The code in the box on the right is a program that shows an example of the desired formatting that is expected in this class. The boxes on the left side show variations of the same program, most are examples of what *NOT* to do. There is some room for personal style, and sometimes consistency is what is important. In some cases, though, certain things are just not allowed. For example, some instructors insist on a space before and after every math or comparison operator, such as: `count > 0;` instead of `count>0;` – – Personally, I like to have spaces before and after, but that's the type of thing where consistency is more important (I think) – so, if you are consistent with no spaces all the way through, then I let that go. Same with curly braces – I prefer to have my opening curly brace at the end of the opening line, not on the next line, but if you consistently put them on the next line, then that's ok. An example of something that is not allowed ever is when lines exceed 80 characters (which includes the leading indentation spaces).

No indentation, no comments, no header comment, no blank lines

Below is the same program as in the box to the right, but without any indentation, comments, or blank lines to break up groups of lines for readability. It's not very often that I get assignments turned in that look this bad, but once in a while, some look almost as bad as this. *You will lose up to 25 points* if this is what your code looks like *even if your program works perfectly*. If your program doesn't work perfectly and your code looks like this – I probably won't even try to look at the code to see if I can figure out why it's not working perfectly.

```
#include <stdio.h>
int main(void) {
int a = 100, b = 2, c = 25, d = 4;
int input, result;
printf("The following will show some simple math and "_);
printf("precedence rules:\n");
result = a - b;
printf ("a - b = %i \n", result);
result = b * c;
printf ("b * c = %i \n", result);
result = a / c;
printf ("a / c = %i \n", result);
result = a + b * c;
printf ("a + b * c = %i \n", result);
printf("The following will show some simple math using an integer that
you provide.\n\n");
printf("\n\nEnter an integer (other than 0):  ");
scanf("%i", &input);
if( input > 20 ) {
printf("\n\nShowing addition and subtraction with input greater than
20:\n");
printf ("a + %i = %i \n", input, result);
printf ("b - %i = %i \n", input, result); }
else {
printf("\n\nShowing multiplication and division with input less than
or equal to 20:\n");
printf ("c * %i = %i \n", input, result);
printf ("d / %i = %i \n", input, result); }
return 0; }
```

```
/* ---------------------------------------------------------- */
/* Program 3.2, page 31, 4th edition of Kochan book           */
/*    modified to show different formatting requirements      */
/* ---------------------------------------------------------- */

#include <stdio.h>

int main(void) {

   // variables
   int a = 100, b = 2, c = 25, d = 4;
   int input, result;

   // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");

   result = a - b;
   printf ("a - b = %i \n", result);

   result = b * c;
   printf ("b * c = %i \n", result);

   result = a / c;
   printf ("a / c = %i \n", result);

   result = a + b * c;
   printf ("a + b * c = %i \n", result);

   // math operations using user input
   printf("The following will show some simple math using an \
      integer that you provide.\n\n");
   printf("\n\nEnter an integer (other than 0):  ");
   scanf("%i", &input);

   if( input > 20 ) {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
   }
   else {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      printf ("d / %i = %i \n", input, result);
   }

   return 0;
}
```

Lines that exceed 80 characters are one of the most common formatting errors and point deductions on assignments for students (*-5 points for having lines that exceed 80 characters*). Print statements and comments are common places where students make this formatting error.

The print statement below shows what it looks like when a line exceeds a certain number of characters. Because of the size of these text boxes to get the code to fit on these pages, these lines are probably not 80 characters per line, but you can see what it looks like when it does exceed a certain number of characters – it wraps around to the next line.

```
   // simple math operations
   printf("The following will show some simple math and precedence
rules:\n");
```

The code to the right shows one way to fix this: split up the print statement into 2 (or more) print statements.

Another way to fix this problem is to use a backslash at the end of each line and continue your print statement on the following line(s). The remaining portion of the program is shown below, with this second solution shown to the right.

NOTE: *For the sake of consistency, I would not mix both of those solutions on any one single print statement.*

```
// math operations using user input
   printf("The following will show some simple math using an integer
that you provide.\n\n");
   printf("\n\nEnter an integer (other than 0):  ");
   scanf("%i", &input);

   if( input > 20 ) {
      printf("\n\nShowing addition and subtraction with input greater
than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
   }
   else {
      printf("\n\nShowing multiplication and division with input less
than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      printf ("d / %i = %i \n", input, result);
   }

   return 0;
}
```

```
/* ------------------------------------------------------ */
/* Program 3.2, page 31                                   */
/*    modified to show different formatting requirements  */
/* ------------------------------------------------------ */

#include <stdio.h>

int main(void) {

   // variables
   int a = 100, b = 2, c = 25, d = 4;
   int input, result;

   // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");

   result = a - b;
   printf ("a - b = %i \n", result);

   result = b * c;
   printf ("b * c = %i \n", result);

   result = a / c;
   printf ("a / c = %i \n", result);

   result = a + b * c;
   printf ("a + b * c = %i \n", result);

   // math operations using user input
   printf("The following will show some simple math using an \
      integer that you provide.\n\n");
   printf("\n\nEnter an integer (other than 0):  ");
   scanf("%i", &input);

   if( input > 20 ) {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
   }
   else {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      printf ("d / %i = %i \n", input, result);
   }

   return 0;
}
```

