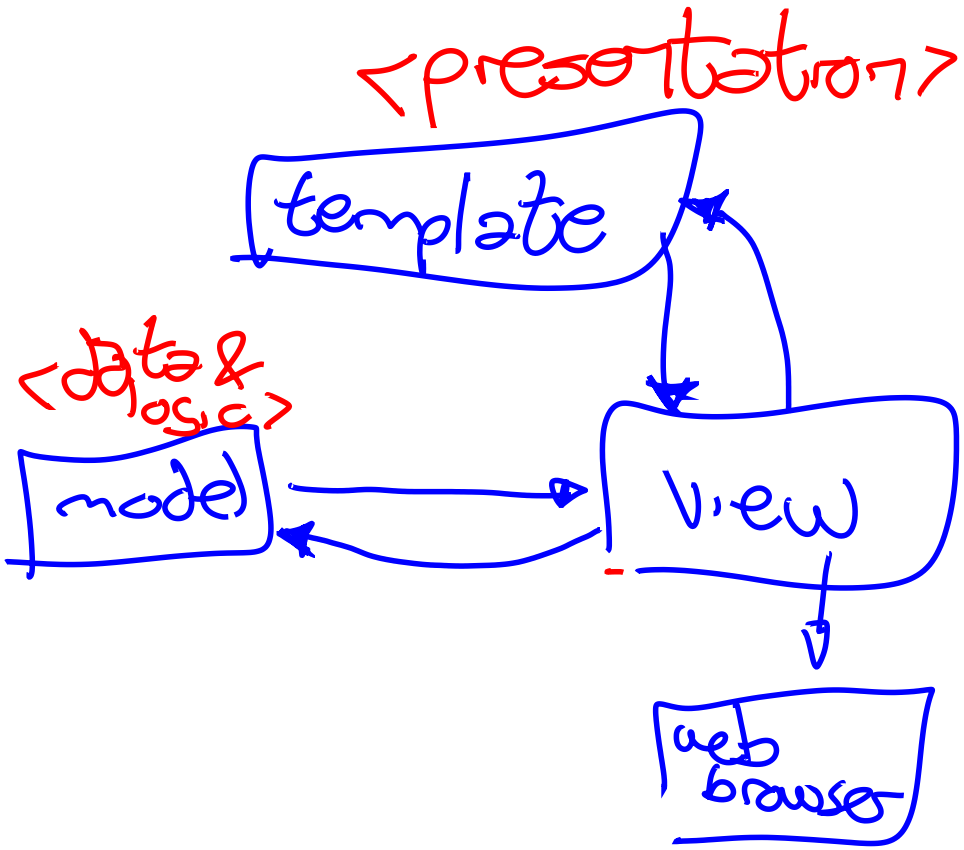


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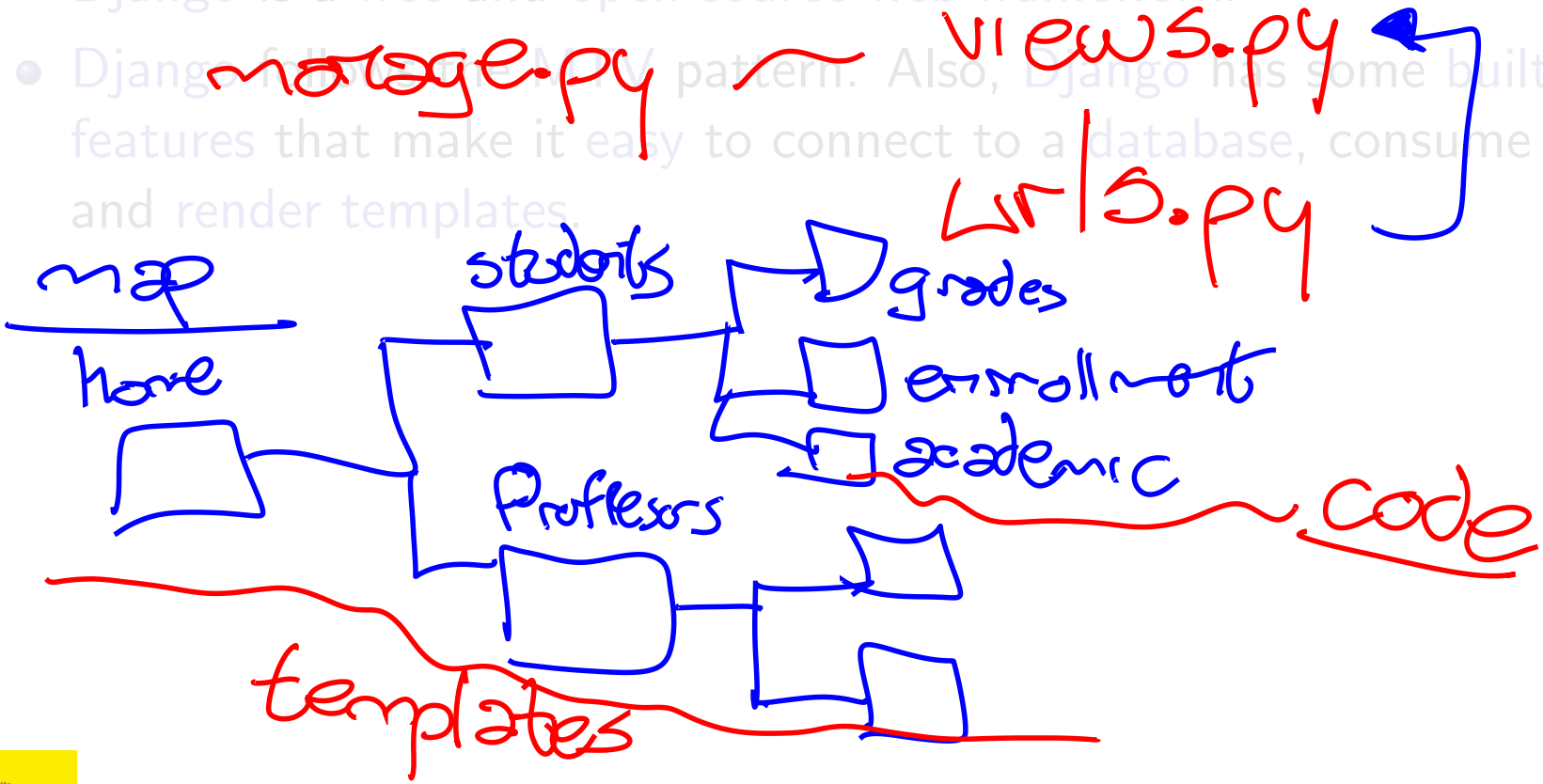
# Django

- Django is a high-level Python web framework that encourages rapid development and clean, pragmatic design.
- Django is a free and open-source web framework.
- Django follows the MTV pattern. Also, Django has some built-in features that make it easy to connect to a database, consume APIs, and render templates.

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# HTML

Hypertext Markup Language

- HTML has a typical structure by file: head and body.

<tag prop="..."> ... </tag>

<html>
  <head>
    ⋮
  </head>
  <body>
    ⋮
  </body>
</html>

metadata ⇒ browser

data ⇒ user

⇓

template

# HTML

- HTML has a typical structure by file: head and body.
- The head contains the metadata of the document, such as the title and links to stylesheets.
- The body contains the content of the document, such as headings, paragraphs, and images. This is based on tags.
- Next are common HTML tags:
  - h1: Heading 1
  - p: Paragraph
  - img: Image
  - a: Anchor
  - ul: Unordered List
  - li: List Item
  - table: Table, tr: Table Row, td: Table Data
  - form: Form, input: Input, button: Button

```
<head>
    <title> My Web Page </title>
    <meta charset="UTF-8" >
    <meta name="keywords"
          content="UD, PA, Python" >
    <meta name="author" content="casierra">
</head>
```

