



NAZARBAYEV  
UNIVERSITY

# CSCI 111: Web Programming and Problem Solving

## Lecture 1: Introduction

Instructors:

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# Outline

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- Introduction
- About the Course
- Class Policies
- How the Web works
  - IP addresses and Domain names
  - DNS and getting domain
  - Client-Server Model
  - Websites and their architecture
  - HTML, CSS, JavaScript

# About the Course

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## ❑ Instructor:

Talgat Manglayev

Email: talgat.manglayev@nu.edu.kz

Office: 7e428

Office Hours: TBD

## ❑ Grading:

Course Project: 30%

Quizzes (3): 30%

Lab Assignments: 30%

Attendance: 10%

# About the Course

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- ❑ 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

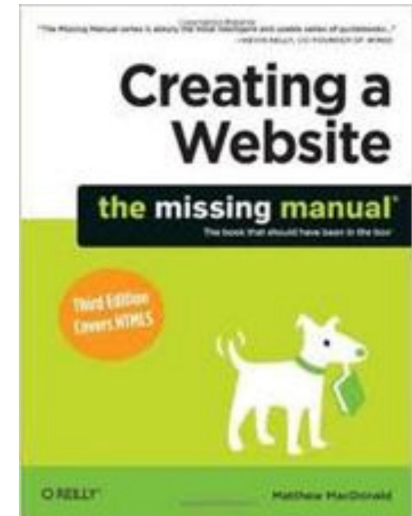
# Course Materials

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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](http://w3schools.com) or [developer.mozilla.org](http://developer.mozilla.org)



# Deadlines are important!

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- 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

# Plagiarism

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- “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

# Class Behaviour

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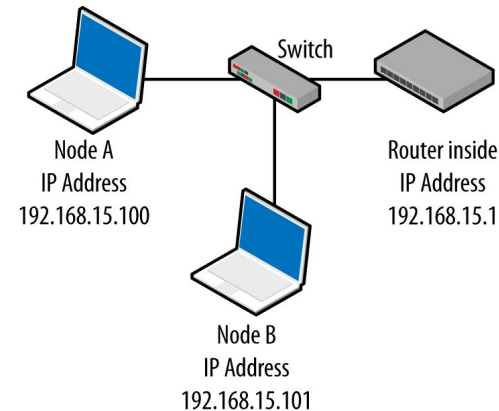
- Personal responsibility (Self study!!!)
- Behave professionally & respectfully
- In class: English only
- You will make mistakes (and that's okay)
- Get involved and have fun!



# 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



A **domain name** (or domain) is a 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:

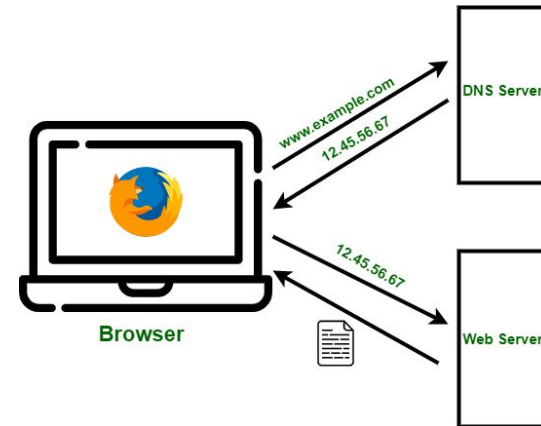
- Root domain (top-level) – .com, .org, .kz, .ru,
- Subdomains (other levels) – google.com, nu.edu.kz, library.nu.edu.kz

# 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]

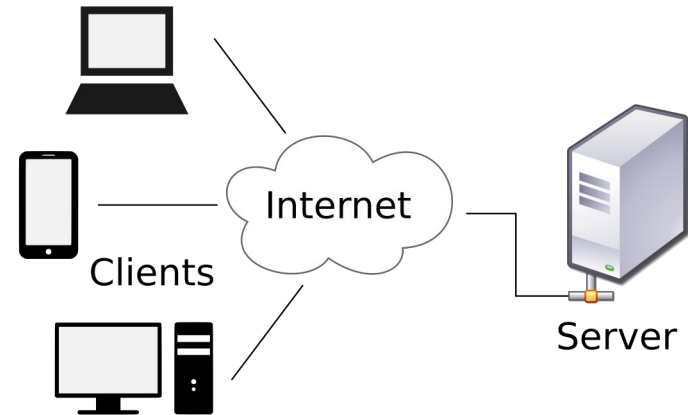
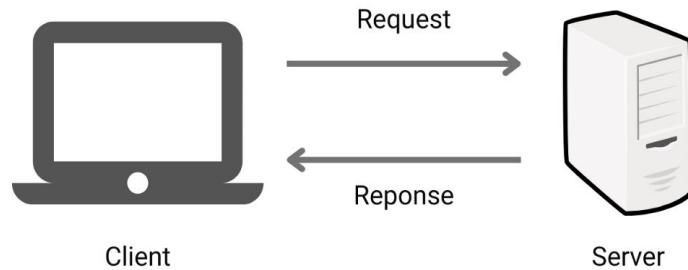
- DNS is a “phonebook” or “librarian” that converts domain names to IP addresses

