**Computer Programming 1
Essential Standard 4.00 Understand Variables and Naming Conventions
Study Guide**

1. What is the syntax to declare a variable? **Dim** *varName* **As** *DataType*
2. Name the data type.
	* Int--*Integer*
	* Str--*String*
	* Dbl--*Double*
	* Dec--*Decimal*
	* Chr--*Character*
	* Bln--*Boolean*
3. Complete the table (you may make up variable names for the Declaration Example column, just ensure you use the proper prefix and syntax).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DataType | Values | Storage | Prefix | Declaration Example |
| Integer | -2,147,483,648 to 2,147,483,647 | 4 BytesBytes | int | Dim intCost As Integer |
| Double | 1.7E +/- 308 (15 digits) | 8 Bytes | dbl | Dim dblCost As Double |
| Decimal | 1.7E +/- 308 (15 digits) | 16 Bytes | dec | Dim decCost As Decimal |
| Char | –128 to 127 by default | 2 Bytes | chr | Dim chrSample As Character |
| Boolean | True or False | 1 Byte | bln | Dim blnSample As Boolean |
| String | 0 to approximately 2 billion Unicode characters | Varies | str | Dim strName As String |

1. How do you clear a label in visual basic? *You can clear a label by creating a TextChanged event for your TextBoxes and then setting the label’s text value to “” or NOTHING.*
2. What is an assignment statement? *The process of assigning a value to a variable, using =*
3. How would you declare the following variabes and initialize the values?
	* strColor, red *Dim strColor as String = “Red”*
	* intAge, 16 *Dim intAge as Integer = 16*
4. What is concatenation? *Combining strings from several different sources using the &.*
5. Write the statement to concatenate strString1, intVar and strString2 and display the result in lblDisplay.

*lblDisplay.Text = strString1 & intVar & strString2*

1. Write the statement to display dblNumVar in the label lblAnswer and formatted to show a dollar sign.

*lblAnswer.Text=dblNumVar.ToString(“$##.00”)*

1. Numbers can be declared using these data types: *Integer, Double, Variable*
2. Give an example of setting an empty string. *strName = “”*
3. How many bytes are used to store a string data type? *It varies. 0 to approximately 2 billion Unicode character*
4. Dim intNumber as Integer = 15. What is the value of 15 called? *The literal*
5. What is scope? *Where a variable can be used. Variables only exist within their defined scope.*
6. What is lifetime? *The time that the variable is available for use*
7. What are the 3 types of variable scopes? *Global, local, procedural*
8. This variable can be used anywhere: *Global*
9. The variable can only be used where it was declared: *local*
10. This method allows you to format a numeric variable for display. *ToString*
11. What is the syntax for the ToString Method*? label.Text = variable****.ToString(“format”)***
12. *TextBoxes* allow you to get input from the user when your programming is running (runtime).
13. The properties of a textbox
	* *Name*– start with txt
	* *Text* – what is displayed inside the text box
	* *Textlign*– aligns the text relative to the text box.
	* *PasswordChar*– Sets an asterisk (\*) character to be displayed in the textbox as the user types.
14. Write the syntax of:
	* Textbox--*strVariable = txtTextBox.Text*
	* Messagebox--MessageBox.Show (“*string here*”)
15. *A Static variable*  holds its value between runs of the program.
16. What are static variables? *A* ***static variable*** *holds its value between runs of the program. This is used commonly with loops.*
17. How do you declare a static variable? *Static intVar As Integer*
18. What are constant variables? *a variable that once declared cannot be changed by the program.*
19. How do you declare a constant variable?  *Const intTAXES as Integer*
20. What is a counter*? A counter is a variable storing a number that is incremented by a constant value.*
21. Instead of Dim what do you use for a Static variable? *Static*
22. Can Static Variables be defined globally? *No*
23. A variable that once declared cannot be changed by the program - *Constant*
24. Constant variables should be declared using all *CAPS*
25. A variable that is used to determine how many times something happens *Counter*
26. How are counters declared? *counter = counter + constant or counter += constant*
27. Hungarian Notation prefixes
	* Form--*frm*
	* Button--*btn*
	* Label--*lbl*
	* Text Box--*txt*
	* Radio Button--*rad*
	* Check box--*chk*
	* Image--*img*
	* Combo Box--*cbo*
	* Picture Box--*pic*
	* List box--*lst*
	* Menu--*mnu*
28. What is a prompt? *The label placed near the text box to describe its contents or purpose*
29. What datatype does a TextBox return? *String*
30. Write a statement to get input from the txtInput TextBox to the variable dblInput.

*dblInput=txtInput.text*

1. What is a TextChanged Event? *Executes when the user types in the text box*
2. What is a MessageBox? *In addition to labels and textboxes we can use message boxes to display output or alert users to fatal errors.*
3. Write the statement to show the message “Programming” in a messagebox. *MessageBox.Show(“Programming”)*
4. What is the syntax? *MessageBox.Show (“string here”)*