CSE 101
Winter 2022
Quiz 1 **Solutions**

1. (25 Points) Using only the List ADT operations defined in the project description for pa1 (pages 2-3), write a client function with the heading

```
bool isPalindrome(List L)
```

Your function will return `true` if the integer sequence represented by *L* is a palindrome (i.e. is identical to its own reversal), and will return `false` if *L* is not a palindrome.

One of several possible solutions:

```
bool isPalindrome(List L){

   bool eq;
   List R = newList();
   for(moveFront(L); index(L)>=0; moveNext(L)){
      prepend(R, get(L));
   }
   eq = equals(L, R);
   freeList(&R);

   return eq;
}
```

Another solution:

```
bool isPalindrome(List L){

   bool eq = true;
   List C = copyList(L);
   while( eq && length(C)>1 ){
      eq = ( front(C)==back(C) );
      deleteFront(C);
      deleteBack(C);
   }
   freeList(&C);

   return eq;
}
```

2. (25 Points) Using only the List ADT operations defined in the project description for pa1 (pages 2-3), write a client function with the heading

```
void Replace(List L, int x, int y)
```

Your function will replace the first (i.e. closest to front) occurrence of x in L with y. If x is not in L, your function will make no changes to the integer sequence in L.

One of several possible solutions:

```
void Replace(List L, int x, int y){

   for(moveFront(L); index(L)>=0; moveNext(L)){
      if( get(L)==x ){
         insertBefore(L, y);
         delete(L);
         break;  // will work without break
      }
   }
}
```