

# 임베디드응용 및 실습 5주차 과제

2020161103 장민준

1. IFC181.tar 파일을 받아 ~/embedded/week5 로 옮긴다.
2. tar 명령으로 압축을 해제한다.

```
alswns@alswns:~ $ ls
Bookshelf  Documents  Music      Public     Videos
Desktop    Downloads  Pictures   Templates  embedded
alswns@alswns:~ $ cd ~/embedded/week5
alswns@alswns:~/embedded/week5 $ tar -xvf IFC181.tar
IFC181_14.pdf
IFC181_01.pdf
IFC181_02.pdf
IFC181_03.pdf
IFC181_04.pdf
IFC181_05.pdf
IFC181_06.pdf
IFC181_07.pdf
IFC181_08.pdf
IFC181_09.pdf
IFC181_10.pdf
IFC181_11.pdf
IFC181_12.pdf
IFC181_13.pdf
alswns@alswns:~/embedded/week5 $ ls
IFC181.tar      IFC181_04.pdf  IFC181_08.pdf  IFC181_12.pdf
IFC181_01.pdf   IFC181_05.pdf  IFC181_09.pdf  IFC181_13.pdf
IFC181_02.pdf   IFC181_06.pdf  IFC181_10.pdf  IFC181_14.pdf
IFC181_03.pdf   IFC181_07.pdf  IFC181_11.pdf  IFC181_re.tar
```

3. 2에서 압축해제된 파일들을 IFC181\_re.tar로 압축한다.

```
alswns@alswns:~/embedded/week5 $ tar -cvf IFC181_re.tar *
IFC181.tar
IFC181_01.pdf
IFC181_02.pdf
IFC181_03.pdf
IFC181_04.pdf
IFC181_05.pdf
IFC181_06.pdf
IFC181_07.pdf
IFC181_08.pdf
IFC181_09.pdf
IFC181_10.pdf
IFC181_11.pdf
IFC181_12.pdf
IFC181_13.pdf
IFC181_14.pdf
tar: IFC181_re.tar: 아카이브 파일입니다. 덤프 가져오지 않음
alswns@alswns:~/embedded/week5 $ ls
IFC181.tar      IFC181_04.pdf  IFC181_08.pdf  IFC181_12.pdf
IFC181_01.pdf   IFC181_05.pdf  IFC181_09.pdf  IFC181_13.pdf
IFC181_02.pdf   IFC181_06.pdf  IFC181_10.pdf  IFC181_14.pdf
IFC181_03.pdf   IFC181_07.pdf  IFC181_11.pdf  IFC181_re.tar
```

4. 2에서 압축해제된 파일들을 zip 명령으로 IFC181\_re.zip으로 압축한다.

- 이때 zip 명령을 수행할 수 있도록 zip을 설치한다.

