



# Topic – Create Your Own Kernel In C

Department Of Computer Science 23 - 24

**Problem Statement:** Create a basic operating system kernel with bootloader initialization, display output, and keyboard input handling. Test and validate the kernel using emulation tools like QEMU.

**Introduction:** Operating system (OS) development is a complex yet foundational aspect of computer science. At its core lies the kernel, the engine driving hardware interaction and user experience.

## **Important Operating Systems:**

- Ubuntu Linux
- GNU Compiler Collection
- GNU Assembler
- Quick EMUlator
- GRand Unified Bootloader

## **Implementations:**

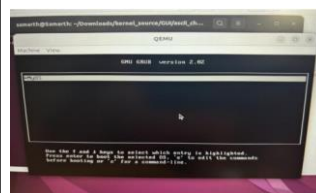
- Printing “Hello World” on the screen
- Printing shapes on the screen
- Keyboard interfacing
- DOS box
- Tic Tac Toe Game

## **Source Codes Files:**

- boot.s (assembler file)
- kernel.c (main file)
- kernel.h (header file)
- linker.ld (linking file)
- grub.cfg (configuration file)
- util.c (utilities file)
- util.h (utilities header file)
- tictactoe.c (game file)

## **Images:**

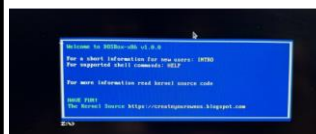
**Bootloader:**



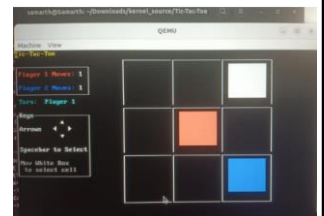
**Print on screen:**



**Dos Box:**



**Tic Tac Toe Game:**



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