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Operating Systems Laboratory
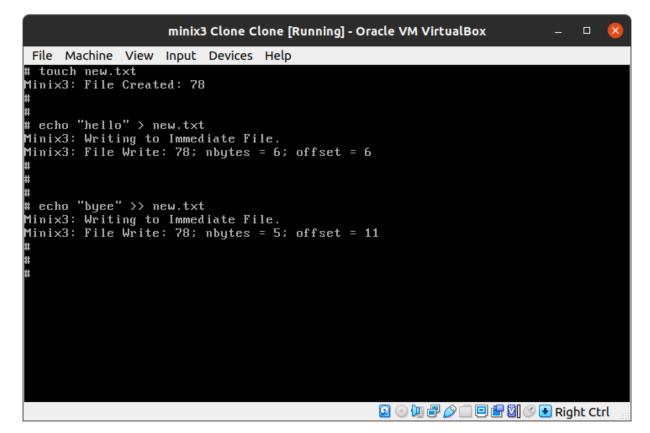# ASSIGNMENT - 8

Task:

Implement immediate files in the Minix File System, for files of size up to 32 bytes. Implement only for the file system mounted at /home.

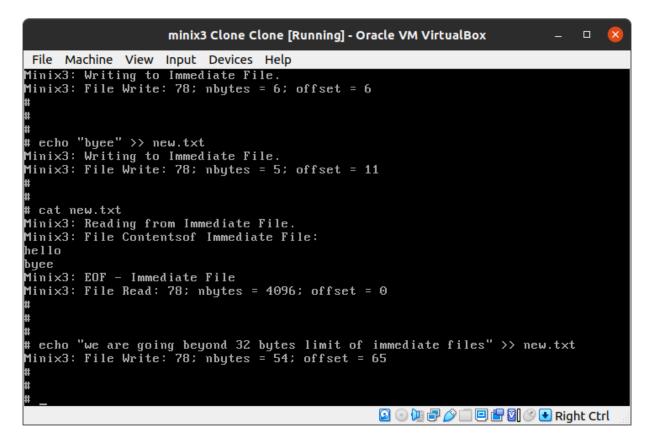## Implemented functionalities:

• **File Creation:** The start has to be done by creating the file as an immediate one. When a file grows beyond 32B, then it has to be made into a regular file.

• **File Read:** If it is an immediate file, it has to be responded with the inode structure contents. If not, it has to follow the default behavior of looking up zones.

• **File Write:** The task is similar to read. The care has to be taken to ensure that if inode structure has to be written, then the new file size is still within 32B. When a regular file shrinks to less than 32 bytes, there is no need to come back to immediate mode.

• **File Delete:** The deleting of immediate files does not require any handling of zones.

Find below attached screenshots for different types of file writing e.g. before and after exceeding the 32 bytes limit for immediate files. Corresponding file read screenshots are also attached for the reference.
These screenshots are the proof for the altered code in file systems to depict the required functionalities for the immediate files.

File Machine View Input Devices Help

```
# touch new.txt
Minix3: File Created: 78
#
#
# echo "hell" > new.txt
Minix3: Writing to Immediate File.
Minix3: File Write: 78; nbytes = 5; offset = 5
#
#
#
```

Right Ctrl

File Machine View Input Devices Help

```
# touch new.txt
Minix3: File Created: 78
#
#
# echo "hello" > new.txt
Minix3: Writing to Immediate File.
Minix3: File Write: 78; nbytes = 6; offset = 6
#
#
#
# echo "byee" >> new.txt
Minix3: Writing to Immediate File.
Minix3: File Write: 78; nbytes = 5; offset = 11
#
#
#
```

Right Ctrl

```
# touch new.txt
Minix3: File Created: 78
#
#
# echo "hello" > new.txt
Minix3: Writing to Immediate File.
Minix3: File Write: 78; nbytes = 6; offset = 6
#
#
#
# echo "byee" >> new.txt
Minix3: Writing to Immediate File.
Minix3: File Write: 78; nbytes = 5; offset = 11
#
#
# cat new.txt
Minix3: Reading from Immediate File.
Minix3: File Contentsof Immediate File:
hello
byee
Minix3: EOF - Immediate File
Minix3: File Read: 78; nbytes = 4096; offset = 0
#  _
```

```
Minix3: Writing to Immediate File.
Minix3: File Write: 78; nbytes = 6; offset = 6
#
#
#
# echo "byee" >> new.txt
Minix3: Writing to Immediate File.
Minix3: File Write: 78; nbytes = 5; offset = 11
#
#
# cat new.txt
Minix3: Reading from Immediate File.
Minix3: File Contentsof Immediate File:
hello
byee
Minix3: EOF - Immediate File
Minix3: File Read: 78; nbytes = 4096; offset = 0
#
#
#
# echo "we are going beyond 32 bytes limit of immediate files" >> new.txt
Minix3: File Write: 78; nbytes = 54; offset = 65
#
#
#  _
```

File   Machine   View   Input   Devices   Help

```
Minix3: Writing to Immediate File.
Minix3: File Write: 78; nbytes = 5; offset = 11
#
#
# cat new.txt
Minix3: Reading from Immediate File.
Minix3: File Contentsof Immediate File:
hello
byee
Minix3: EOF - Immediate File
Minix3: File Read: 78; nbytes = 4096; offset = 0
#
#
#
# echo "we are going beyond 32 bytes limit of immediate files" >> new.txt
Minix3: File Write: 78; nbytes = 54; offset = 65
#
#
# cat new.txt
Minix3: File Read: 78; nbytes = 4096; offset = 65
hello
byee
we are going beyond 32 bytes limit of immediate files
Minix3: File Read: 78; nbytes = 4096; offset = 65
#
```

File   Machine   View   Input   Devices   Help

```
# rm new.txt
file deleted: 78
#
```