Chapter 1

1. What are objects and properties? How are they related to each other?

An object has properties, events, and methods. An object is a combination of variables and functions that work as one unit. The keyword is that an object is a unit.

Properties are the adjectives, they are the descriptions of the object.

So an object is a unit, and the property describes it.

2. What are the three steps for planning and creating C# projects? Describe

what happens in each step.

(1) define the user interface – create the forms and controls for the user

(2) set the properties – name each object & set its attributes

(3) write the code – define program actions

9. What is a C# event? Give some examples of events.

Events are when the user performs actions, i.e. clicks on a button, double clicks, presses letters on the keyboard.

11. Describe the two types of comments in a C# program and tell where each

is generally used.

There are single line and multiple line comments. They should be in every method and at the top of the file.

13. What is a syntax error, when does it occur, and what might cause it?

Syntax errors occur when C# syntax rules are violated. It's caused by incorrect coding, i.e. a semi colon in the wrong place.

14. What is a run-time error, when does it occur, and what might cause it?

This is when there is a statement that cannot execute properly. This is caused by the user performing an action that cannot be processed by the program, i.e. entering numbers when the program only accepts letters.

15. What is a logic error, when does it occur, and what might cause it?

This is when the wrong output occurs. This is caused by the programmer writing code that doesn’t work.

Chapter 2

1. You can display program output in a text box or a label. When should you

use a text box? When is a label appropriate?

A textbox allows a user to enter text. A label helps the user know what to enter in an adjacent textbox.

2. What would be the advantage of using a masked text box rather than a

text box?

This forces the user to enter only certain types of data, i.e. a phone number, date of birth, etc.

5. How does the behavior of radio buttons differ from the behavior of check

boxes?

Only one radio button can be selected while multiple check boxes can be selected.

6. If you want two groups of radio buttons on a form, how can you make the

groups operate independently?

Surround the first group of radio buttons with a group box, surround the second group of radio buttons with a second group box.

9. What is the purpose of keyboard access keys? How can you define them in

your project? How do they operate at run time?

Keyboard access keys are for people who prefer to use the keyboard over the mouse. These are also called hot keys. They are defined by using &, i.e. &Find will display as Find. When the user presses Alt + the underscored letter, the event will be triggered.

11. What is the focus? How can you control which object has the focus?

When the program begins the insertion point will be placed in this textbox, this control will be the active one. The focus method is used

//Make the insertion point appear in this text box.
nameTextBox.Focus();

15. What statements will clear the current contents of a text box and a label?

Setting it to an empty string by using “ ” or by string.Empty

Also use the clear method of dataTextBox.Clear();

Chapter 3

1. Name and give the purpose of five data types available in C#.

The most common data types are string (alphanumeric data like letters and digits), int (whole numbers), decimal (fractions including dollars and cents), single (aka float, is a single precision floating point number),

and bool (stands for Boolean, is true or false value).

2. What does declaring a variable mean?

It means specify the data type, followed by an identifier. It's option to give it an initial value.

4. Explain the difference between a constant and a variable.

A constant cannot be changed, while a variable can be changed.

5. What is the purpose of the int.Parsemethod? The decimal.Parse

method?

int.Parsemethod converts text to an integer

decimal.Parse converts text to a decimal

9. What are implicit conversions? explicit conversions? When would each be

used?

implicit conversions is a value going from a narrower data type to a wider type but only when precision cannot be lost, i.e. integer to decimal.

Explicit is converting between data types without implicit conversion. This has to be done by the programmer.

10. When should you use try/catchblocks? Why?

If there’s a chance of an error being caused, use try/catchblocks. This will cause the error to be caught (code location, error type and cause), so a message can be sent to the user, who can then fix the input.

13. Why must you use class-level variables if you want to accumulate a run-ning total of transactions

Declaring a class level variable allows the retention of its valuable for multiple calls, thus totals can be accumulated.

