**Unix V6 file-system**

**Requirements:**

Unix V6 file system has limitation of 16MB on file size. Redesign the file system to remove this limitation. In particular, you should support files up to 4GB in size. Also, the block size is 1024 Bytes, all fields of Super Block are now doubled and the free [ ] array is expanded so that the information stored in the super block is closer to 1024 Bytes. (We don’t want to waste any part of Super Block.)

**User input/commands:**

* initfs path\_name size\_of\_file\_system number\_of \_inodes - initialize file system.
* cpin external\_file internal\_file - copy content of external\_file into an internal\_file.
* cpout internal\_file external\_file - copy content of the internal\_file into an external\_file
* mkdir dir\_name – creates a directory with dir\_name.
* Rm internal\_file - remove file and mark its blocks as free
* q – save work and exit

**Usage Examples:**

* **$ Initfs /home/010/l/lx/lxa180010/test.data 17000 300**

Initializes a file system with a size of 17000 blocks and 300 inodes. Each block is 1024 Bytes in size. Super Block is fully utilizing all bytes in the block. Free array is a size of 152 elements. I node array has 200 elements.

A file of size up to 4GB can be created since the following was implemented:

* + Free [] of type unsigned int.
  + Size field of Inode is of type unsigned int.
  + Triple indirect blocks are available if needed.
* **$ cpin /home/010/l/lx/lxa180010/sample\_file.txt /test.data/cpin\_file**

Copies content of file **sample\_file.txt** into file **cpin\_file**. Large files are compatible as well.

* **$ cpout /test.data/cpin\_file /home/010/l/lx/lxa180010/sample\_file.txt**

Copies content of file **cpin\_file** into file **sample1\_file.txt**. Large files are compatible as well.

* **$ mkdir /home/010/l/lx/lxa180010/test.data/abc**

If directory **abd** does not exist, create the directory with the entries **.** and **..**

* **$ rm /test.data/cpin\_file**

Removes **cpin\_file** that was created in our file system. Doing so, the directory entry is removed, data blocks are in the free list, and inode is free.

* **$ q**

Saves all changes we did to the file system **test.data** and exits.