: sudo apt-get install zip

5. 4에서 나온 IFC181\_re.zip 파일을 unzip 명령을 통해 압축해제 한다.

```
alswns@alswns:~/embedded/week5 $ sudo apt-get install zip
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다
상태 정보를 읽는 중입니다... 완료
다음 패키지가 자동으로 설치되었지만 더 이상 필요하지 않습니다:
  libdav1d3
Use 'sudo apt autoremove' to remove it.
다음 새 패키지를 설치할 것입니다:
  zip
0개 업그레이드, 1개 새로 설치, 0개 제거 및 0개 업그레이드 안 함.
212 k바이트 아카이브를 받아야 합니다.
이 작업 후 542 k바이트의 디스크 공간을 더 사용하게 됩니다.
받기:1 http://ftp.kaist.ac.kr/raspbian/raspbian buster/main armhf zip armhf 3.0-11 [212 kB]
내려받기 212 k바이트, 소요시간 2초 (104 k바이트/초)
Selecting previously unselected package zip.
(데이터베이스 읽는중 ...현재 100396개의 파일과 디렉터리가 설치되어 있습니다.)
Preparing to unpack .../archives/zip_3.0-11_armhf.deb ...
Unpacking zip (3.0-11) ...
zip (3.0-11) 설정하는 중입니다 ...
Processing triggers for man-db (2.8.5-2+deb10u1) ...
```

```
alswns@alswns:~/embedded/week5 $ zip -r IFC181_re.zip *
adding: IFC181.tar (deflated 17%)
adding: IFC181_01.pdf (deflated 20%)
adding: IFC181_02.pdf (deflated 5%)
adding: IFC181_03.pdf (deflated 22%)
adding: IFC181_04.pdf (deflated 19%)
adding: IFC181_05.pdf (deflated 13%)
adding: IFC181_06.pdf (deflated 15%)
adding: IFC181_07.pdf (deflated 13%)
adding: IFC181_08.pdf (deflated 15%)
adding: IFC181_09.pdf (deflated 10%)
adding: IFC181_10.pdf (deflated 21%)
adding: IFC181_11.pdf (deflated 15%)
adding: IFC181_12.pdf (deflated 18%)
adding: IFC181_13.pdf (deflated 17%)
adding: IFC181_14.pdf (deflated 19%)
adding: IFC181_re.tar (deflated 17%)
```

```
alswns@alswns:~/embedded/week5 $ ls
IFC181.tar  IFC181_05.pdf  IFC181_10.pdf  IFC181_re.tar
IFC181_01.pdf  IFC181_06.pdf  IFC181_11.pdf  IFC181_re.zip
IFC181_02.pdf  IFC181_07.pdf  IFC181_12.pdf
IFC181_03.pdf  IFC181_08.pdf  IFC181_13.pdf
IFC181_04.pdf  IFC181_09.pdf  IFC181_14.pdf
alswns@alswns:~/embedded/week5 $ sudo apt-get install unzip
패키지 목록을 읽는 중입니다... 완료
의존성 트리를 만드는 중입니다
상태 정보를 읽는 중입니다... 완료
unzip is already the newest version (6.0-23+deb10u3).
다음 패키지가 자동으로 설치되었지만 더 이상 필요하지 않습니다:
  libdav1d3
Use 'sudo apt autoremove' to remove it.
0개 업그레이드, 0개 새로 설치, 0개 제거 및 0개 업그레이드 안 함.
alswns@alswns:~/embedded/week5 $ unzip IFC181_re.zip
Archive:  IFC181_re.zip
replace IFC181.tar? [y]es, [n]o, [A]ll, [N]one, [r]ename: y
  inflating: IFC181.tar
replace IFC181_01.pdf? [y]es, [n]o, [A]ll, [N]one, [r]ename: 
error:  invalid response [ ]
replace IFC181_01.pdf? [y]es, [n]o, [A]ll, [N]one, [r]ename: A
  inflating: IFC181_01.pdf
  inflating: IFC181_02.pdf
  inflating: IFC181_03.pdf
  inflating: IFC181_04.pdf
  inflating: IFC181_05.pdf
  inflating: IFC181_06.pdf
  inflating: IFC181_07.pdf
  inflating: IFC181_08.pdf
  inflating: IFC181_09.pdf
  inflating: IFC181_10.pdf
  inflating: IFC181_11.pdf
  inflating: IFC181_12.pdf
  inflating: IFC181_13.pdf
  inflating: IFC181_14.pdf
  inflating: IFC181_re.tar
```

<find 명령어 연습>

6. ~ (home) 디렉토리로 이동하고 find 명령을 통해 embedded폴더에서(하위폴더 포함) .pdf 파일을 찾는 명령을 수행해본다.

7. 아래의 명령 결과가 동일한지 아닌지 결과를 보이고 동작 결과를 설명하시오

innosm@innosm:~ \$find . -name \*.pdf

```
● alswns@alswns:~/embedded/week5 $ cd ~
● alswns@alswns:~ $ find ~/embedded -name "*.pdf"
/home/alswns/embedded/week5/IFC181_05.pdf
/home/alswns/embedded/week5/IFC181_04.pdf
/home/alswns/embedded/week5/IFC181_08.pdf
/home/alswns/embedded/week5/IFC181_12.pdf
/home/alswns/embedded/week5/IFC181_09.pdf
/home/alswns/embedded/week5/IFC181_07.pdf
/home/alswns/embedded/week5/IFC181_13.pdf
/home/alswns/embedded/week5/IFC181_02.pdf
/home/alswns/embedded/week5/IFC181_01.pdf
/home/alswns/embedded/week5/IFC181_14.pdf
/home/alswns/embedded/week5/IFC181_11.pdf
/home/alswns/embedded/week5/IFC181_10.pdf
/home/alswns/embedded/week5/IFC181_03.pdf
/home/alswns/embedded/week5/IFC181_06.pdf
```

