Programming Assignment 4 CS450 OS

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Directory Organization

For answers to written questions, there are 2 different formats for the same answer, an HTML file and a PDF file, use whichever is convinient.

- **src/** -
    - **xv6-public/** - Complete source code of Xv6 with the assignment changes.
- **doc** - Contains the documents containing answers to the programming assignment
    - **design/**
        - *design.html* - HTML file with the walkthrough of files changed to implement systemcalls and some explanantion of the design decisions.
        - *design.pdf* - PDF file with the walkthrough of files changed to implement systemcalls and some explanantion of the design decisions.
    - **tests/**
        - *tests.html* - HTML file describing the test cases and its output.
        - *tests.pdf* - PDF file describing the test cases and its output.

Steps to setup working build with code provided in src/xv6-public/ :

NOTE : I have copied the entire source code of xv6 under the xv6-public folder.

1. **cd into the xv6-public directory from assignment root dir :**

   ```
   cd src/xv6-public/
   ```

2. **Running the following three commands will build Xv6 and bring up a shell for us to try our test program :**

   ```
   $ make clean
   $ make qemu
   ```

3. **Once we have Xv6 running, we go ahead and run the test programs available to us:**

   1. **mkSFdir <DIR_NAME>** Create a small file directory.

2. **touch <FILE_NAME>** Create a file inside a dir (automatically create small file in a small dir and a normal file in a normal dir).

3. **writegarb <FILE_NAME> <OPTIONAL_BYTES>** Writes a string of 51 bytes by default into the file specified, OPTIONAL_BYTES are "exactly_52" and "more_than_52" to specify the variation in bytes written.

4. **readtest <FILE_NAME> <NO_BYTES_TO_READ>** Reads NO_BYTES_TO_READ from the file specified and prints the no of bytes it could actually read.

5. **testlink** Tests the linking of files across different directory types.

Examples for the above commands:

```
$ mkSFdir sdir
$ cd sdir
$ touch small_file
$ writegarb small_file exactly_52
Write size : 52
$ cat small_file
Machines take me by surprise with great frequency.
$ readtest small_file 60
Read 52 bytes.
$ cd ..
$ testlink
linking done
```

Please take a look at tests.html/tests.pdf document to get a better picture of what the above commands do.

Thank you!