Chapter 4

1. What is the general format of the statement used to code decisions in an

application?

If / else

if *the sun is shining* (condition)

go to the beach (action to take if condition is true)

else

go to class (action to take if condition is false)

if condition

action

else

other action

2. What is a Boolean expression?

An if statement that is evaluated as either true or false

3. Explain the purpose of relational operators and logical operators.

Relational operators compare items for equality, greater than, or less than.

Logical operators test more than one condition. For instance, if either statement is true, if both statements are true, or if a statement is not true. These three instances can best tested for.

6. Why would it be useful to include the ToUppermethod in a comparison?

Because the user may type a name or word in

uppercase, in lowercase, or as a combination of cases, it’s easier to convert the user input into all upper case, then match that with what you’re looking for.

9. Give an example of a situation where nested ifs would be appropriate.

If a person is clicking radio buttons to identify themselves, an example would be if male radio is clicked, there can be a nested if for a radio button of boy or man to be clicked, or the person could also click the female radio button, there can be a nested if for a radio button of girl or woman to be clicked.

10. Define the term validation. When is it appropriate to do validation?

Data validation checks the reasonableness or appropriateness of the value

in a variable or property. The validation may include making sure that the input is numeric, checking for specific values, checking a range of values, or making sure that required items are entered.

It is appropriate to do it to prevent bad output, crashing the program, or receiving incomplete data.

13. Explain the difference between Step Into and Step Over .

Step into executes the next line of code and the program pauses again in debug time.

Step over also executes the next line of code, but step over only displays the lines of codes in the current method being analyzed, it does not display lines of code in the called methods.

Programming Exercises from Book (perform at least two out of four and Print button is optional):

- Chapter 1
  - 1.1

1.1 For your first C# exercise, you must first complete the Hello World proj-ect. Then add buttons and event-handling methods to display the “Hello

World” message in two more languages. You may substitute any other

languages for those shown. Feel free to modify the user interface to suit

yourself (or your instructor).

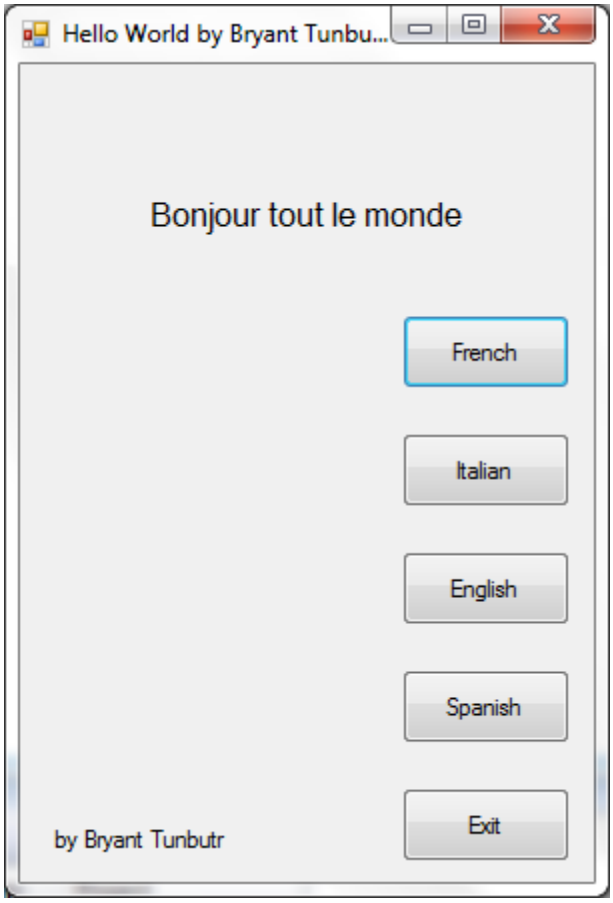
Make sure to use meaningful names for your new buttons, following

the naming conventions in Table 1.2 . Include comments at the top of

every method and at the top of the file.