innosm@innosm:~ \$find ./ -name \*.pdf

```
● alswns@alswns:~ $ find ./ -name *.pdf
./Bookshelf/BeginnersGuide-4thEd-Eng_v2.pdf
./local/share/Trash/files/IFC181_07.2.pdf
./local/share/Trash/files/IFC181_05.pdf
./local/share/Trash/files/IFC181_06.2.pdf
./local/share/Trash/files/IFC181_13.2.pdf
./local/share/Trash/files/IFC181_04.pdf
./local/share/Trash/files/IFC181_05.2.pdf
./local/share/Trash/files/IFC181_14.2.pdf
./local/share/Trash/files/IFC181_08.pdf
./local/share/Trash/files/IFC181_12.pdf
./local/share/Trash/files/IFC181_09.pdf
./local/share/Trash/files/IFC181_07.pdf
./local/share/Trash/files/IFC181_13.pdf
./local/share/Trash/files/IFC181_02.pdf
./local/share/Trash/files/IFC181_08.2.pdf
./local/share/Trash/files/IFC181_01.pdf
./local/share/Trash/files/IFC181_02.2.pdf
./local/share/Trash/files/IFC181_04.2.pdf
./local/share/Trash/files/IFC181_03.2.pdf
./local/share/Trash/files/IFC181_14.pdf
./local/share/Trash/files/IFC181_10.2.pdf
./local/share/Trash/files/IFC181_11.2.pdf
./local/share/Trash/files/IFC181_11.pdf
./local/share/Trash/files/IFC181_10.pdf
./local/share/Trash/files/IFC181_03.pdf
./local/share/Trash/files/IFC181_06.pdf
./local/share/Trash/files/IFC181_09.2.pdf
./local/share/Trash/files/IFC181_12.2.pdf
./local/share/Trash/files/IFC181_01.2.pdf
./embedded/week5/IFC181_05.pdf
./embedded/week5/IFC181_04.pdf
./embedded/week5/IFC181_08.pdf
./embedded/week5/IFC181_12.pdf
./embedded/week5/IFC181_09.pdf
./embedded/week5/IFC181_07.pdf
./embedded/week5/IFC181_13.pdf
./embedded/week5/IFC181_02.pdf
./embedded/week5/IFC181_01.pdf
./embedded/week5/IFC181_14.pdf
./embedded/week5/IFC181_11.pdf
./embedded/week5/IFC181_10.pdf
./embedded/week5/IFC181_03.pdf
./embedded/week5/IFC181_06.pdf
```

innosm@innosm:~ \$find -name \*.pdf

```
alswns@alswns:~ $ find -name "*.pdf"
./Bookshelf/BeginnersGuide-4thEd-Eng_v2.pdf
./local/share/Trash/files/IFC181_07.2.pdf
./local/share/Trash/files/IFC181_05.pdf
./local/share/Trash/files/IFC181_06.2.pdf
./local/share/Trash/files/IFC181_13.2.pdf
./local/share/Trash/files/IFC181_04.pdf
./local/share/Trash/files/IFC181_05.2.pdf
./local/share/Trash/files/IFC181_14.2.pdf
./local/share/Trash/files/IFC181_08.pdf
./local/share/Trash/files/IFC181_12.pdf
./local/share/Trash/files/IFC181_09.pdf
./local/share/Trash/files/IFC181_07.pdf
./local/share/Trash/files/IFC181_13.pdf
./local/share/Trash/files/IFC181_02.pdf
./local/share/Trash/files/IFC181_08.2.pdf
./local/share/Trash/files/IFC181_01.pdf
./local/share/Trash/files/IFC181_02.2.pdf
./local/share/Trash/files/IFC181_04.2.pdf
./local/share/Trash/files/IFC181_03.2.pdf
./local/share/Trash/files/IFC181_14.pdf
./local/share/Trash/files/IFC181_10.2.pdf
./local/share/Trash/files/IFC181_11.2.pdf
./local/share/Trash/files/IFC181_11.pdf
./local/share/Trash/files/IFC181_10.pdf
./local/share/Trash/files/IFC181_03.pdf
./local/share/Trash/files/IFC181_06.pdf
./local/share/Trash/files/IFC181_09.2.pdf
./local/share/Trash/files/IFC181_12.2.pdf
./local/share/Trash/files/IFC181_01.2.pdf
./embedded/week5/IFC181_05.pdf
./embedded/week5/IFC181_04.pdf
./embedded/week5/IFC181_08.pdf
./embedded/week5/IFC181_12.pdf
./embedded/week5/IFC181_09.pdf
./embedded/week5/IFC181_07.pdf
./embedded/week5/IFC181_13.pdf
./embedded/week5/IFC181_02.pdf
./embedded/week5/IFC181_01.pdf
./embedded/week5/IFC181_14.pdf
./embedded/week5/IFC181_11.pdf
./embedded/week5/IFC181_10.pdf
./embedded/week5/IFC181_03.pdf
./embedded/week5/IFC181_06.pdf
```

