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CSCI 111: Web Programming and Problem Solving

Lecture 1: Introduction

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About the Course

- This is a basic introduction to *Web Programming*

- What you are expected to learn:
  - Understand how the **Web** works
  - Create web pages using **HTML** and **CSS**
  - Add some interactivity to the web pages with **JavaScript**
  - Solve problems using **Excel** and use data in your web pages

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Course Materials

Extensive on-line digital resources (readings, references, tutorials) will be utilized throughout the course.

Recommended resources:

- Lecture notes on Moodle
- A book: Creating a website
- Tutorials: w3schools.com or developer.mozilla.org

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Grading

The final grade is calculated as follows:

Course Project	35%
Quizzes (3)	30%
Lab Assignments (about every week)	30%
Attendance	5%

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Late Submission

Deadlines are important !!!

- There will be Soft and Hard Deadlines

- Late submissions (later than 60 minutes) after the Soft deadline are penalized by 50%

- Late submissions after the Hard deadline are not accepted

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Plagiarism

- "A piece of writing that has been copied [or closely paraphrased] from someone else and is presented as being your own work"

- "The act of plagiarizing; taking someone's words or ideas as if they were your own"

- **Plagiarism results in an automatic F in the course and may result in your suspension from the program!**

- Whenever in doubt, ask the instructor

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Class Behaviour

- Personal responsibility (Self study!!!)
- Behave professionally & respectfully
- In class: English only
- You will make mistakes (and that's okay)
- Get involved and have fun!

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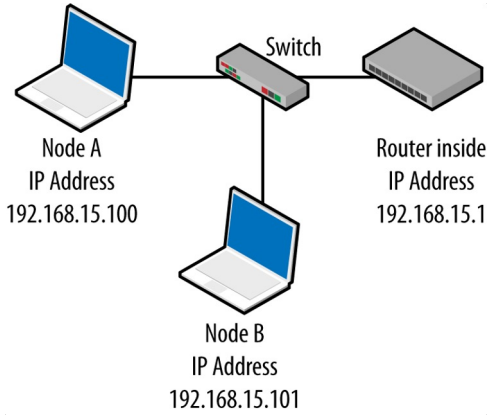
IP addresses

An **Internet Protocol (IP)** address is a unique identifier of a particular device on the Internet network

- PC, mobile, router, smart watch, TV
- Example: 178.91.253.180 [Format is A.B.C.D]

- IP addresses are mathematically produced and allocated by the **Internet Assigned Numbers Authority (IANA)**

- **Types** of IP addresses:
  - public/private (global/local)
  - static/dynamic
  - dedicate/shared



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Domain Names

A **domain name** (or domain) is an text string (name) that's associated with an IP address on the Internet.

- It is a unique name
- Easy to remember for human
- Example: nu.edu.kz, google.com

Types of Domain names:

- Root domain (top-level) – .com, .kz, .ru, .io
- Subdomains (other levels) – google.com, nu.edu.kz, library.nu.edu.kz

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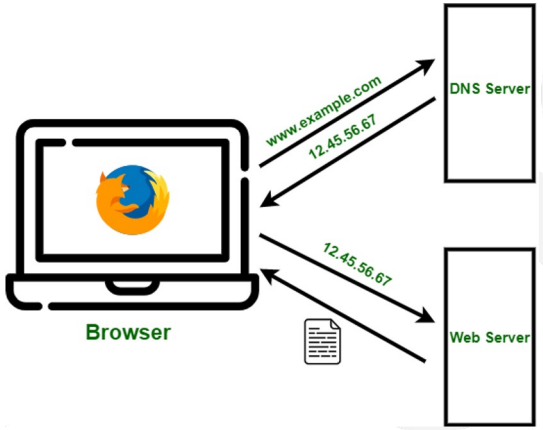
Domain Name System

The Domain Name System (DNS) is the hierarchical and decentralized naming system (database) used to identify computers reachable through the Internet or other Internet Protocol (IP) networks. [Wikipedia]

- DNS is a “phonebook” or ”librarian” that converts domain names to IP addresses
  - nu.edu.kz --> 178.91.253.180
- There are WHOIS services to lookup domains
  - godaddy.com, hoster.kz, domaintoipconverter.com
- The browser does a domain lookup for you



