ELEC 278 Week 1 Problems

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Problem 1. In the following C program, identify the scope of the variables `x` and `ptr`, and describe how their lifetimes relate. Does this program have an object lifetime bug? How do you know?

```c
void test(int *ptr) {
  *ptr += 7;
}

int main() {
  int x = 0;
  test(&x);
  printf("%d\n", x);
}
```

Problem 2. In the attached file `week1p2.c`, there is a simple program built from the tax form example. Complete it with some code to print out the form contents in a human-readable way.

Problem 3. The attached file `week1p3.c` contains the complete linked list example from the slides. Using a combination of the algorithms developed for `append` and `remove_front`, fill in the new function `remove_back` to remove from the back of the list instead of the front, and modify `main` to use that function to print the list in reverse order.