“Hello World” in French: Bonjour tout le monde

“Hello World” in Italian: Ciao Mondo




```
/*  Program:    HelloWorld
    Author:       Bryant Tunbutr
    Class:        CISP41-22726201220
    Date:         9/25/12
    Description: This program displays "Hello world" in English, French,
Italian, and Spanish.

    I certify that the code below is my own work.

      Exception(s): N/A

*/



using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
```

```
namespace HelloWorld
{
    public partial class HelloForm : Form
    {
        public HelloForm()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            // Display the Hello World message.

            messageLabel.Text = "Hello World";
        }

        private void exitButton_Click(object sender, EventArgs e)
        {
            // Exit the project.

            this.Close();
        }

        private void spanishButton_Click(object sender, EventArgs e)
        {
            // Display the Hello World message in Spanish.

            messageLabel.Text = "Hola Mundo";
        }

        private void button2_Click(object sender, EventArgs e)
        {
            // Display the Hello World message in French.

            messageLabel.Text = "Bonjour tout le monde";
        }

        private void button1_Click_1(object sender, EventArgs e)
        {
            // Display the Hello World message in Italian.

            messageLabel.Text = "Ciao Mondo";

        }
    }
}
```

- Chapter 2
  - 2.2

2.2 Write a project to display the flags of four different countries, depending on the setting of the radio buttons. In addition, display the name of the country in the large label under the flag picture box. The user also can choose to display or hide the form's title, the country name, and the name of the programmer. Use check boxes for the display/hide choices.

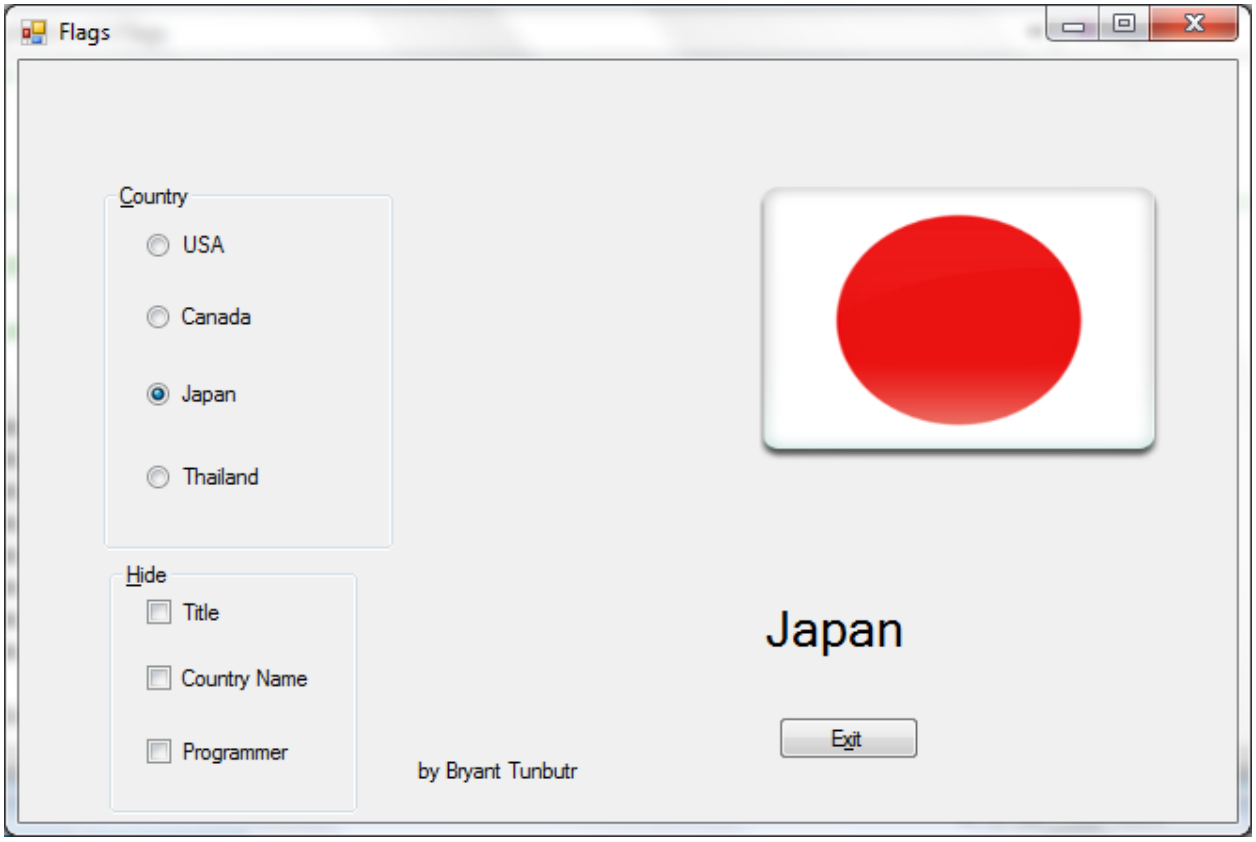
Include keyboard access keys for all radio buttons, check boxes, and buttons. Make the Exitbutton the Cancel button. Include a Printbutton and ToolTips.