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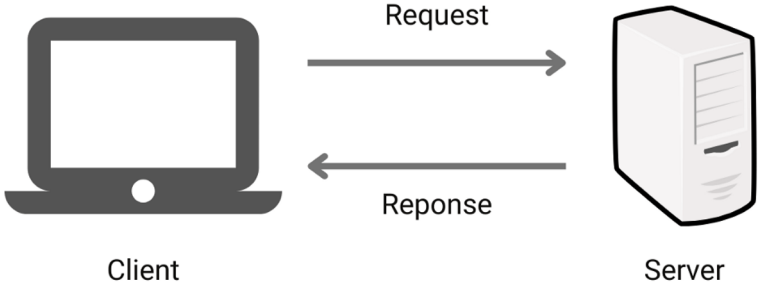
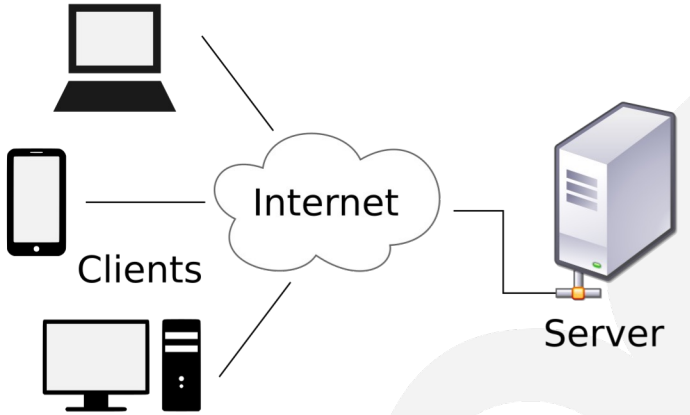
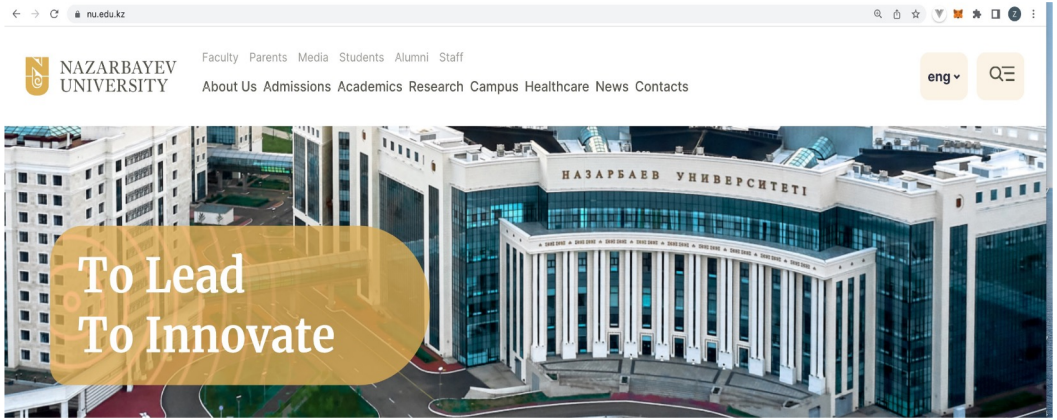
Client-Server Model





Websites

- A **website** is a collection of web pages and related content that is identified by a common domain name and published on at least one web server with an IP address.



Domain: nu.edu.kz

IP address: 178.91.253.180
Web pages and their URLs:

- About Us - https://nu.edu.kz/about)
- Admission - https://nu.edu.kz/admissions
- Academics - https://nu.edu.kz/academics
- etc.

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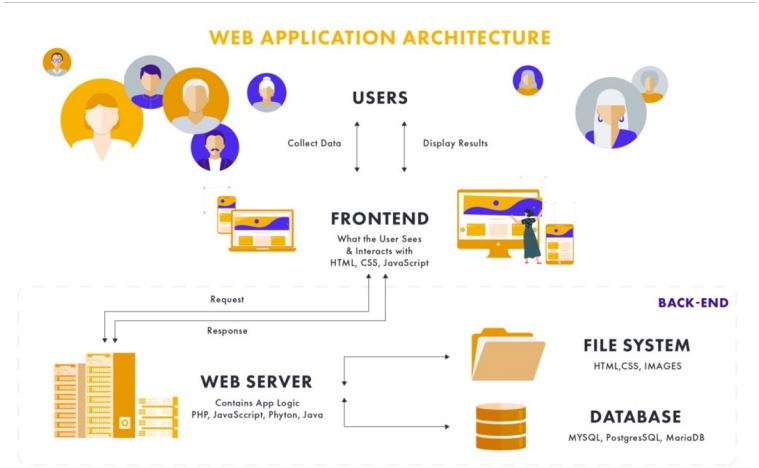
Website Architecture

- A typical architecture of a website consists of:
  - Front-end part (user interface): HTML, CSS, JavaScript
  - Back-end part (business logic): Python, Java, PHP, etc.
  - Database: MySQL, PostgreSQL, MS SQL, Oracle
  - File System: images, audio, video, web pages

- A website can be **static** or **dynamic** depending on the content generated.



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HTML, CSS, Javascript

Hyper-Text Markup Language (HTML) is the standard markup language for documents designed to be displayed in a web browser.

It describes the structure of the web page

Cascading Style Sheets (CSS) is a stylesheet language used to describe the presentation of a document written in HTML.

It describes the style of the web page

JavaScript (JS) is a lightweight and interpreted programming (or scripting) language for Web pages.

It adds interactivity to the web page

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Summary

Key takeaways:

- IP address
- Domain name
- DNS
- Client-Server Model
- Web Server
- Websites
- Web Architecture
- Frontend/Backend
- HTML, CSS, JavaScript

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Thanks for Attention!