Commenting compound statements such as if blocks is somewhat more complicated than commenting simple statements such as printf statements.

(1) In the event that the if block has only an if clause, and no other clauses, then this is an example of the appropriate form:

```c
/*
 * Idiotproof Stitch’s mood.
 */
if ((Stitch_mood != loving_mood) &&
   (Stitch_mood != rotten_mood)) {
    /*
     * Output error message for invalid mood.
     */
    printf("ERROR: unrecognized Stitch mood %d\n", Stitch_mood);
    printf(" (must be %d or %d).\n", loving_mood, rotten_mood);
    /*
     * Exit the program.
     */
    exit(program_failure_code);
} /* if ((Stitch_mood != loving_mood) && ...) */
```

Notice:

- The comment preceding the entire if block describes the purpose of the if block as a whole.
- The block close of the if block is immediately followed, on the same line, by:
  - a single space, followed by
  - the comment open delimiter, followed by
  - a single space, followed by
  - the entire if statement, EXCLUDING the block open, followed by
  - the comment close delimiter.
- The comment on the same line as the block close is ABSOLUTELY FORBIDDEN to continue on to the next line.
- In the event that the if condition is very long, then in the comment on the associated block close line, you can use the first part of the condition, followed by an ellipsis (three periods).
- The comments for the statements inside the if clause are indented farther, so that the asterisk at the beginning of each line of the comment lines up with the statement that the comment describes.
- There is no comment immediately preceding each block close, because block closes are not statements.
(2) In the event that the if block has both an if clause and an else clause, but no other clauses:

```c
/*
 * Output Stitch’s response to the user saying "Aloha."
 */
if (Stitch_mood == loving_mood) {
  /*
   * Output Stitch’s loving response to the user saying "Aloha."
   */
  printf("Stitch: Aloha.\n");
} /* if (Stitch_mood == loving_mood) */
else {
  /*
   * Output Stitch’s rotten response to the user saying "Aloha."
   */
  printf("Stitch: What do you want?\n");
} /* if (Stitch_mood == loving_mood)...else */
```

Notice that, in addition to the properties of just an if clause, above:

- The comment preceding the entire if block describes the purpose of the if block as a whole, not just the purpose of the if clause.
- There is no comment immediately preceding the else statement.
- The else statement is immediately followed, on the same line, only by a blank space and then the block open.
- The block close for the else statement is immediately followed, on the same line, by:
  - a single space, followed by
  - the comment open delimiter, followed by
  - a single space, followed by
  - the entire if statement, **EXCLUDING** the block open, followed by
  - three periods (that is, an ellipsis), followed by
  - the keyword else, to indicate that this is the end of the else clause, followed by
  - the comment close delimiter.
- Again, the comment on the same line as the block close is **ABSOLUTELY FORBIDDEN** to continue on to the next line.
- Again, in the event that the if condition is very long, then in the comment on the associated block close line of the else clause (that is, the final block close of that if block), you can use the first part of the condition, followed by an ellipsis (three periods).
- Again, the comments for the statements inside the else clause are indented farther, so that the asterisk at the beginning of each line of the comment lines up with the statement that the comment describes.
- Again, there is no comment immediately preceding each block close, because block closes are not statements.
(3) In the event that the if block has both an if clause and one or more else if clauses, but no else clause:

```c
/*
 * Output Stitch’s response to the input, or the menu.
 */
if (user_code == help_code) {
    /*
     * Output the menu of possible inputs.
     */
    printf("Menu of Stitch’s phrases:\n");
    printf("%2d: [This help menu.]\n", help_code);
    printf("%2d: I love you.\n", I_love_you_code);
    printf("%2d: You’re rotten!\n", youre_rotten_code);
    printf("%2d: Aloha, Stitch.\n", aloha_code);
    printf("%2d: Ohana.\n", ohana_code);
    printf("%2d: Will you play?\n", will_you_play_code);
    printf("%2d: Are you hurt?\n", are_you_hurt_code);
    printf("%2d: Go to sleep.\n", go_to_sleep_code);
} /* if (user_code == help_code) */
else if (user_code == I_love_you_code) {
    /*
     * Output Stitch’s response to being told "I love you."
     */
    printf("User: I love you.\n");
    printf("Stitch: I love you too.\n");
    /*
     * Set Stitch’s mood to loving.
     */
    Stitch_mood = loving_mood;
} /* if (user_code == I_love_you_code) */
else if (user_code == youre_rotten_code) {
    /*
     * Output Stitch’s response to being told "You’re rotten."
     */
    printf("User: You’re rotten.\n");
    printf("Stitch: Ahh ha ha ha ha!\n");
    /*
     * Set Stitch’s mood to rotten.
     */
    Stitch_mood = rotten_mood;
} /* if (user_code == youre_rotten_code) */
```