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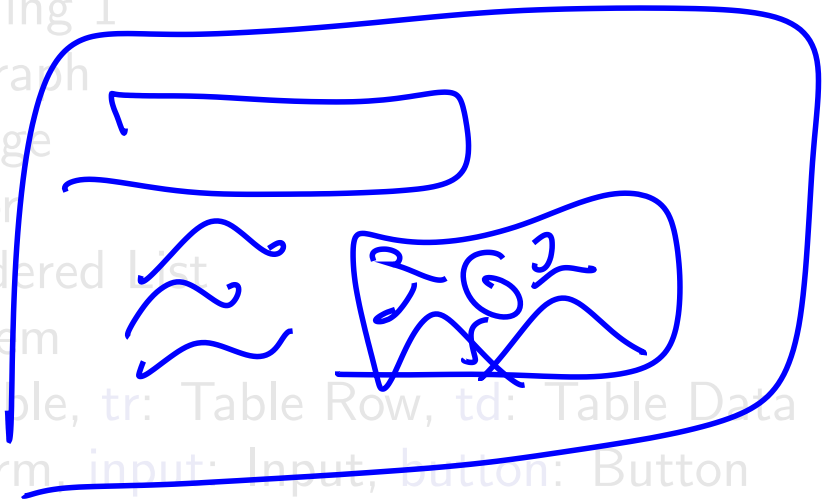

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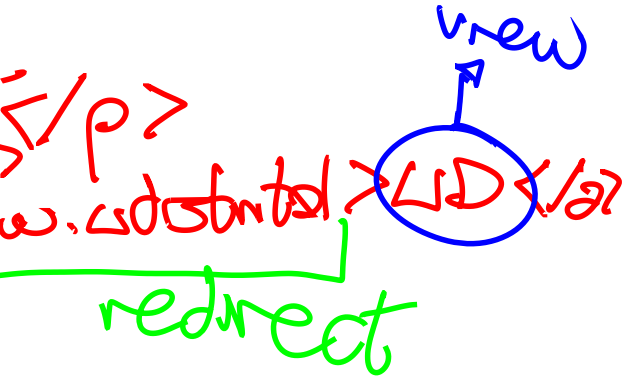
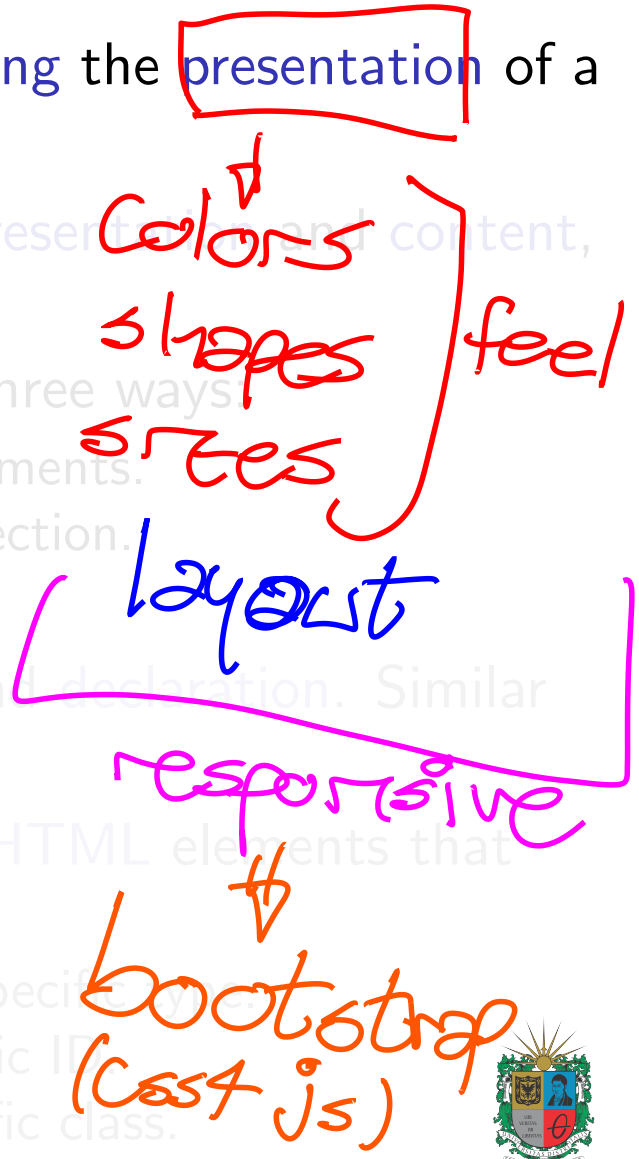


# CSS

- CSS is a style sheet language used for describing the presentation of a document written in HTML.
- CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts.
- CSS can be applied to HTML documents in three ways:
  - Inline: Using the style attribute in HTML elements.
  - Internal: Using a style element in the head section.
  - External: Using an external CSS file.
- CSS has a typical structure by file: selector and declaration. Similar to a key-value data structure.
- CSS has selectors that are used to select the HTML elements that you want to style.
  - Element Selector: Selects all elements of a specific type.
  - ID Selector: Selects an element with a specific ID.
  - Class Selector: Selects elements with a specific class.



