

Client Billing App

Write an application that tracks the amount of billable time that the user spends on consulting projects. The application reads an input client file and appends information to a billing file, which it creates the first time it runs.

Startup Form

When the user begins working on a project, the client name is selected from a ComboBox control. The user then clicks the **Start** button, so the billing timer is running. The **Start** button is then disabled.

When the user has clicked the **Stop** button, the application shows the amount of elapsed time and writes a record to the billing file.

Coordinate the command buttons carefully to make sure the user cannot click out of sequence. The following table shows the two possible program states that affect the buttons.

The program is in State 1 when it starts; after clicking the **Start** button, the program enters State 2. When the **Stop** button is clicked, the program returns to State 1.

State	Start	Stop	Exit
1	Enabled	Disabled	Enabled
2	Disabled	Enabled	Disabled

When the user clicks the **Start** button, display a status message *Billing in Progress ...* to show that the clock is running. Do not permit the user to select a different client while the clock is running. When the **Stop** button is clicked, display the stop time and the number of billable hours and minutes. The name of the selected client should appear in the window caption.

Create a class named **TimeClock** that encapsulates the time-related calculations performed by the program. Use a TimeSpan object to hold the difference between two Date-Time values.

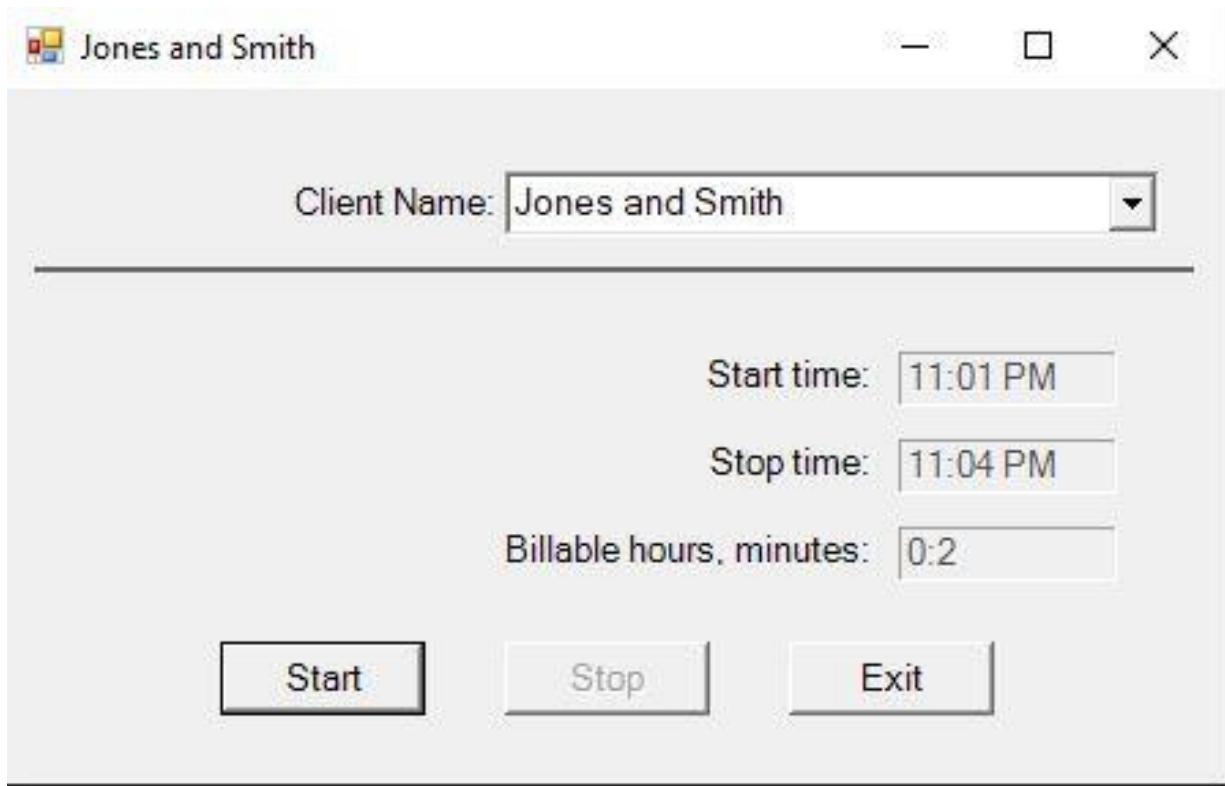
Create a class named **BillingData** to handle the client and billing files. Use the Visual Studio editor to create the client file. Insert at least five records in the client file before running the program. Each record in the client file contains a client name. Your program will create the billing file the first time it runs. Subsequent runs will append to the file. Each record in the billing file contains the following fields: billing date, client name, start time, stop time, and elapsed time. The following is a sample record:

Billing date, client name start stop elapsed time
02-01-2019, Jones and Smith, 21:51, 22:10, 1:19

Start of the billing cycle

The screenshot shows a Windows application window titled "Jones and Smith". Inside the window, there is a "Client Name:" label followed by a dropdown menu containing "Jones and Smith". Below this, a horizontal line separates the header from the main content area. The main content area displays "Billing in progress. ..." on the left. To the right of this text are three input fields: "Start time:" with the value "11:01 PM", "Stop time:", and "Billable hours, minutes:". At the bottom of the window, there are three buttons: "Start", "Stop", and "Exit".

End of the billing cycle



A screenshot of a Windows application window titled "Jones and Smith". The window has a standard Windows title bar with minimize, maximize, and close buttons. The main content area is light gray and contains the following elements:

- A label "Client Name:" followed by a text box containing "Jones and Smith" and a small downward arrow on the right.
- A horizontal line separating the client name from the time information.
- A label "Start time:" followed by a text box containing "11:01 PM".
- A label "Stop time:" followed by a text box containing "11:04 PM".
- A label "Billable hours, minutes:" followed by a text box containing "0:2".
- At the bottom, three buttons: "Start", "Stop", and "Exit".