



AP[®] Computer Science A 2004 Scoring Guidelines

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Question 1

Part A:	numWordsOfLength	4 pts
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- +1/2 declare and initialize count to zero (could be an empty list, length = 0)
(must show evidence that variable is used for counting or returned)

- +1 loop over myList
 - +1/2 attempt (must reference myList in body)
 - +1/2 correct

- +1/2 get String from myList (no deduction for missing downcast but local must be String)
(lose this if array syntax used)

- +1 check length of String
 - +1/2 attempt (must be in context of loop)
 - +1/2 correct (array syntax is OK)

- +1/2 increment count (must be within context of length check)
(lose this if count does not accumulate)

- +1/2 return correct count (after loop is completed)

Part B:	removeWordsOfLength	5 pts
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- +2 loop over myList
 - +1 attempt (must reference myList in body)
 - +1 correct (must have attempt at removal, must not skip items)

- +1 get String from myList (no deduction for missing downcast, but local must be String)
 - +1/2 attempt (must be in context of loop, array syntax is OK)
 - +1/2 correct (no array syntax)

- +1 check length of String
 - +1/2 attempt (must be in context of loop)
 - +1/2 correct (array syntax is OK)

- +1 remove
 - +1/2 attempt (must call remove, must refer to myList or an index of an element in myList)
 - +1/2 correct (no array syntax)

Usage:

- 1/2 for WordList instead of myList
- 1/2 for returning a value in part B
- 1 for using this instead of myList, can lose in part A and again in part B (for max of -2)

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Question 2

Part A:	class Cat	2 pts
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- +1/2 public class Cat extends Pet
- +1/2 Constructor correct (must call super)
- +1 speak method
 - +1/2 attempt (method header matches abstract method, OK if abstract left in)
 - +1/2 correct

Part B:	class LoudDog	3 pts
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- +1/2 public class LoudDog extends Dog
- +1 Constructor correct (must call super)
- +1 1/2 speak method
 - +1 attempt (calls super.speak() *and* method header matches abstract method, OK if abstract left in)
 - +1/2 correct value returned

Part C:	Kennel - allSpeak	4 pts
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- +1 loop over petList
 - +1/2 attempt
 - +1/2 correct (must access petList)
- +1 1/2 get pet from petList (no deduction for missing downcast from petList)
 - +1/2 attempt
 - +1 correct (local variable must be type Pet)
- +1 1/2 print p.getName() and p.speak() for pet p (local variable not necessary)
 - +1/2 attempt (must have xxx.getName() or xxx.speak(), for some xxx)
 - +1 correct

Note: if done in-line with no local, no deduction for missing downcast.

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- Usage:
- 1/2 public instance variable
 - 1 parent class name instead of super
 - 1/2 getName is overridden (other than super.getName) in part (a) and/or part (b)

(No deduction for other additional methods or constructors.)

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Question 3

Part A:	numUnder	3 pts
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- +1 1/2 calculate total fish needed in the pond
 - +1/2 attempt (must have calculation involving minDensity and either numRows or numCols)
 - +1 correct (must round up; double is OK if fixed later)

- +1 1/2 return number of fish to add to the pond
 - (a) zero when no fish should be added
 - (b) number of fish to be added when positive
 - +1/2 attempt –must correctly return (a) or (b) (OK without conditional), **or** attempt to return (a) or (b) with condition involving minDensity
 - +1/2 correct (OK even when total fish needed in pond is incorrect)
 - +1/2 type returned is correct (int)

Part B:	randomLocation	3 pts
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- +1 get instance of Random
 - +1/2 attempt (Math.random or Random r = new Random gets this 1/2 point)
 - +1/2 correct (uses RandomGenerator.getInstance())

- +1 generate random row and column in correct range
 - +1/2 attempt (must use some aspects of Random and env/loc)
 - +1/2 correct (must have instance of Random or correct use of Math.random) (lose this 1/2 if erroneous check for empty location is included)

- +1 create and return location
 - +1/2 attempt (uses a Location object)
 - +1/2 correct

Part C:	addFish	3 pts
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- +1 loop until correct numToAdd have been added
 - +1/2 attempt
 - +1/2 correct

- +1 generate random location until empty one is found
 - +1/2 attempt (must call randomLocation within loop for adding fish, must attempt to check if empty)
 - +1/2 correct

- +1 create fish at this location (note: no local Fish variable is needed)
 - +1/2 attempt (Fish(loc) or generateChild(loc) gets this 1/2)
 - +1/2 correct (lose this 1/2 for adding twice, e.g., theEnv.add(new Fish(...)))

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Question 4

Part A:	forwardMoveBlocked	1 pt
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- +1 return boolean
- +1/2 check a dir/pos pair
- +1/2 correct

Part B:	move	5 pts
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- +1 check for item(s) on current tile and remove one
 - +1/2 attempt on current tile (might try to remove all items)
 - +1/2 correct

- +1 1/2 check required conditions in context of attempt to move/turn (body of each check must refer to pos or facingRight)
 - +1 separate check for empty tile (e.g., not in ELSE)
 - +1/2 check forwardMoveBlocked

- +1 change direction (set direction to some value relative to current direction)
 - +1/2 toggle value
 - +1/2 if and only if originally blocked

- +1 1/2 move (set position to value(s) relative to current position)
 - +1/2 attempt 2 directions (change position, not value at position)
 - +1/2 move 1 tile in proper direction
 - +1/2 if and only if originally not blocked

Part C:	clearHall	3 pts
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- +1/2 declare and initialize counter (must have some extra context relevant to counting)

- +1 loop until done
 - +1/2 call to hallIsClear in loop
 - +1/2 correct

- +1 robot action (in context of a loop)
 - +1/2 call move
 - +1/2 correctly determine number of times move is called

- +1/2 always return number of times move is called (no credit for returning 0 with no call to move in code)