CSE321 Theory Assignment 01

Research and **Explore** the working principles, types, and multi-boot capabilities of modern bootloader systems by analyzing the following key areas:

- **BIOS-based Bootloaders**
- **UEFI-based Bootloaders**
- **Multi-boot Bootloaders**

Report Requirements:

Write a comprehensive analysis focusing on the following three key factors:

Boot Workflow and Components:

- **Describe** the complete boot workflow from power-on to OS handoff for both BIOS and UEFI systems.
- **Explain** the distinct roles that the firmware, boot records (e.g., MBR), and boot managers play in each process.

Architectural Comparison:

- **Compare** the technical architecture and limitations of BIOS versus UEFI.
- **Discuss** their respective partition table support (MBR vs. GPT), the resulting disk size restrictions, and overall hardware compatibility.

Multi-Boot Systems:

- **Analyze** how multi-boot loaders manage multiple operating systems.
- **Discuss** their different approaches to menu implementation and explain the common challenges
- **Discuss** their solutions related to OS detection and chainloading.

Submission guideline: Can be found in the submission form given below.

Submission link: Submission
Deadline: <mark>27 August, 11:00 PM</mark>

(Submission outside the google form will be automatically rejected)