innosm@innosm:~ \$find ~ -name \*.pdf

```
alswns@alswns:~ $ find ~ -name "*.pdf"
/home/alswns/Bookshelf/BeginnersGuide-4thEd-Eng_v2.pdf
/home/alswns/.local/share/Trash/files/IFC181_07.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_05.pdf
/home/alswns/.local/share/Trash/files/IFC181_06.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_13.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_04.pdf
/home/alswns/.local/share/Trash/files/IFC181_05.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_14.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_08.pdf
/home/alswns/.local/share/Trash/files/IFC181_12.pdf
/home/alswns/.local/share/Trash/files/IFC181_09.pdf
/home/alswns/.local/share/Trash/files/IFC181_07.pdf
/home/alswns/.local/share/Trash/files/IFC181_13.pdf
/home/alswns/.local/share/Trash/files/IFC181_02.pdf
/home/alswns/.local/share/Trash/files/IFC181_08.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_01.pdf
/home/alswns/.local/share/Trash/files/IFC181_02.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_04.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_03.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_14.pdf
/home/alswns/.local/share/Trash/files/IFC181_10.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_11.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_11.pdf
/home/alswns/.local/share/Trash/files/IFC181_10.pdf
/home/alswns/.local/share/Trash/files/IFC181_03.pdf
/home/alswns/.local/share/Trash/files/IFC181_06.pdf
/home/alswns/.local/share/Trash/files/IFC181_09.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_12.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_01.2.pdf
/home/alswns/embedded/week5/IFC181_05.pdf
/home/alswns/embedded/week5/IFC181_04.pdf
/home/alswns/embedded/week5/IFC181_08.pdf
/home/alswns/embedded/week5/IFC181_12.pdf
/home/alswns/embedded/week5/IFC181_09.pdf
/home/alswns/embedded/week5/IFC181_07.pdf
/home/alswns/embedded/week5/IFC181_13.pdf
/home/alswns/embedded/week5/IFC181_02.pdf
/home/alswns/embedded/week5/IFC181_01.pdf
/home/alswns/embedded/week5/IFC181_14.pdf
/home/alswns/embedded/week5/IFC181_11.pdf
/home/alswns/embedded/week5/IFC181_10.pdf
/home/alswns/embedded/week5/IFC181_03.pdf
/home/alswns/embedded/week5/IFC181_06.pdf
```

innosm@innosm:~ \$find /home/innosm -name \*.pdf

```
alswns@alswns:~ $ find /home/alswns -name "*.pdf"
/home/alswns/Bookshelf/BeginnersGuide-4thEd-Eng_v2.pdf
/home/alswns/.local/share/Trash/files/IFC181_07.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_05.pdf
/home/alswns/.local/share/Trash/files/IFC181_06.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_13.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_04.pdf
/home/alswns/.local/share/Trash/files/IFC181_05.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_14.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_08.pdf
/home/alswns/.local/share/Trash/files/IFC181_12.pdf
/home/alswns/.local/share/Trash/files/IFC181_09.pdf
/home/alswns/.local/share/Trash/files/IFC181_07.pdf
/home/alswns/.local/share/Trash/files/IFC181_13.pdf
/home/alswns/.local/share/Trash/files/IFC181_02.pdf
/home/alswns/.local/share/Trash/files/IFC181_08.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_01.pdf
/home/alswns/.local/share/Trash/files/IFC181_02.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_04.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_03.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_14.pdf
/home/alswns/.local/share/Trash/files/IFC181_10.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_11.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_11.pdf
/home/alswns/.local/share/Trash/files/IFC181_10.pdf
/home/alswns/.local/share/Trash/files/IFC181_03.pdf
/home/alswns/.local/share/Trash/files/IFC181_06.pdf
/home/alswns/.local/share/Trash/files/IFC181_09.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_12.2.pdf
/home/alswns/.local/share/Trash/files/IFC181_01.2.pdf
/home/alswns/embedded/week5/IFC181_05.pdf
/home/alswns/embedded/week5/IFC181_04.pdf
/home/alswns/embedded/week5/IFC181_08.pdf
/home/alswns/embedded/week5/IFC181_12.pdf
/home/alswns/embedded/week5/IFC181_09.pdf
/home/alswns/embedded/week5/IFC181_07.pdf
/home/alswns/embedded/week5/IFC181_13.pdf
/home/alswns/embedded/week5/IFC181_02.pdf
/home/alswns/embedded/week5/IFC181_01.pdf
/home/alswns/embedded/week5/IFC181_14.pdf
/home/alswns/embedded/week5/IFC181_11.pdf
/home/alswns/embedded/week5/IFC181_10.pdf
/home/alswns/embedded/week5/IFC181_03.pdf
/home/alswns/embedded/week5/IFC181_06.pdf
```