Opening curly brace location

The code below shows the placement of the opening curly braces on the next lines. It is consistent throughout the program, **so this example is perfectly fine**. When it is not consistent – sometimes on the same line and sometimes on the next line, sometimes indented and sometimes not indented – that is when it doesn't look good. The next page shows an example where the opening and closing curly braces are all kinds of inconsistent (*-5 points for code that looks like the example on the next page*).

```
/* ---------------------------------------------------------- */
/* Program 3.2, page 31                                       */
/*    modified to show different formatting requirements      */
/* ---------------------------------------------------------- */

#include <stdio.h>

int main(void)
{

   // variables
   int a = 100, b = 2, c = 25, d = 4;
   int input, result;

   // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");

   // took out some code here




   if( input > 20 )
   {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
   }
   else
   {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      printf ("d / %i = %i \n", input, result);
   }

   return 0;
}
```

```
/* ---------------------------------------------------------- */
/* Program 3.2, page 31                                       */
/*    modified to show different formatting requirements      */
/* ---------------------------------------------------------- */

#include <stdio.h>

int main(void) {

   // variables
   int a = 100, b = 2, c = 25, d = 4;
   int input, result;

   // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");

   result = a - b;
   printf ("a - b = %i \n", result);

   result = b * c;
   printf ("b * c = %i \n", result);

   result = a / c;
   printf ("a / c = %i \n", result);

   result = a + b * c;
   printf ("a + b * c = %i \n", result);

   // math operations using user input
   printf("The following will show some simple math using an \
      integer that you provide.\n\n");
   printf("\n\nEnter an integer (other than 0):  ");
   scanf("%i", &input);

   if( input > 20 ) {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
   }
   else {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      printf ("d / %i = %i \n", input, result);
   }

   return 0;
}
```

Curly brace location

-5 points for code that has inconsistent open and closing curly brace placement.

```
/* ---------------------------------------------------------- */
/* Program 3.2, page 31                                       */
/*    modified to show different formatting requirements      */
/* ---------------------------------------------------------- */

#include <stdio.h>

int main(void)
   {

   // variables
   int a = 100, b = 2, c = 25, d = 4;
   int input, result;

   // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");



   // took out some code here



   if( input > 20 )
   {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
      }
   else {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      printf ("d / %i = %i \n", input, result);
   }

   return 0;
}
```

```
/* ---------------------------------------------------------- */
/* Program 3.2, page 31                                       */
/*    modified to show different formatting requirements      */
/* ---------------------------------------------------------- */

#include <stdio.h>

int main(void) {

   // variables
   int a = 100, b = 2, c = 25, d = 4;
   int input, result;

   // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");

   result = a - b;
   printf ("a - b = %i \n", result);

   result = b * c;
   printf ("b * c = %i \n", result);

   result = a / c;
   printf ("a / c = %i \n", result);

   result = a + b * c;
   printf ("a + b * c = %i \n", result);

   // math operations using user input
   printf("The following will show some simple math using an \
      integer that you provide.\n\n");
   printf("\n\nEnter an integer (other than 0):  ");
   scanf("%i", &input);

   if( input > 20 ) {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
   }
   else {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      printf ("d / %i = %i \n", input, result);
   }

   return 0;
}
```

Inconsistent indentation

-5 points for code that has inconsistent indentation.

```
/* ---------------------------------------------------------- */
/* Program 3.2, page 31                                       */
/*    modified to show different formatting requirements      */
/* ---------------------------------------------------------- */

#include <stdio.h>

int main(void) {

// variables
int a = 100, b = 2, c = 25, d = 4;
   int input, result;

        // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");

result = a - b;
printf ("a - b = %i \n", result);

result = b * c;
printf ("b * c = %i \n", result);

   result = a / c;
   printf ("a / c = %i \n", result);

   result = a + b * c;
   printf ("a + b * c = %i \n", result);

// math operations using user input
   printf("The following will show some simple math using an \
      integer that you provide.\n\n");
      printf("\n\nEnter an integer (other than 0):  ");
      scanf("%i", &input);
      if( input > 20 ) {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
         printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
      }
   else {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
         printf ("c * %i = %i \n", input, result);
         printf ("d / %i = %i \n", input, result);
   }

return 0;
}
```

```
/* ---------------------------------------------------------- */
/* Program 3.2, page 31                                       */
/*    modified to show different formatting requirements      */
/* ---------------------------------------------------------- */

#include <stdio.h>

int main(void) {

   // variables
   int a = 100, b = 2, c = 25, d = 4;
   int input, result;

   // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");

   result = a - b;
   printf ("a - b = %i \n", result);

   result = b * c;
   printf ("b * c = %i \n", result);

   result = a / c;
   printf ("a / c = %i \n", result);

   result = a + b * c;
   printf ("a + b * c = %i \n", result);

   // math operations using user input
   printf("The following will show some simple math using an \
      integer that you provide.\n\n");
   printf("\n\nEnter an integer (other than 0):  ");
   scanf("%i", &input);

   if( input > 20 ) {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
   }
   else {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      printf ("d / %i = %i \n", input, result);
   }

   return 0;
}
```

