Lecture 01 Operating Systems Introduction

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CSE3201: Operating Systems

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Outline

Course Requirements

Required Knowledge on

- Data Structure
  - Stack, Queue, Lists, hash tables, tree, heaps, etc ...
- Microprocessor and Interfacing
  - Assembly programming
  - Mapping of high-level procedural language to assembly language
- Competent Programmer
  - We will use C programming language
  - The dominant language for OS implementation.
  - Need to understand pointers, pointer arithmetic, explicit memory allocation, etc.

Assignment (LAB)

Lab: CSE 3211

- Four or More Assignments
  - They Are Challenging (excluding the first one)
  - Because operating systems are challenging
- We will build an Operating system on ARMv7 architecture
  - Specifically on a platform STM32F446re – Cortex-M4
  - Starting from bare-metal programming assignment
  - It will be a challenging task – let us do as much as possible
  - We will follow the techniques discussed in the class
  - An assignment on FreeRTOS
- Estimated Time for each assignment
  - Three weeks (roughly)
  - Each Assignment is divided into several labs (2 or 3 lab classes)
  - Don't under estimate the time needed to do the assignment
  - If you start a couple of days before the due date, you will be late
- Attendance is required in the lab classes

Lab Assignments

How to and Assessment

- Assignments are completed and Submitted Individually
- Optional: choose partners only for discussion
- Discuss with assigned teachers if you do not understand
- Do not copy codes from others
- Assessment is based on your work in the lab
- Need Lab demonstration.
- Complete each assignment and submit to google class
- 5% of total assignment value per day late
  - Assignment only accepted up to one week late 8+days late = 0
  - No extension will be given due to any strike, political unrest condition, holidays ....

Course Outline

Course outline

- Processes and threads

- Concurrency control

- Memory Management

- File Systems

- I/O and Devices

- Security

- Scheduling

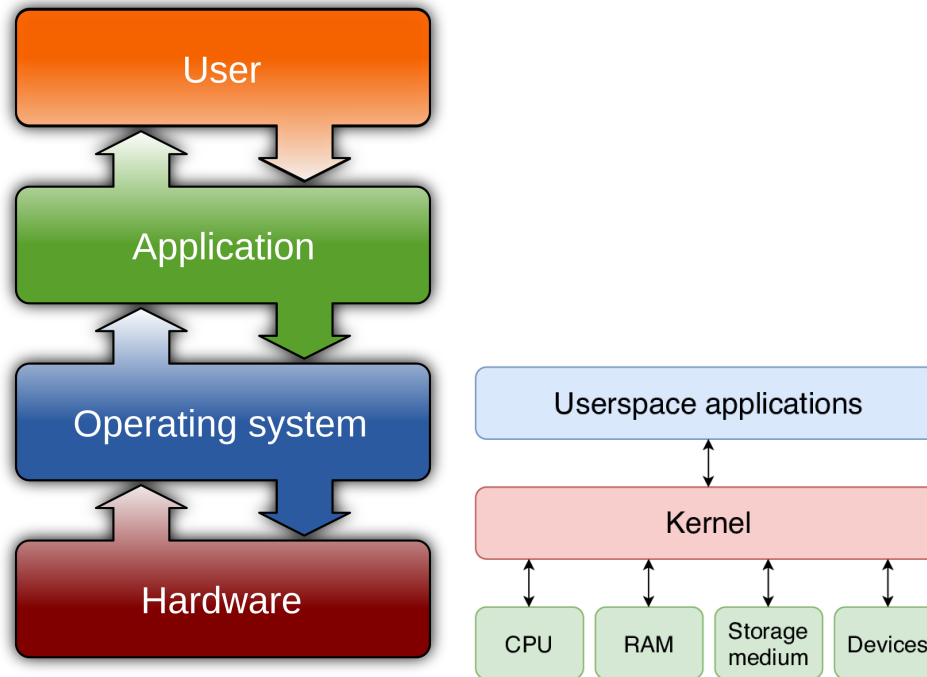- For Detail: See course plan in the Course website on google classroom...

Figure 1: OS Interfaces

Operating System