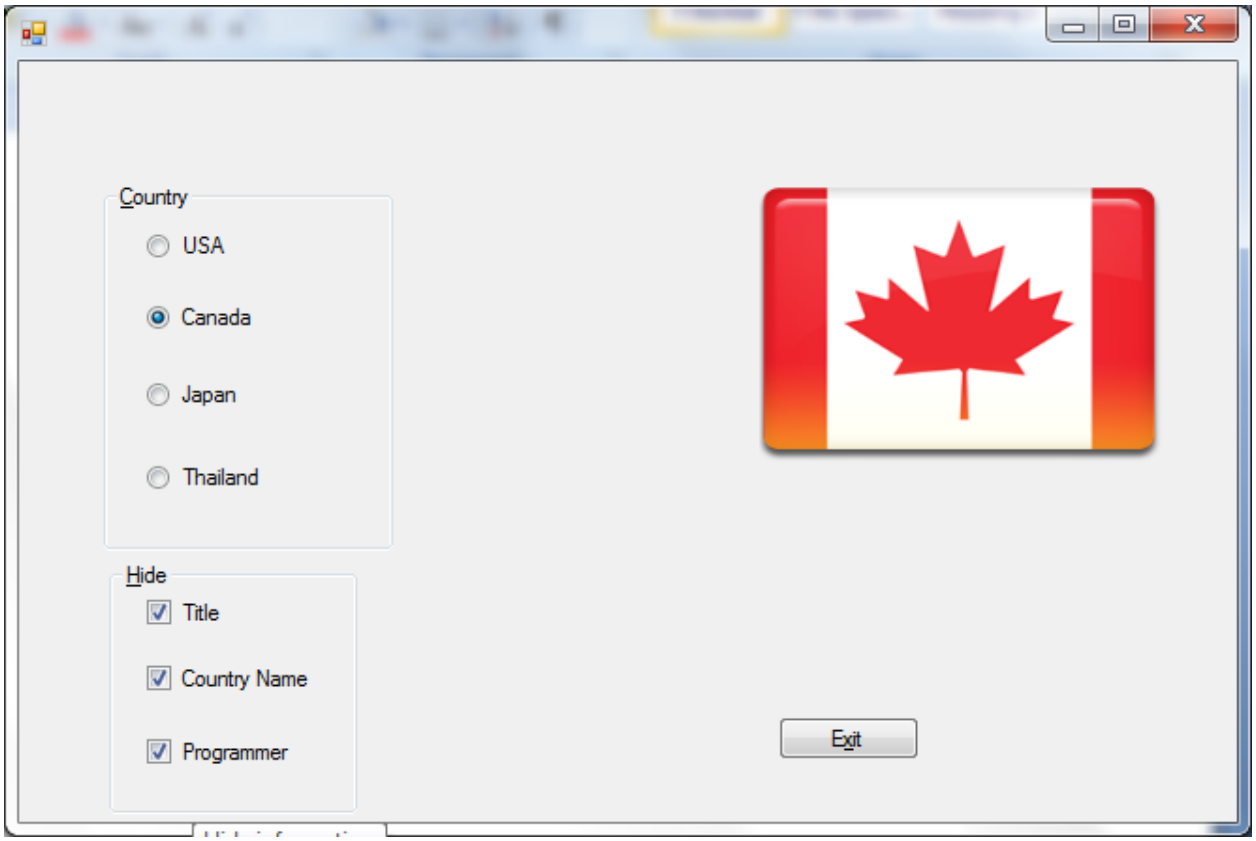
You can choose the countries and flags. (The StudentData\Images\ MicrosoftIcons folder holds flag icons for four countries, which you can use if you wish.)

