

Visual Basic / C# PROGRAMMING (330)

REGIONAL – 2020

Production Portion:

Program 1: Data Storage Conversion _____ (450 points)

TOTAL POINTS _____ (***450 points***)

Failure to adhere to any of the following rules will result in disqualification:

- 1. Contestant must hand in this test booklet and all printouts. Failure to do so will result in disqualification.**
- 2. No equipment, supplies, or materials other than those specified for this event are allowed in the testing area. No previous BPA tests and/or sample tests or facsimile (handwritten, photocopied, or keyed) are allowed in the testing area.**
- 3. Electronic devices will be monitored according to ACT standards.**

No more than ten (10) minutes orientation

No more than 90 minutes testing time

No more than ten (10) minutes wrap-up

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Workplace Skills Assessment Program competition.

Data Storage Conversion

You are to create a Visual Basic or C# program that can convert all data types between Byte and Terbit. This program will have the user to enter the quantity through a textbox and select the original data type through the use of radio buttons. The user then must select the desired data type to convert to using radio buttons. The user will then press the convert button to display the answer. The user will then be able to change the quantity and/or the original data type and/or the desired data type. The conversion of data is based off of the number 1024. The following can be used for the conversion equations: 1 Byte = 1024^0 Bytes, 1 Kilobyte = 1024^1 Bytes, 1 Megabyte = 1024^2 Bytes, 1 Gigabyte = 1024^3 Bytes and 1 Terabyte = 1024^4 Bytes.

Steps:

1. Solution and Project
 - a. Create a Visual Basic Windows Form Application named “VB_REG_ContestantNumber” or “CS_REG_ContestantNumber” (depending on which language you are using). The ContestantNumber is your BPA assigned contestant number. When naming your project, replace dashes (-) with the underscore (_). For example, if you BPA contestant number is 98-7654-3210, then your project name would be VB_REG_98_7654_3210.
2. User Interface
 - a. The user interface to be constructed as shown in Figure 1. Your application must be visually identical to the prototype shown in Figure 1.
 - b. The form’s caption must be set to “Data Storage Conversion”
 - c. The program is required to use two group boxes.
 - d. The first group box
 - i. The caption will be “Convert From”
 - ii. One label to prompt the user to enter the quantity.
 - iii. One textbox to take in the user input.
 - iv. There will need to be five radio buttons for the user to select between Byte, Kilobit, Megabit, Gigabit and Terabit.
 - e. The second group box:
 - i. The caption will be “Convert To”
 - ii. One label prompting the user to select the data size.
 - iii. There will need to be five radio buttons for the user to select between Byte, Kilobit, Megabit, Gigabit and Terabit.
 - iv. One button with the text of Convert
 - v. One textbox to display the converted data amount
 - f. Below the two group boxes, there will be a single button for exit.

3. Program Execution

- a. The program should user validate all input and create an error message if any of the user’s input is missing without stopping the program’s execution. See Figure 2.
- b. The program should validate that the value in the textbox located in the “Convert From” section contains a number.
- c. With all the given input, the program should calculate and display the conversion to the textbox within the “Convert To” group box.
 - i. All output can be rounded to the 15th decimal place.
 - ii. See Figure 3
- d. The program should exit when the user clicks the “Exit” button.

4. The Source Code

- a. To keep all the company’s programs consistent, the following naming conventions must be used:
 - i. The following prefixes should be used in naming the following:
 - 1. Forms – frm, Group_Boxes – grp, Labels – lbl, Textboxes – txt, Radio_Buttons – rb and Buttons – btn.
 - ii. No single letter variables are to be used in the program.
- b. The program must be commented throughout, especially all functions and methods.

