# Department of Computing

**CS344: Web Engineering**

**Class: Spring 2025**

# Lab 5: Responsive Web Design and CSS Grid

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**Lab 5: Responsive Web Design and CSS Grid**

**Introduction**

In this lab, you will create a fully responsive web page using **CSS Grid** and **media queries**. You will also apply **CSS transitions** and **hover effects** to enhance the interactivity of the page. The goal is to practice creating adaptable layouts that work on both desktop and mobile devices.

**Objectives**

The objective of this lab is to:

* Design a **responsive layout** using **CSS Grid**.
* Use **media queries** to adapt the layout to different screen sizes.
* Implement **CSS transitions** and **hover effects** to improve interactivity.

**Tools/Software Requirement**

* Text Editor (e.g., Notepad++, Sublime Text, or Visual Studio Code)
* Web Browser for testing (Google Chrome, Mozilla Firefox, etc.)

**Description**

In this lab, you will build a web page layout for a **services company**. The page will have a **header**, a **hero section**, a **services section**, and a **footer**. You will apply **CSS Grid** for the layout and ensure that the design is responsive using **media queries**. You will also add hover animations using **CSS transitions**.

**Lab Tasks**

**Task 1: Setup HTML Structure**

* Create an HTML file with the following structure:
  + **Header** with logo and navigation.
  + **Hero Section** with a heading and call-to-action button.
  + **Services Section** displaying three services using a grid layout.
  + **Footer** with company informat icon and social media links.

**Task 2: Responsive Grid Layout**

* Implement a **3-column grid layout** for the services section.
* Add **media queries** to switch the layout to **2 columns** on medium screens (1024px) and **1 column** on small screens (768px).

**Task 3: Hover Effects and Transitions**

* Add a **hover effect** to each service box so it **scales up** on hover.
* Use **CSS transitions** to make the hover effect smooth.

## Pitfalls

1. Failure to upload the solution on LMS.

## Incorrect use of grid-template-columns leading to misaligned layouts.

## Ineffective media queries causing the layout to not adjust properly for different screen sizes.

## Failure to make images responsive, leading to distortion or overflow.

## Poorly implemented hover effects or transitions resulting in inconsistent interactions.

## Ignoring mobile-first design, leading to poor user experience on smaller devices.

## Inconsistent use of spacing, margins, and padding, resulting in cluttered or uneven layouts.

## Deliverables

* Each submission is individual with the following composition:
  + Source Code (Web Pages)
* Convert your submission files into a zip folder and name it as given below, finally upload the zip folder to LMS.
  + Name – Registration No. – Section