Hints: When a project begins running, the focus goes to the control with the lowest TabIndex. Because that control likely is a radio button, one button will appear selected. You must either display the first flag to match the radio button or make the focus begin in a different control. You might consider beginning the focus on a button.

Set the Visible property of a control to the Checked property of the corresponding check box. That way when the check box is selected, the control becomes visible.

Because all three selectable controls will be visible when the project begins, set the Checked property of the three check boxes to trueat design time.


Flags
Country
USA
Canada
Japan
Thailand
Hide
Title
Country Name
Programmer
by Bryant Tunbutr
Japan
Exit


Country
USA
Canada
Japan
Thailand
Hide
Title
Country Name
Programmer
Exit

```
/*  Program:   chapter2.2
    Author:      Bryant Tunbutr
    Class:       CISP41-22726201220
    Date:        9/26/12
    Description: This program displays different country's flags as well the
name of the country.

    I certify that the code below is my own work.

      Exception(s): N/A

*/
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace WindowsFormsApplication10
{
    public partial class Flags : Form
    {
        public Flags()
        {
            InitializeComponent();
        }

        private void exitButton_Click(object sender, EventArgs e)
        {
            this.Close();
        }

        private void radioButton1_CheckedChanged(object sender, EventArgs e)
        {
            // Display the flag image and show the country name.
            flagPictureBox.Image =
WindowsFormsApplication10.Properties.Resources.United_States_Flag_icon;
            countryLabel.Text = "USA";
        }

        private void flagPictureBox_Click(object sender, EventArgs e)
        {

        }

        private void radioButton2_CheckedChanged(object sender, EventArgs e)
        {
            // Display the flag image and show the country name.
            flagPictureBox.Image =
WindowsFormsApplication10.Properties.Resources.Canada_Flag_icon;
            countryLabel.Text = "Canada";
        }

        private void radioButton3_CheckedChanged(object sender, EventArgs e)
```

```
        {
            // Display the flag image and show the country name.
            flagPictureBox.Image =
WindowsFormsApplication10.Properties.Resources.Japan_Flag_icon;
            countryLabel.Text = "Japan";

        }

        private void radioButton4_CheckedChanged(object sender, EventArgs e)
        {
            // Display the flag image and show the country name.
            flagPictureBox.Image =
WindowsFormsApplication10.Properties.Resources.Thailand_Flag_icon;
            countryLabel.Text = "Thailand";
        }

        private void programmerCheckBox_CheckedChanged(object sender,
EventArgs e)
        {
            programmerLabel.Visible = false;
        }

        private void countryCheckBox_CheckedChanged(object sender, EventArgs
e)
        {
            countryLabel.Visible = false;
        }

        private void titleCheckBox_CheckedChanged(object sender, EventArgs e)
        {
            this.Text = "";
        }

        private void Flags_Load(object sender, EventArgs e)
        {

        }
    }
}
```