Homework 1

Do homework problems 2.62, 2.72, 2.73, and 2.82 from Bryant & O'Hallaron 3rd edition, with the following additions:

- Check your 2.62 solution with both `gcc -m32` and `gcc -m64` on SEASnet.
- In problem 2.82, also analyze the following expressions:

    F.

    ```
    x >> 1 == (ux >> 1) + (ux & (-1 << 31))
    ```
    G.

    ```
    x % 128 == (x & 127)
    ```

- Redo problem 2.73, this time using a call to the `__builtin_add_overflow_p` function available in GCC 7 and later; the third argument of the call should be a cast that consists of a parenthesized type followed by the constant `0`. In other respects your function should continue to follow the bit-level integer coding rules.

Submit your homework answers as a gzipped tarball containing your answers to each problem, in the files `hw1/2.62.c`, `hw1/2.72.txt`, `hw1/2.73.c`, `hw1/2.82.txt`, and `hw1/2.73-redo.c` respectively. The `.txt` files should be plain ASCII text files with lines terminated by LF. The `.c` files should compile cleanly with shell commands like this:

```
gcc -m32 -fwrapv -O2 -Wall -Wextra -S hw1/2.73.c
```

As we will grade your submission with the latest version of GCC installed in `/usr/local/cs/bin/` on the newer SEASnet GNU/Linux servers (`lnxsrv06`, `lnxsrv07`, and `lnxsrv09`), using the flags shown above, it would be wise to check your work on that platform. The shell command '`gcc --version`' should output '`gcc (GCC) 7.2.0`' or later.

To create your tarball, use the shell command:

```
tar -czf hw1.tar.gz hw1/2.62.c hw1/2.72.txt hw1/2.73.c hw1/2.82.txt hw1/2.73-redo.c
```

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