


```
29     printLine(78, cout);
30     cout << setw(76) << "33222222222211111111110000000000" << endl;
31     cout << "   Age      Grade    Sex   GPA    Compress   "
32           << "10987654321098765432109876543210" << endl;
33     printLine(78, cout);
34
35     while (cin >> info)
36     {
37         decompress(info, age, grade, sex, GPA);
38         cout << setw(5) << age << setw(8) << grade << setw(7) << sex
39              << setw(8) << GPA << setw(11) << info << setw(5) << " "
40              << bitset<N>(info) << endl;
41     }
42
43     printLine(78, cout);
44
45     return EXIT_SUCCESS;
46 }
47
48 void printLine(int length, ostream& os)
49 {
50     char ch = os.fill();
51     os << setfill(' ') << setw(length) << "-" << setfill(ch) << endl;
52 }
```

Figure 1. /usr/local/1362/src/lab29main.C (Part 2 of 2)

```

1 newuser@csnew ~> cd 1362
2 newuser@csnew ~/1362> mkdir 29
3 newuser@csnew ~/1362> cd 29
4 newuser@csnew ~/1362/29> cp /usr/local/1362/src/data/29/* .
5 newuser@csnew ~/1362/29> cp /usr/local/1362/src/lab29main.C .
6 newuser@csnew ~/1362/29> cp /usr/local/1362/src/Makefile .
7 newuser@csnew ~/1362/29> touch lab29.cpp
8 newuser@csnew ~/1362/29> make lab29
9 g++ -g -Wall -c lab29main.C -I/usr/local/1362/include -I.
10 g++ -g -Wall -c lab29.cpp -I/usr/local/1362/include -I.
11 g++ -o lab29 lab29main.o lab29.o -L/usr/local/1362/lib -lm -lbits
12 newuser@csnew ~/1362/29> cat 01.dat
13 12736 9 64696 60199 55958
14 newuser@csnew ~/1362/29> cat 01.dat | lab29
15 -----
16                                     33222222222211111111110000000000
17   Age   Grade   Sex   GPA   Compress 10987654321098765432109876543210
18 -----
19       6       1     M   4.0   12736 00000000000000000011000111000000
20       3       0     F   0.9       9 00000000000000000000000000001001
21      18      12     M   3.8   64696 000000000000000001111110010111000
22      17      11     F   2.7   60199 000000000000000001110101100100111
23      16      10     M   1.6   55958 000000000000000001101101010010110
24 -----
25 newuser@csnew ~/1362/29> cat 01.dat | lab29 > my.out
26 newuser@csnew ~/1362/29> diff 01.out my.out
27 newuser@csnew ~/1362/29>

```

Figure 2. Commands to Compile, Link, & Run Lab 29