System Programming
(ELEC462)

Lab #5

Dukyun Nam

HPC Lab@KNU

Lab #5-1: Writing `spwd`

- Write `spwd`
  - Source code for submission: `spwd.c`
  - Make sure that your code must work properly

Lab #5-2: Writing `spwd2`

- Write `spwd2`
  - Stop at home directory while getting paths recursively
    - e.g., `~/lab5` instead of `/home/`*`user_name`*`/lab5`
  - Source code for submission: `spwd2.c`
  - Make sure that your code must work properly

Lab #5: Submission

- Deadline: Tomorrow 11:59pm
  - Create a directory name (`lab5`) to another using a series of the following commands:
    - `mkdir lab5_s<Your_Student_ID>`
      - Assume your ID is 2022000000.
  - Zip your folder:
    - `zip -r lab5_s2022000000.zip lab5_s2022000000`
- Upload the zipped directory (`lab5_s2022000000.zip`) into LMS

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HW #1

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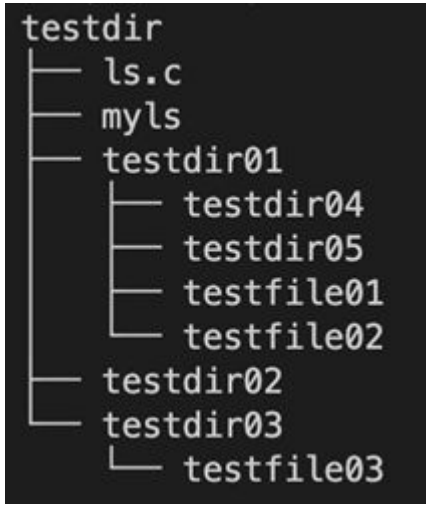
HW #1: Writing `ls -R`

- Write `ls -R`
  - Source code for submission: `ls0.c`
  - Test environment (right figure)
  - All entries are sorted and printed
  - Use the depth first search (DFS)
  - `$ ./ls0 -R`
- TA
  - 양희성 (leibniz21c at gmail.com)




```
yang@Heesungui-MacBookPro testdir % ./ls0 -R
ls.c    ls0     testdir01       testdir02       testdir03
./testdir01:
testdir04       testdir05       testfile01      testfile02
./testdir01/testdir04:

./testdir01/testdir05:

./testdir02:

./testdir03:
testfile03
```

HW #1: Submission

- Deadline: The day before the next class
  - Create a directory name (`hw1`) to another using a series of the following commands:
    - `mkdir hw1_s<Your_Student_ID>`
      - Assume your ID is 2022000000.
  - Zip your folder:
    - `zip -r hw1_s2022000000.zip hw1_s2022000000`
- Upload the zipped directory (`hw1_s2022000000.zip`) into LMS

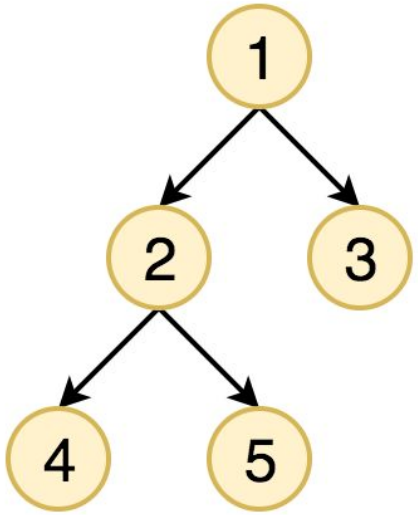
How to Traverse the Tree

- There are two general strategies to traverse a tree
- Breadth-First Search (BFS)
  - Traverse the tree **level by level**, following the order of height, from top to bottom
  - The nodes on higher level would be visited before the ones with lower levels
- Depth First Search (DFS)
  - Adopt the **depth** as the priority
  - Start from a root and reach all the way down to certain leaf, and then back to root to reach another branch

How to Traverse the Tree (cont)

BFS

Left -> Right
Top -> Bottom



DFS
Preorder

Top -> Bottom
Left -> Right