Cairo University
Faculty of Computers & Artificial Intelligence
Advance Operating System

Assignment #1

Cross-Platform Development and Toolchain Customization

Setup:

1. The deadline is 22 March
2. The assignment should be delivered in a group of 4.

Objective:

The objective of this assignment is to enhance comprehension of cross-compilation and toolchain customization by extending knowledge to support cross-platform development for an alternative target architecture.

Introduction:

In Lab 01, "Building a Cross-Compiling Toolchain," Crosstool-ng was utilized to construct and execute the hello.c program on the ARM architecture.

Your Task:

Your task entails executing the hello.c file, previously downloaded and compiled in the lab, on the MIPS architecture.
Hint: Utilize the following instructions: mips-unknown-linux-gnu, mips-linux-gcc, qemu-mips.

Write a report that includes:

1. Description of the differences between MIPS and ARM architectures and their respective applications.
2. Explanation of the difference between cross-compiling toolchain and native tool chain.
3. Definitions of bootloader, kernel, and filesystem.
3. Definitions and usage of Kernel modules.
4. Detailed screenshots depicting the steps taken to execute the hello.c code that takes your name as a parameter and displays "hello ${yourName}".

Note:

- Failure to follow submission guidelines will result in a penalty
- Cheaters and non-contributors members during discussion will get 0.

Deliverables:

You need to deliver the report as a pdf file with the following format
Assignment1_ID1_ID2_ID3_ID4.pdf