Project 5

due at midnight on Tue Oct 18 (60 points)

This assignment will help you practice using nested conditional and switch statements. Call your program p5time.cpp and submit to this dropbox for project 5

Write a program that will:

1. Ask the user for an hour (input as an integer 0–23).
2. Ask the user for a minute (input as an integer 0–59).
3. Give an error message and stop if either integer is outside the required range.
4. Print the 24-hour time along with the equivalent 12-hour (AM/PM) time. The times should include leading zeros as necessary, so that it prints 03:08 rather than 3:8 for 3:08 AM.
5. Print an English description of the time, rounded to the nearest quarter-hour, and specifying morning, afternoon, or evening. (See the examples below.)

Again, to receive full credit:

- Make sure you use appropriate indentation and alignment of braces.
- Include a comment at the top with your name and the date.
- Try to remove unnecessary repetition from your program.

Here are some sample runs of my solution, but it should work for other numbers as well.

```
Enter hour (0-23): 11
Enter minute (0-59): 15
11:15 is 11:15 AM
quarter past eleven in the morning


Enter hour (0-23): 17
Enter minute (0-59): 58
17:58 is 5:58 PM
six in the evening


Enter hour (0-23): 13
Enter minute (0-59): 21
13:21 is 1:21 PM
quarter past one in the afternoon
```

```
Enter hour (0-23): 13
Enter minute (0-59): 28
13:28 is 1:28 PM
half past one in the afternoon
```

Times around 45 minutes past the hour should, in English, refer to the **subsequent** hour:

```
Enter hour (0-23): 19
Enter minute (0-59): 48
19:48 is 7:48 PM
quarter til eight in the evening
```

When the hour is 12 or 0, it should refer to noon or midnight:

```
Enter hour (0-23): 12
Enter minute (0-59): 3
12:03 is 12:03 PM
noon
```

```
Enter hour (0-23): 0
Enter minute (0-59): 20
00:20 is 12:20 AM
quarter past midnight
```

But watch out when it's close to 45 minutes after noon or midnight:

```
Enter hour (0-23): 12
Enter minute (0-59): 40
12:40 is 12:40 PM
quarter til one in the afternoon
```

```
Enter hour (0-23): 0
Enter minute (0-59): 40
00:40 is 12:40 AM
quarter til one in the morning
```

And don't forget the error-checking:

```
Enter hour (0-23): -5
Error: hour out of range.
```

```
Enter hour (0-23): 24
Error: hour out of range.
```

```
Enter hour (0-23): 5
Enter minute (0-59): 70
Error: minute out of range.
```