EEN218
Second Happy Little Testlet
18th November 2010

Puppies Strictly Forbidden

Who are you ? _____

What is your student number? _____

"I have neither given nor accepted any aid in this examination": Sign

_____

Make no marks in these boxes			
Question	5	6	7
Value	49%	49%	2%
Score			

5.

By “vector”, I mean an object that acts as an array which can change size whenever necessary. By “vector of strings”, I mean a vector that can store many strings, not a vector that behaves like a single string.

Vectors are not necessarily always full. It is quite reasonable for a vector to have some extra capacity, so that a number of new items may be added to it before it has to be resized.

A.

What members (data items) should a class or struct representing a vector of strings have?
Write their declarations exactly as they would appear.

B.

What are the necessary steps in the method for adding a new string?

C.

Write the class or struct definition in correct C++, including a constructor and a method for adding a new string to the vector.

6.

In Idaho, there is a special facility for de-magnetising circus animals. When a lion or seal or clown starts attracting iron or steel too strongly, the circus manager takes them in, they are processed, and a few minutes later come out completely non-magnetic.

Unfortunately, the process does take some time, and the processing facility operates on a first-come-first-served basis: no appointments. They are very fair, and want to make sure that animals are de-magnetised in the order of their arrival.

You are to provide the necessary software. On arrival at the facility, each animal's details (name, species, and weight) are to be added to the end of a linked list. Every time the facility is ready to process another animal, the first entry will be removed from the front of the linked list, and the animal it describes will get its turn.

Write the structs (or classes) and methods necessary to implement a linked list of circus animals as described, allowing new entries only to be added to the end, and existing entries only to be removed from the beginning.

A test-run of the software might be something like this:

```
AnimaList queue;
queue.add(new animal("Lenny", "lion", 320));
queue.add(new animal("Sammy", "seal", 135));
queue.add(new animal("Quacky, "puppy-eating duck", 5));
animal * p1 = queue.remove();
animal * p2 = queue.remove();
queue.add(new animal("Timmy", "tiger", 251));
animal * p3 = queue.remove();
queue.add(new animal("Rosie", "pony", 260));
queue.add(new animal("Geoffrey", "georaffe", 1326));
animal * p4 = queue.remove();
```

This would result in p1 holding Lenny the lion, p2 holding Sammy the seal, p3 holding Quacky the duck, and p4 holding Timmy the tiger.

7.

Draw a poor quality picture of one of the animals from question 6.