6번과 7번의 실행결과가 다른 이유는 6번과 같은 경우 ~/ embedded에서 .pdf 파일을 검색하는 것으로 embedded 폴더 하위의 pdf 파일만 표시되지만 나머지 같은 경우는 홈 디렉토리의 휴지통에 있는 파일들도 같이 검색되기 때문에 과제를 하며 오류를 수정한 휴지통 pdf 파일까지 보여지게 됩니다.

9. 아래 명령을 수행한 결과를 보이시오.

df -h

```
● alswns@alswns:~ $ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        15G   4.1G   9.6G   30% /
devtmpfs         1.8G     0   1.8G    0% /dev
tmpfs            1.9G     0   1.9G    0% /dev/shm
tmpfs            1.9G   8.6M   1.9G    1% /run
tmpfs            5.0M   4.0K   5.0M    1% /run/lock
tmpfs            1.9G     0   1.9G    0% /sys/fs/cgroup
/dev/mmcblk0p1   253M   49M   204M   20% /boot
tmpfs            384M   8.0K   384M    1% /run/user/1000
```

10. 아래 명령을 수행한 결과를 보이시오.

cd ~

cd embedded

du -h

```
● alswns@alswns:~ $ cd ~
● alswns@alswns:~ $ cd embedded
● alswns@alswns:~/embedded $ du -h
30M    ./week5
30M    .
```

11. 10번에서 현재 embedded 폴더의 총 사용량은(하위폴더 포함, 단위 표시)?

30M

12. cd embedded/week5 를 수행하여 위치를 이동하고, 아래 명령을 차례로 수행하시오

- 1) df .
- 2) 이 폴더에 temp\_file 파일 생성하고 파일에 1을 기록
- 3) stat temp\_file 명령을 통해 파일의 크기를 확인
- 4) df .

```
● alswns@alswns:~/embedded/week5 $ df .
Filesystem      1K-blocks    Used Available Use% Mounted on
/dev/root        14986204 4266584  10058112  30% /
● alswns@alswns:~/embedded/week5 $ echo 1 > temp_file
● alswns@alswns:~/embedded/week5 $ stat temp_file
  File: temp_file
  Size: 2                Blocks: 8                IO Block: 4096   일반 파일
Device: b302h/45826d    Inode: 394689           Links: 1
Access: (0644/-rw-r--r--)  Uid: ( 1000/  alswns)   Gid: ( 1000/  alswns)
Access: 2024-10-08 18:19:49.414520611 +0900
Modify: 2024-10-08 18:19:49.414520611 +0900
Change: 2024-10-08 18:19:49.414520611 +0900
 Birth: -

● alswns@alswns:~/embedded/week5 $ df .
Filesystem      1K-blocks    Used Available Use% Mounted on
/dev/root        14986204 4266588  10058108  30% /
```

1) 과 4)에서 줄어든 용량과 3)에서 확인한 용량이 다르다면 그 이유는?

3번의 stat temp\_file 명령어로 확인한 파일 크기는 파일 자체의 순수한 데이터크기이고

1번과 4번의 df. 명령어로 확인한 디스크 사용량은 파일을 저장하기 위해 할당된 블록크기와 파일 시스템의 오버헤드까지 포함한 실제 사용량이기때문이다.

13. 현재 사용하는 라즈비언 OS가 몇비트 시스템인지 확인하고 결과를 첨부하시오.

```
alswns@alswns:~ $ uname -m
armv7l
```

32비트 시스템