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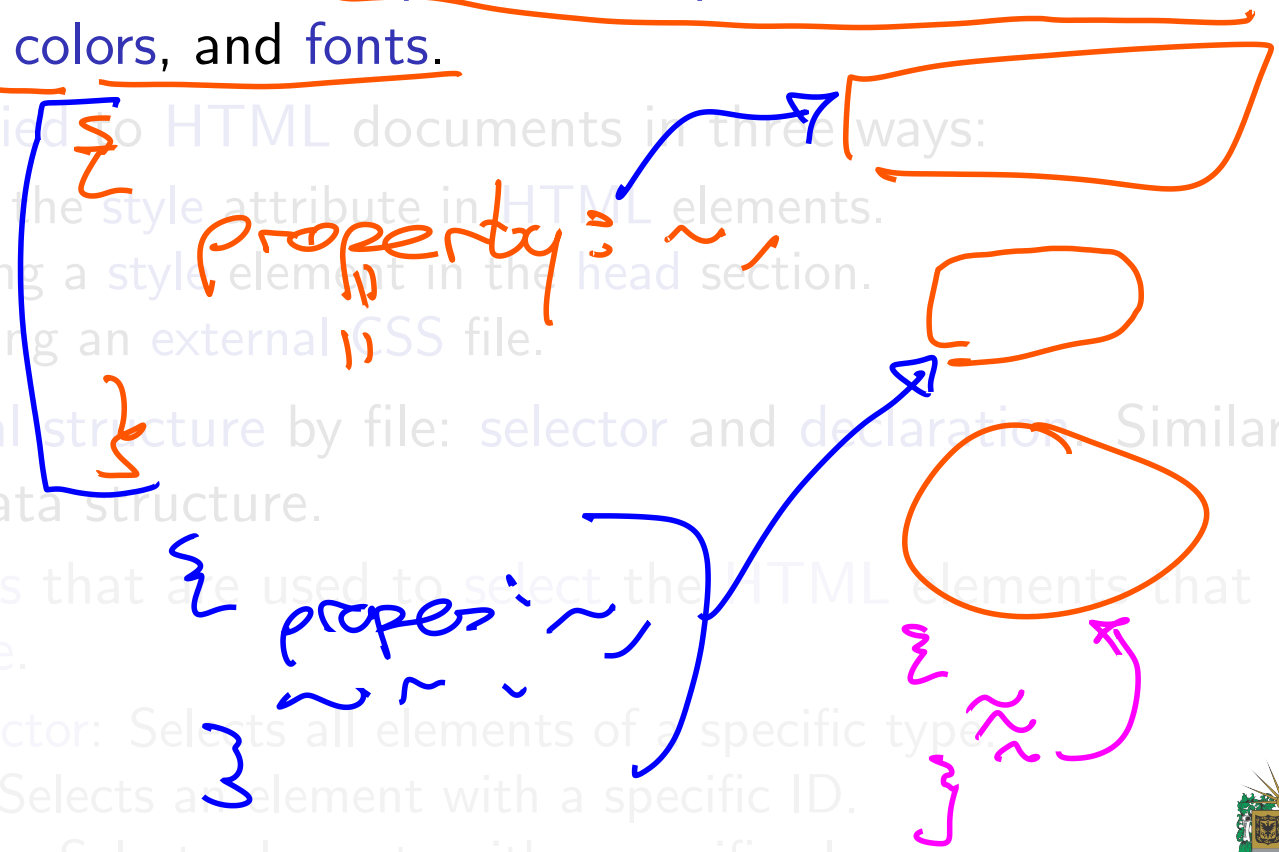


