**Assignment 08 – Marking Scheme**

**General Marking Notes**

* The deadline for grading is Monday, November 25th at 12:00pm (noon).
* If you have any questions email the official marking thread (send it to [cs135-markers@cs.uwaterloo.ca](mailto:cs135-markers@cs.uwaterloo.ca)) with the assignment instructor(s) CC’d (Dan Holtby: djholtby@uwaterloo.ca) so that all ISA’s and TAs can hear about clarifications or changes to the marking scheme.
* Please email [cs135@uwaterloo.ca](mailto:cs135@uwaterloo.ca) when you are finished marking each week. **Include a list of the common errors you encounter**.
* Guidelines from Assignment 07 carry forward.

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| **Global: Helper Functions Outside Local**  Students must encapsulate all helper functions (i.e. functions we did not ask them to write) inside of local.  Errors:   * One helper function was defined outside of local * More than one helper function was defined outside of local |
| **Q3a: Template Function – FSObject**  Template functionsshould look similar to this (there are variations in parameter naming and number of periods per ellipses which can be anywhere from 3 – 6 periods). Note that **order of selector functions does not matter**:    (define (fsobject-template fsobject)  (cond[(file? fsobject)  (... (file-name fsobject) ...  (file-size fsobject) ...  (file-owner fsobject) ...)]  [else (... (dir-name fsobject) ...  (dir-owner fsobject) ...  (listof-fsobject-template  (dir-contents fsobject)) ...)]))  Or  (define (fsobject-template fsobject)  (cond[(dir? fsobject)  (... (dir-name fsobject)) ...  (dir-owner fsobject)...  (listof-fsobject-template  (dir-contents fsobject))...)]  [else (... (file-name fsobject)...  (file-size fsobject)...  (file-owner fsobject) ...)]))  Errors:   * Missing ...s * Template function has more than one parameter * Missing cond * Missing file/dir predicate functions (i.e. (file? fsobject) or (dir? fsobject)) * Missing/incorrect selectors (missing argument, incorrect selector name) * Missing (listof-fsobject-template (dir-contents fsobject)) * Inclusion of non-selector/structure predicate functions (i.e. (make-dir ...), etc.)   Exceptions:   * Students may have dir? or file? instead of else * Students may define a file-template or dir-template and use them in their fsobject-template. In this case it’d just be   [(file? fsobject) (file-template fsobject)]  Or  [(dir? fsobject) (dir-template fsobject)]  Or replace the predicates with else  If students do this, they might enclose their file-template and dir-template with local. This is perfectly acceptable. |
| **Q3a: Template Function – (listof FSObject)**  Template functionsshould look similar to this (there are variations in parameter naming and number of periods per ellipses which can be anywhere from 3 – 6 periods):    (define (listof-fsobject-template lofso)  (cond [(empty? lofso) …]  [else (… (fsobject-template (first lofso)) …  (listof-fsobject-template (rest lofso)) …)]))  Errors:   * Missing …s * Template function has more than one parameter * Missing cond * Missing (empty? lofso) * Missing (first lofso) * Missing (fsobject-template (first lob)) * Missing (rest lofso) * Missing (listof-fsobject-template (rest lofso)) * Using more than 2 conditions   Exceptions:   * It is acceptable for students to use (cons? lofso)instead of else |
| **Q3e, Q3g, Q4b, Q4c: Purpose Statements**  Students should provide purposes for Q3e, Q3g, Q4b, Q4c’s main functions  Correctness Error:   * Missing purpose for the function |
| **Q3e, Q3g, Q4b, Q4c: Contract Correctness**  Correct contracts should be similar to the ones written at the end of this document (not including format).    Select the appropriate rubric level based on how many contracts are correct. Any of the following errors make a contract incorrect:   * Missing contract (or missing function block). * Adding untrue requirements (including restricting “output”) * Incorrect type or incorrect number of types listed (other than the exceptions below)   Exceptions:   * An Int with a requirement that it must be a non-negative number is the same as a Nat (**leave a comment,** but do not deduct any marks) * If students specify unneeded, but true, requirements (for example, a requirement that a Nat must be greater than or equal to 0), **leave a comment,** but do not deduct any marks |
| **Q3e, Q3g, Q4b, Q4c: Examples**  Examples should include 2 - 3 **distinct**(check-expect … …) function calls testing the basic functionality of the code. Students may use the same examples as described in the assignment. |

**Contracts:**

Q3e:

;; remove-empty: FSObject -> FSObject

Q3g:

;; owned-by: FSObject Sym -> (listof (listof Str))

Q4b:

;; remove-tag: HI Sym -> (anyof HI (listof HI))

Q3d:

;; bad-tags?: HI -> Bool

Note:

* If students write (anyof File Dir) instead of FSObject, then please leave an annotation for this but do not deduct rubric levels
* If students write (anyof Str Tag) instead of HI, then please leave an annotation for this but do not deduct rubric levels