Overuse of commenting and/or comments to the right of the statement .

```
#include <stdio.h>

int main(void) {

   // initialized variables    *** could just say variables, or not
                                   even needed
   int a = 100, b = 2, c = 25, d = 4;
   int input, result;  // other variables    *** to the right & not
                                                 needed

   // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");
   // subtraction    ***  not needed
   result = a - b;
   printf ("a - b = %i \n", result);
   // multiplication    ***  not needed
   result = b * c;
   printf ("b * c = %i \n", result);
   // division    ***  not needed
   result = a / c;
   printf ("a / c = %i \n", result);
   // precedence    *** probably not needed unless you want to point
                        out that this is the line that shows precedence
   result = a + b * c;
   printf ("a + b * c = %i \n", result);

   // math operations using user input
   printf("The following will show some simple math using an \
      integer that you provide.\n\n");
   // ask user for input    ***  not needed, obvious
   printf("\n\nEnter an integer (other than 0):  ");
   // scan the input and store into the variable    ***  obvious
   scanf("%i", &input);

   // if statement    *** not needed, obvious
   if( input > 20 ) {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
   }
   else {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      printf ("d / %i = %i \n", input, result);
   } // end of if statement    *** not needed

   return 0;

}  // end of main function    ***  not needed
```

```
/* ---------------------------------------------------- */
/* Program 3.2, page 31                                 */
/*    modified to show different formatting requirements   */
/* ---------------------------------------------------- */

#include <stdio.h>

int main(void) {

   // variables
   int a = 100, b = 2, c = 25, d = 4;
   int input, result;

   // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");

   result = a - b;
   printf ("a - b = %i \n", result);

   result = b * c;
   printf ("b * c = %i \n", result);

   result = a / c;
   printf ("a / c = %i \n", result);

   result = a + b * c;
   printf ("a + b * c = %i \n", result);

   // math operations using user input
   printf("The following will show some simple math using an \
      integer that you provide.\n\n");
   printf("\n\nEnter an integer (other than 0):  ");
   scanf("%i", &input);

   if( input > 20 ) {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
   }
   else {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      printf ("d / %i = %i \n", input, result);
   }

   return 0;
}
```

Global variables and/or variables not declared at the top of the function. It is harder to see the variables being used when they are scattered all over the place.

```
/* ---------------------------------------------------------- */
/* Program 3.2, page 31                                       */
/*    modified to show different formatting requirements      */
/* ---------------------------------------------------------- */

#include <stdio.h>
int result;

int main(void) {

   // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");
   int a = 100, b = 2;
   result = a - b;
   printf ("a - b = %i \n", result);
   int c = 25;
   result = b * c;
   printf ("b * c = %i \n", result);

   result = a / c;
   printf ("a / c = %i \n", result);

   result = a + b * c;
   printf ("a + b * c = %i \n", result);

   // math operations using user input
   printf("The following will show some simple math using an \
      integer that you provide.\n\n");
   printf("\n\nEnter an integer (other than 0):  ");
   int input;
   scanf("%i", &input);

   if( input > 20 ) {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
   }
   else {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      int d = 4;
      printf ("d / %i = %i \n", input, result);
   }

   return 0;
}
```

```
/* ---------------------------------------------------------- */
/* Program 3.2, page 31                                       */
/*    modified to show different formatting requirements      */
/* ---------------------------------------------------------- */

#include <stdio.h>

int main(void) {

   // variables
   int a = 100, b = 2, c = 25, d = 4;
   int input, result;

   // simple math operations
   printf("The following will show some simple math and "_);
   printf("precedence rules:\n");

   result = a - b;
   printf ("a - b = %i \n", result);

   result = b * c;
   printf ("b * c = %i \n", result);

   result = a / c;
   printf ("a / c = %i \n", result);

   result = a + b * c;
   printf ("a + b * c = %i \n", result);

   // math operations using user input
   printf("The following will show some simple math using an \
      integer that you provide.\n\n");
   printf("\n\nEnter an integer (other than 0):  ");
   scanf("%i", &input);

   if( input > 20 ) {
      printf("\n\nShowing addition and subtraction with input \
         greater than 20:\n");
      printf ("a + %i = %i \n", input, result);
      printf ("b - %i = %i \n", input, result);
   }
   else {
      printf("\n\nShowing multiplication and division with \
         input less than or equal to 20:\n");
      printf ("c * %i = %i \n", input, result);
      printf ("d / %i = %i \n", input, result);
   }

   return 0;
}
```