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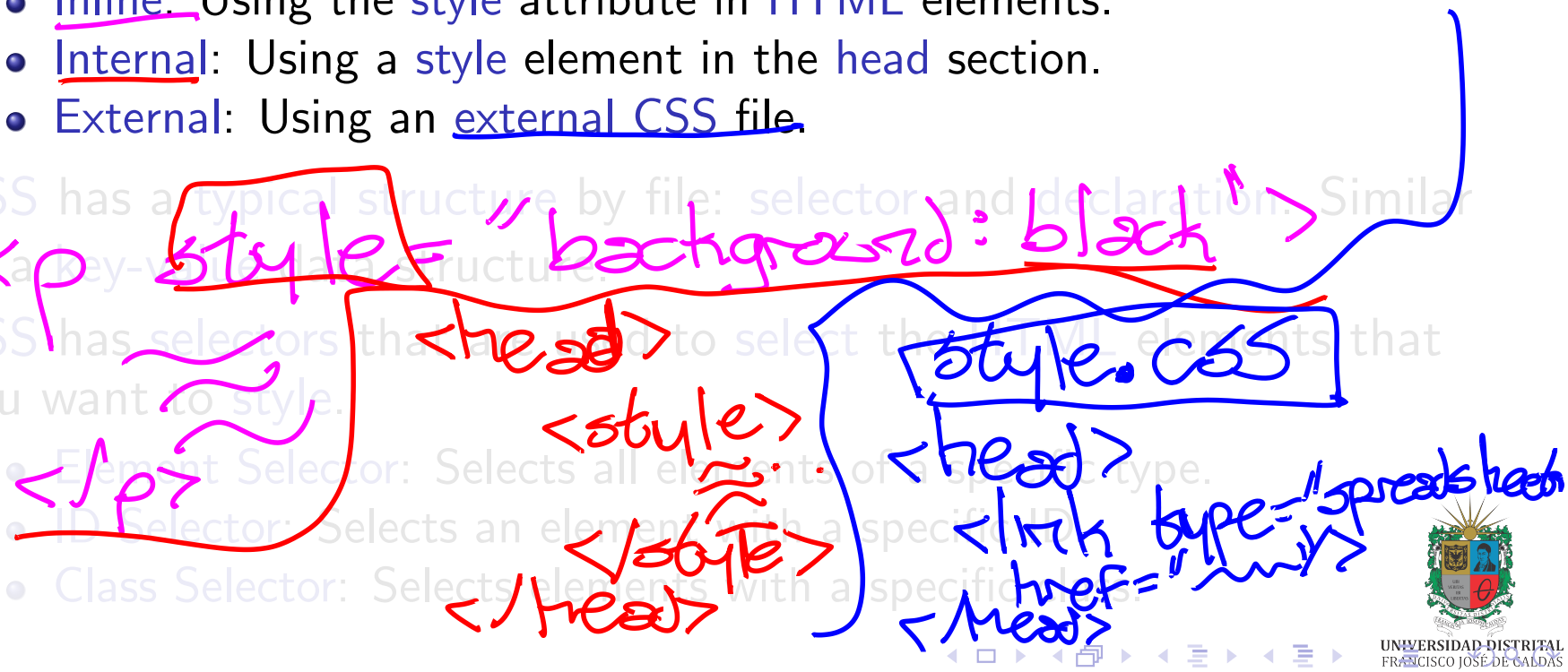

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- An HTML document can contain JavaScript code that is executed by the browser.
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# AJAX

- AJAX stands for Asynchronous JavaScript and XML.
- AJAX is a technique for creating fast and dynamic web pages.
- AJAX allows web pages to be updated asynchronously by exchanging small amounts of data with the server behind the scenes.
- AJAX could be used to load content from the server without refreshing the entire page.
- To use AJAX, you need to create an Wep API endpoint that returns JSON data.
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# Django

- To install Django, you need to use the pip command.
- To create a Django project, you need to use the django-admin command.
- To create a Django app, you need to use the manage.py command.
- To create a Django model, you need to use the models.Model class.
- To create a Django view, you need to use the views.py file.
- To create a Django template, you need to use the templates folder.
- To create a Django URL, you need to use the urls.py file.
- To create a Django form, you need to use the forms.py file.
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- To call an external API in Django, you need to use the requests library.

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# Django & Templates

- Django uses a template system to separate the design from the Python code.
- Django templates are HTML files that contain template tags and filters.
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# Outline

1 Web Development

2 Model-Template-View (MTV)

3 Web Lenguages

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# Thanks!

# Questions?

Repo:
*github.com/engandres/ud-public/courses/advanced-programming*

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