Post-Mortem

CS135 Fall 2024, Midterm

Question 1

Part (a)

- Most students who wrote "no" said the program doesn't know which `c` should be used.
- Some students who wrote "yes" did not mention anything about local/global scope.

Part (b)

- Some students did not provide the correct explanation.
  - Many students chose to define contract and did not mention anything about data types.

Part (c)

- Most students forgot the constructor function and/or predicate function and wrote `n` or `n + 1`.

Question 2

Part (a)

- Some students wrote `(list "yum")` or `(list 135 "yum")`.
- Some few students chose to replace all `cons` with `list`.

Part (d)

- Some students had extra `first` or `rest` or missed one `first` or `rest`.

Part (e)

- Some students did not understand `(cons ... (list ...))` and treat it as `(list ... (list ...))`.
- Some students said `(second mylist1)` will produce an error.

Question 3

Part (b)

- Some students substituted `(+ 2 2)` with `4` for the first step.
- Some students substituted `(symbol? "true")` with `false` before removing the `else`.
- Some students assumed `(symbol? "true")` would produce an error.

Part (c)

- Many students substituted `(or true false)` as `true` before short circuiting.

Question 4

Part (a)

- Some students did not check if the first and second element in the list existed before checking if the list is empty after the second element.
- Some students forgot to check if there are no more elements in the list after checking the first two.
- Some students did not use `and` correctly.

Part (b)

- Many students forgot to check the data type before processing the value.
- Many students did not check if the list contains only 1 element.

Part (c)

- Many students did not have the correct base case in their helper function that constructs a list.
- Some students neglected to write a helper for their helper function.
- Some students did not correctly construct a list with the first element of the consumed list.

Question 5

Part (a)

- Many students did not specify that the Sym is one of three possible colours.
- Some students missed that decimals could be used for the size.
- Some students did not use proper type names.
- Some students had too many cases in the `cond`; there should be only two.
- Some students put their structure selector functions in a `cond`.
- Few students missed the requirement that the size is greater than zero (0).

Part (b)

- Many students forgot or neglected to include the template contract.
- Some students missed the base case or recursive case.
- Some students did not correctly apply the structure selector functions to extract each field of the pumpkin.

Part (c)

- Many students used `string=?` to check more than 2 strings.
- Many students did not use proper syntax for accessor functions.
- Many students who used helper functions did not call them correctly.
- Some students did not use `abs` or `cond` to determine the difference in pumpkin size.
- Some students did not directly check that `(pumpkin-desc p1)` was uncarved.

Part (d)

- Many students did not write the correct produced type: missing `anyof`, `(listof Pumpkin)` instead of `(list Pumpkin Pumpkin)`, forgetting false.
- Some students returned `true` instead of a list of length 2.
- Some students had incorrect or missing brackets in contract.

Part (e)

- Many students did not include an else clause.
- Some students use `first` or `second` instead of selector functions.
- Some students had two helper functions that are doing the same thing.
- Some students did not count the uncarved pumpkin and their denominator is just the number of pumpkins of the same colour minus the given description.

Question 6

Part (a)

- Many students had an extra case checking equal times.
- Many students had incorrect base case answer.
  - Some students forgot to put OH into a list in base case answer.
  - Some students wrote `empty` as the base case answer.
- Some students had incorrect recursive call.
  - Some students forgot `(cons (first looh) ...` before their recursive call.
  - Some students forgot to write the empty in `(cons ... empty)`.
- Some students used `number=?` to compare two numbers.
- Some students used `(list empty)` where just `empty` was needed.
- Some students used `number=?` instead of just `<` or `=`.

Part (b)

- Some students chose two or more tests that tested the same thing, eg several tests inserting a new office hour at the same time as an existing office hour.
- Some students did not write a correct description for the tests chosen.