- 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



# Client-Server Model

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# Websites

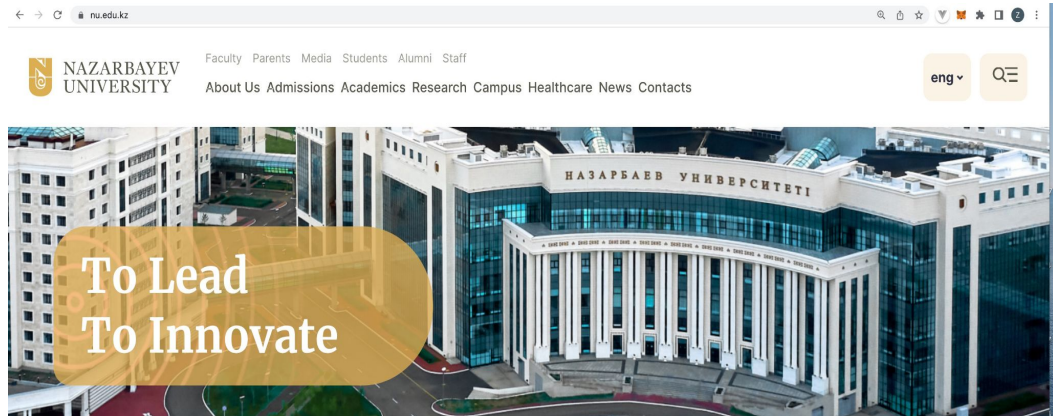
- A **website** is a collection of web pages and related content that is identified by a common domain name and published on at least one web server with an IP address.

Domain: nu.edu.kz

IP address: 178.91.253.180

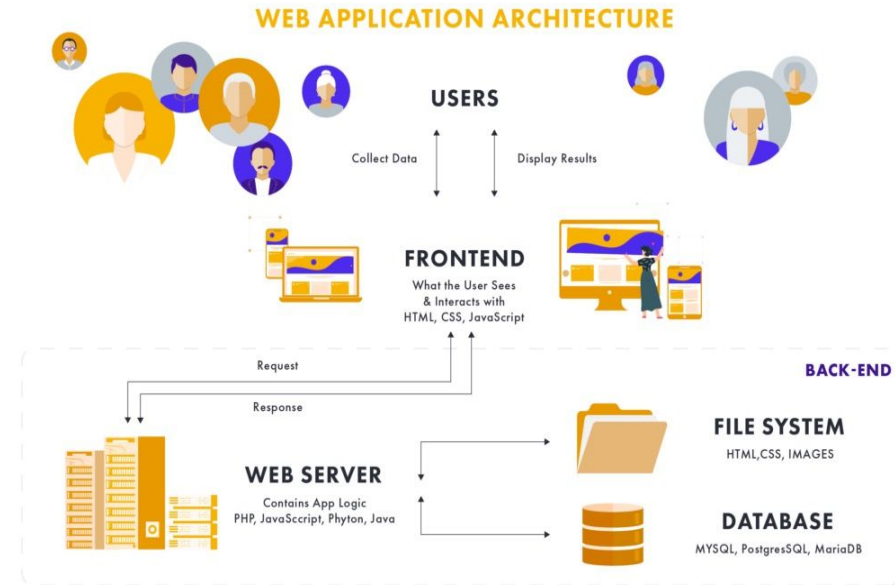
Web pages and their URLs:

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



# 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
- **Front-end:** what users see and interact with.
- **Back-end:** the underlying system that supports and processes user interactions.
- A website can be **static** or **dynamic** depending on the content generated.



# HTML, CSS, Javascript

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**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



# Key takeaways

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



**Thanks for Attention!**