Notice that, in addition to the properties of just an if clause, above:

- Again, the comment preceding the entire if block describes the purpose of the if block as a whole, not just the purpose of one of the if block’s individual clauses.
- There is no comment immediately preceding any of the else if statements.
- The condition in the comment immediately following and on the same line as each else if clause’s block close is the condition of the associated else if statement.
- The comment following, and on the same line as, each clause’s block close DOESN’T include the keyword else.
- Again, the comment on the same line as the block close is **ABSOLUTELY FORBIDDEN** to continue on to the next line.
- Again, in the event that the `if` condition or an `else if` condition is very long, then in the comment on the associated block close line of that clause, you can use the first part of the condition, followed by an ellipsis (three periods).
- Again, the comments for the statements inside the `else if` clause are indented farther, so that the asterisk at the beginning of each line of the comment lines up with the statement that the comment describes.
- Again, there is no comment immediately preceding each block close, because block closes are not statements.
(4) In the event that the `if` block has an `if` clause, one or more `else if` clauses, as well as an `else` clause:

```c
/*
* Output Stitch’s response to the input, or the menu.
*/
if (user_code == help_code) {
  /*
  * Output the menu of possible inputs.
  */
  printf("Menu of Stitch’s phrases:\n");
  printf("%2d: [This help menu.]\n", help_code);
  printf("%2d: I love you.\n", I_love_you_code);
  printf("%2d: You’re rotten!\n", youre_rotten_code);
  printf("%2d: Aloha, Stitch.\n", aloha_code);
  printf("%2d: Ohana.\n", ohana_code);
  printf("%2d: Will you play?\n", will_you_play_code);
  printf("%2d: Are you hurt?\n", are_you_hurt_code);
  printf("%2d: Go to sleep.\n", go_to_sleep_code);
} /* if (user_code == help_code) */
else if (user_code == I_love_you_code) {
  /*
  * Output Stitch’s response to being told "I love you."
  */
  printf("User: I love you.\n");
  printf("Stitch: I love you too.\n");
  /*
  * Set Stitch’s mood to loving.
  */
  Stitch_mood = loving_mood;
} /* if (user_code == I_love_you_code) */
else if (user_code == youre_rotten_code) {
  /*
  * Output Stitch’s response to being told "You’re rotten."
  */
  printf("User: You’re rotten.\n");
  printf("Stitch: Ahh ha ha ha ha!\n");
  /*
  * Set Stitch’s mood to rotten.
  */
  Stitch_mood = rotten_mood;
} /* if (user_code == youre_rotten_code) */
...
else {
  /*
  * Output Stitch’s response to being told something random.
  * (This isn’t what you should do in PP#4, it’s just to
  * illustrate how the comments look.)
  */
  printf("Whatever!\n");
} /* if (user_code == go_to_sleep_code)...else */
```

Notice that, in addition to the properties of all of the previous cases:
• The comment preceding the entire if block describes the purpose of the if block as a whole, not just the purpose of the if clause.
• The condition in the comment immediately following and on the same line as the else clause’s block close is the condition of the FINAL else if clause, followed by an ellipsis and the keyword else.