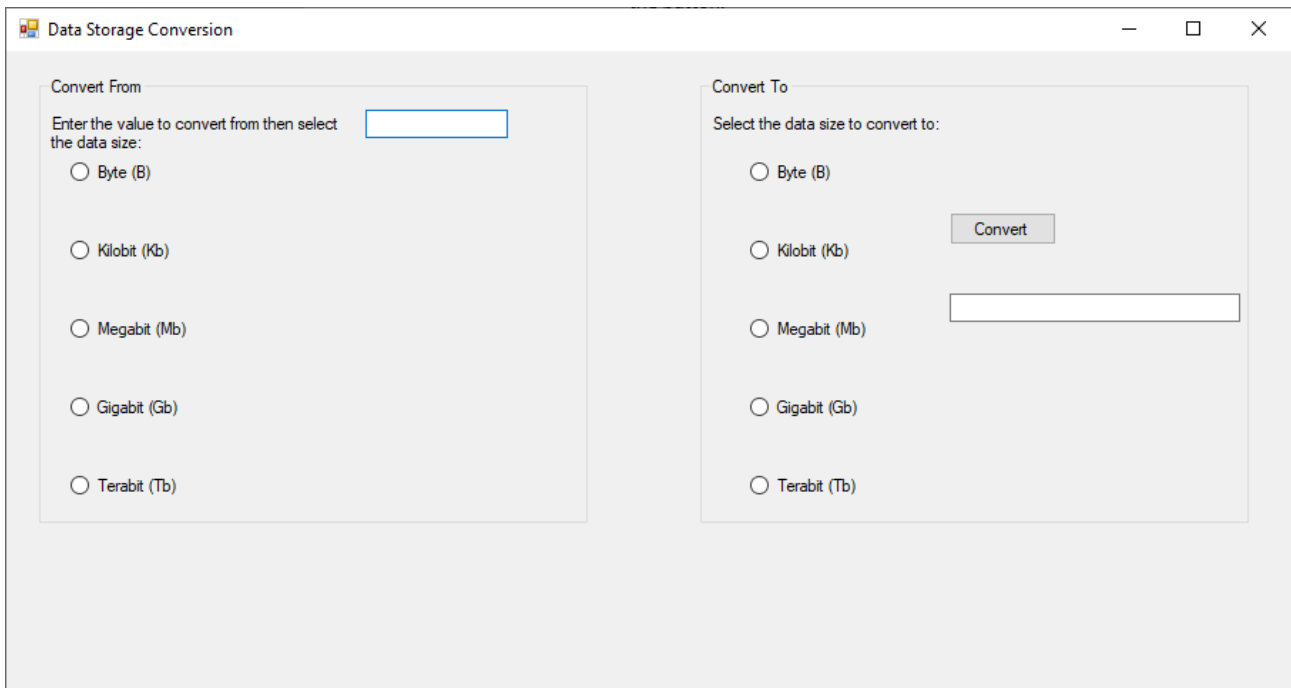


Figure 1

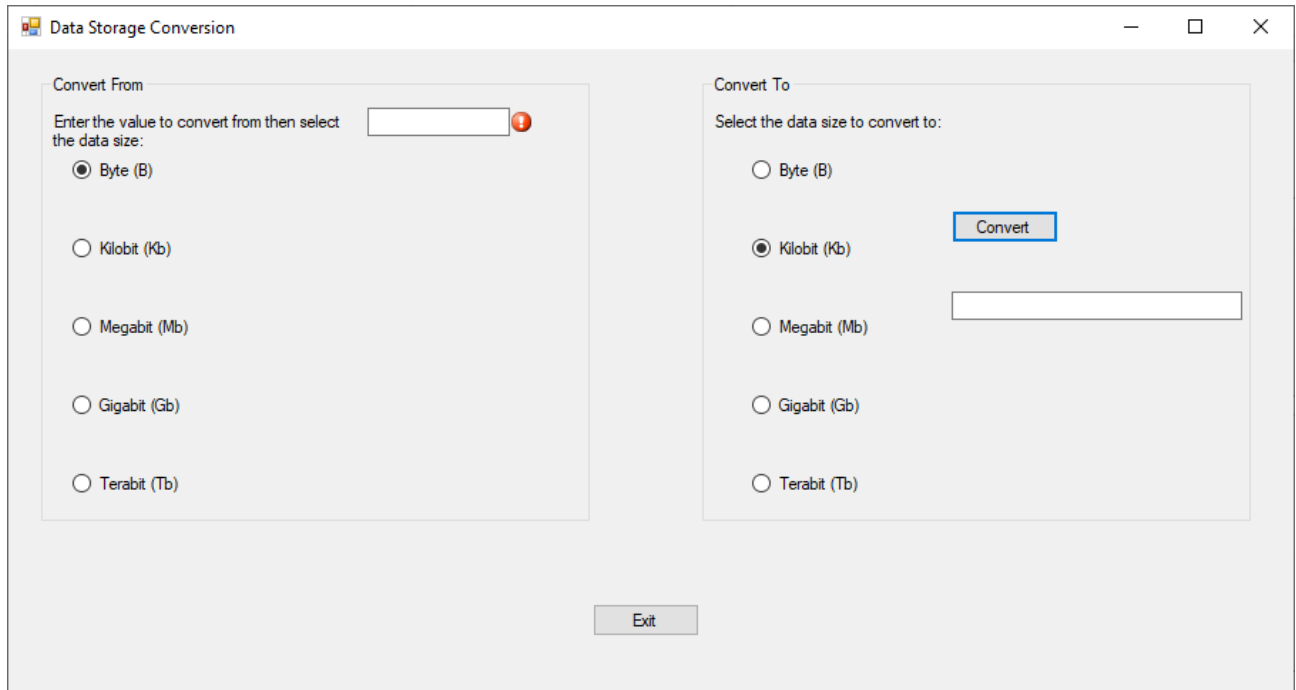


Figure 2

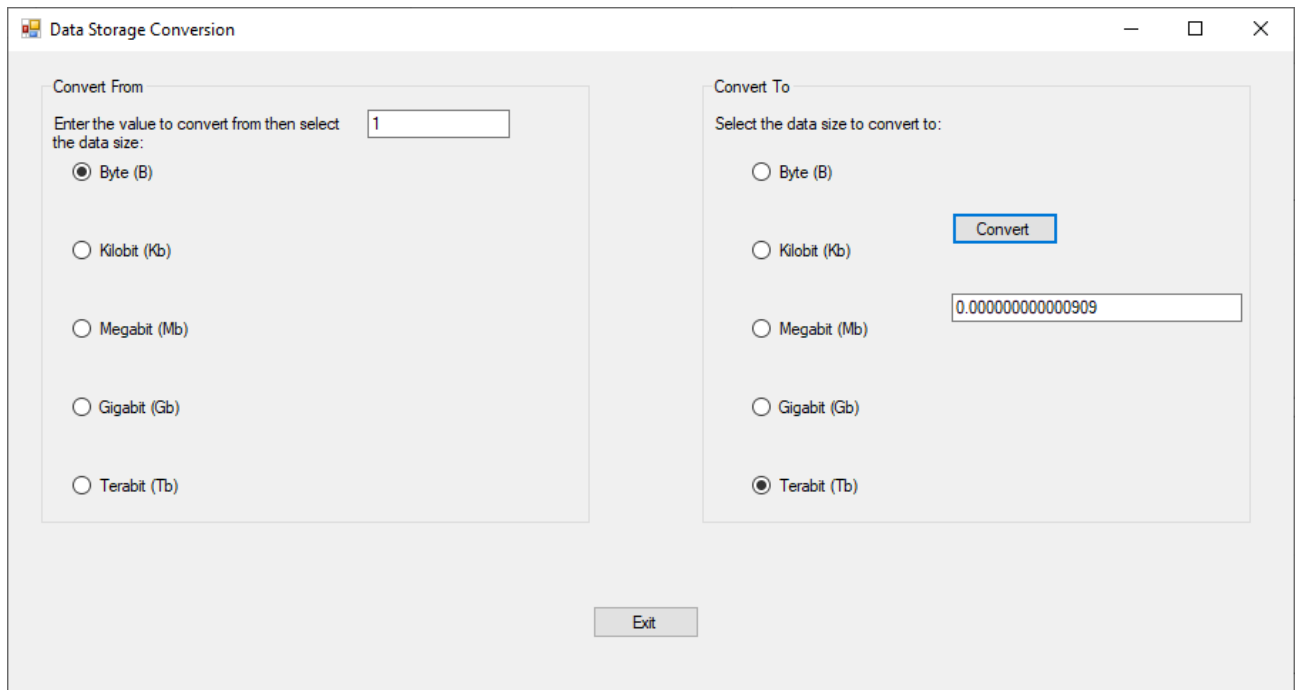


Figure 3

Your application will be graded on the following criteria:

Solution and Project

- The project is present on the flash drive _____ 10 pts
- The project is named according to the naming conventions _____ 10 pts

Program Execution

- Code copied to USB drive and program runs from USB _____ 30 pts

If the program does not execute, then the remaining items in this section receive a score of zero.

- Form has the correct caption (Data Storage Conversion) _____ 15 pts
- The form is divided using two group boxes with the correct captions (10 per) _____ 20 pts
- The radio buttons are evenly spaced vertically _____ 30 pts
- Exit button is present and works correctly _____ 15 pts
- Error message occur if any/all of the input is missing (20 points per input) _____ 60 pts
- Error message occurs if a number is not entered in the convert from textbox _____ 20
- Program calculates and displays the correct conversion _____ 60 pts

Source

- Proper prefixes were used correctly _____ 40 pts
- Code is commented throughout _____ 30 pts
- Code exists to handle all missing inputs _____ 30 pts
- Code exists to validate the input entered into the textbox is a number _____ 20 pts
- Program calculates from smaller to higher conversions _____ 30 pts
- Program calculates from higher to smaller _____ 30 pts

Total Points _____ / 450 points