**Assignment 06 – Marking Scheme**

**General Marking Notes**

* The deadline for grading is Monday, November 4th at 12:00pm (noon).
* We have to proctor the Midterm on Monday, November 4th, so please finish by the deadline!
* 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 (Adrian Reetz: [adrian.reetz@uwaterloo.ca](mailto:adrian.reetz@uwaterloo.ca)) so that all ISA’s and TA’s can hear about clarifications or changes to the marking scheme.
* Guidelines from Assignment 05 carry forward.

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| **Q1a: Template Function - Inventory**  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 (inventory-template inv)  (... (inventory-blocks inv) ...  (inventory-wood inv) ...  (inventory-sheep inv) ...  (inventory-wheat inv) ...  (inventory-rocks inv) ...))  Major Errors:   * Missing …s (at the beginning of the function body and at the end of the function body) * Template function has more than one parameter * Missing/incorrect selectors (missing argument, incorrect selector name) * Inclusion of non-selectors functions (i.e. (make-inventory…), (inventory? …), (cond …), etc.) |
| **Q1b: Constant Use**  Students should create a constant for the minimum amount of wheat that makes an Inventory valid (names of constants do not have to match the ones below).  Constant that should be defined:   * (define min-wheat 4)   Note: If 4 is not used anywhere in their code, just give them the constant mark. They’ll lose a lot of marks in correctness for this. |
| **Q2c: Helper Function Use**  Students should call the function pr=? and pr<?/pr>? that was created in Q4ai and Q4aii to simplify the solution.  Error:   * pr=? was not used * pr<?/pr>? was not used   Note: If students use member?, or if students end up appending two lists together, using sort-ed on that, and then remove-duplicates, then they will not need to use pr=? and pr<?/pr>?. Give full marks in this case. |

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| **Q3b: Helper Function Use**  Students should call the function eval-goon that was created in Q3a to simplify the solution.  Error:   * eval-goon was not used |
| **Q3c: Helper Function Use**  Students should call the function pick-goon that was created in Q3b to simplify the solution.  Error:   * pick-goon was not used |
| **Q3d: Helper Function Use**  Students should call the function find-difficult-jobs that was created in Q3c to simplify the solution.  Error:   * find-difficult-jobs was not used |
| **Q2c, Q3b, Q3c, Q3d: Purpose Statements**  Students should provide purposes for Q2c, Q3b, Q3c, Q3d’s main functions  Correctness Error:   * Missing purpose for the function |
| **Q2c, Q3b, Q3c, Q3d: Contract Correctness**  Correct contracts should be similar to the ones written at the end of this document (not including format). **Contracts are required for helper functions**.    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). **This includes helper functions** (only deduct one rubric level for all contracts missing in **helper functions**) * 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 |

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| **Q2c, Q3b, Q3c, Q3d: 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.  Error:   * Function contains less than 2 distinct examples |
| **Q2c, Q3b, Q3c, Q3d: Code Complexity**  Slight complexities in code are acceptable. Incorrect code should still be marked for Code Complexity.    Errors:   * Including a cond in the answer part of an else as below:   (cond …  [else (cond …)])   * Using eq?, eqv? or equal? Instead of more specific equality predicates (such as = or string=?)   + Students may use equal? to compare two lists * Using (boolean=? true x), (boolean=? false x),   (boolean=? x true), or (boolean=? x false)   * Code in helper/main function that overly complicate solution (Grader’s judgement) |

**Contracts**

Q2c:

;; merge-ed: ED ED -> ED

Q3b:

;; pick-goon: Gang Job -> (anyof Goon false)

Q3c:

;; find-difficult-jobs: Gang Job-list -> Job-list

Q3d:

;; hire?: Gang Job-List Goon -> Bool

**Note:** Students might use the following data types in their contract instead of the ones given above:

* (listof PR) instead of ED
* (listof Goon) instead of Gang
* (listof Job) instead of Job-List

If this is the case, leave an annotation saying we prefer the data types given in the assignment (will be in the annotations library already) and **do not deduct rubric levels.**