

# Operating Systems

CMPT 424 • Fall 2017

## -iProject One - 100 points

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Goals	To review and come to intimately understand our initial project as well as the awesomeness that is TypeScript. Then to add all the functionality specified below.
Functional Requirements	<ul style="list-style-type: none"><li><input type="checkbox"/> Alter the <code>ver</code> command to display your own data. [5 points]</li><li><input type="checkbox"/> Add some new shell commands: [15 points]<ul style="list-style-type: none"><li>• <code>date</code> - displays the current date and time</li><li>• <code>whereami</code> - displays the users current location (use your imagination)</li><li>• something else interesting and creative; surprise me</li></ul></li><li><input type="checkbox"/> Enhance the <code>host</code> display with a graphic task bar that displays ... [10 points]<ul style="list-style-type: none"><li>• the current date and time</li><li>• status messages as specified by the user with a new shell command: <code>status &lt;string&gt;</code> example: <code>status i love operating systems</code></li></ul></li><li><input type="checkbox"/> Implement scrolling in the <i>client OS</i> console/CLI. [30 points]</li><li><input type="checkbox"/> Other console/CLI enhancements: [20 points]<ul style="list-style-type: none"><li>• Accept and display punctuation characters and symbols.</li><li>• Handle backspace appropriately.</li><li>• Implement command completion with the tab key.</li><li>• Provide command history recall via the up and down arrow keys.</li></ul></li><li><input type="checkbox"/> Display a BSOD message (on the CLI) when the kernel traps an OS error. [10 points]<ul style="list-style-type: none"><li>• Add a shell command to test this. Remember to include it in the help.</li></ul></li><li><input type="checkbox"/> Add a shell command called <code>load</code> to validate the user code in the HTML5 text area (<code>id= "taProgramInput"</code>). Only hex digits and spaces are valid. [10 points]</li><li><input type="checkbox"/> [optional] Implement line-wrap in the CLI. [+10 points]</li></ul>
Implementation Requirements	<ul style="list-style-type: none"><li><input type="checkbox"/> Your code must ... [-∞ if not]<ul style="list-style-type: none"><li>• separate structure from presentation.</li><li>• be professionally formatted.</li><li>• use and demonstrate best practices.</li><li>• make me proud to be your teacher.</li></ul></li><li><input type="checkbox"/> Do not break GLaDOS. Don't make me flood the Enrichment Center with deadly neurotoxin.</li></ul>
General Hints	<p>Read up on the Canvas before you mess with the console/CLI. There are some helpful links on our class web site about the HTML5 canvas. Do some Canvas experiments on your own. It's really quite amazing what you can do with it.</p> <p>Remember the utility of comments and how much their presence and quality effect my opinion of your work.</p> <p>Make many commits to Git. I do not want to see one massive "everything" commit when I review your code. (It's -∞ if you do that.) Commit early and often. And make sure your commit messages are descriptive, informative, and — if possible — entertaining.</p>

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Specific  
Hints

- Keep .js and .ts files in separate directories.
- An empty text area means the source code is not valid.
- Scrolling is difficult. Think carefully. And **do not** scroll the entire canvas. You must scroll the text *within* the canvas, but it only has to scroll forward.
- Regarding punctuation characters: & is not the same as ↑.
- Command completion with the tab key can be tricky if there is more than a single match for the letters typed before pressing tab.
- Be sure to add a .gitignore file so your your IDE configuration files and other messy stuff are excluded from your Git repository.

Submitting  
Your Work

E-mail me the URL to the gh-pages branch of your **private** GitHub repository (remember to add me) for this project (i.e., the link to your OS live on the Internet at [you.github.io](http://you.github.io)). Please send this to me before the beginning of the class in which this is due. Thank you.

```
>help
Commands:
  ver - Displays the current version data
  help - Lists all available commands
  shutdown - Shuts down SvegOS
  cls - Clears the screen
  man <topic> - Displays the manual page for <topic>
  trace <on | off> - Enables/disables the OS trace
  rot13 <string> - Does rot13 encryption on <string>
  quantum <integer> - Changes the CPU quantum
  prompt <string> - Sets the prompt
  date - Displays the current date and time
  whereami - Displays the current location of the user
  status <string> - Sets a status message
  ps - Shows all active processes
  kill <integer> - Terminates the specified process
  load [<priority>] - Loads the specified user program
  \ <regex> <function> - Filters function output
  bsod - Enables the blue screen of death
  run <processid> - Executes a program in memory
  runall - Executes all programs
  create <filename> - Creates the specified file
  read <filename> - Reads the specified file
  write <filename> "data" - Writes the specified file
  delete <filename> - Deletes the specified file
  format - Initializes disk
  ls - Lists all files on disk
```