

Contestant Number: _____

Time: _____

Rank: _____

Visual Basic/C# Programming (330)

REGIONAL – 2017

Production Portion:

Program 1: Calendar Analysis _____ (400 points)

TOTAL POINTS _____ (*400 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 ninety (90) minutes testing time
No more than ten (10) minutes wrap-up

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Workplace Skills Assessment Program competition.

Date & Time: Calendar

At your new employer, you have been asked to create a program to be used by employees, specifically financial staff, to identify key days each month in one simple to use program.

The program will allow a user to enter a month and year and then select one or more options for that month. The user can select the paydays of the month, the first business day of the month and the last business day of the month.

The options are as follows:

- Find the paydays of the month, which are first and third Fridays
- Find the first business day of the month (the first day of the month that is *not* a Saturday or Sunday)
- Find the last business day of the month (the last day of the month that is *not* a Saturday or Sunday)

Error handling

- Month must be a valid value (1-12)
- Year must be a valid year value, within the range 2010 - 2300

1. You will have 90 minutes to complete your work.
2. Your name and/or school name should *NOT* appear on any work you submit for grading.

Development Standards

- Consistent naming should be used for variables and code.
- Classes, methods, and functions must be documented with comments explaining the purpose, the input parameters (if any), and the output (if any).

Sample Output:

For 10 2018

Payday option:

5, Friday

19, Friday

First Business Day

2

1, Monday

Last Business Day:

31, Wednesday

Steps:

1. Solution and Project
 - a. Create a Visual Basic Windows Form Application named “VB_2017_REG_ContestantNumber”, where ContestantNumber is your BPA assigned contestant number. When naming your project, replace dashes (-) with the underscore (_). For example, if your BPA contestant number is 01-2345-6789, then your project name would be VB_330_01_2345_6789.
2. User Interface
 - a. The user interface to be constructed is shown in Figure 1. Your application must be visually identical to the prototype shown in Figure 1.
3. The Main Form
 - a. The form is to be a Single Document Interface.
 - b. The Form’s caption must be set to “BPA State - VB_2017_REG_ContestantNumber” (including the dashes).
 - c. The Start Position of the form must be set to CenterScreen.
 - d. The size of the screen is must be **640, 480**.
 - e. Set the Form Border Style to FixedDialog.
 - f. Month must be a ComboBox with numbers 1 through 12 in the list.
 - g. Year must be a text field with max length of 4.

- h. The application must have an Exit Button that closes the program.
 - i. Before closing, user should get a confirmation dialog box as shown in Figure 5
 - i. The application must have a Clear Button that clears all fields and checkboxes.
 - j. Month ComboBox DropDownStyle must be DropDownList.
4. On Calculate, do the following:
- a. Ensure a valid year is entered (valid range is listed on page 1). Otherwise report error in output text field - Figure 2.
 - b. If no checkboxes are enabled, alert the user with a popup warning dialog - Figure 3.
 - c. For each checkbox enabled, add text to output field.
 - d. A successful run with all calculations enabled produces Figure 4.
 - i. Output field label is updated with month and year as shown in Figure 4.
 - ii. Output field is populated with expected output.
 - iii. Input fields are cleared and ready for another run.

Example Figures:

Figure 1 (complete application)

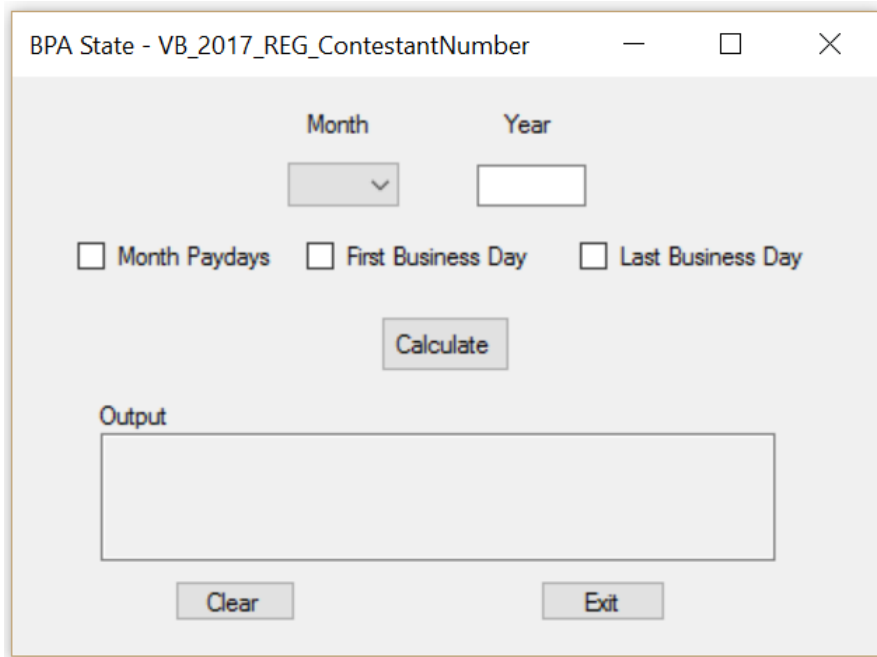


Figure 2 (error year)

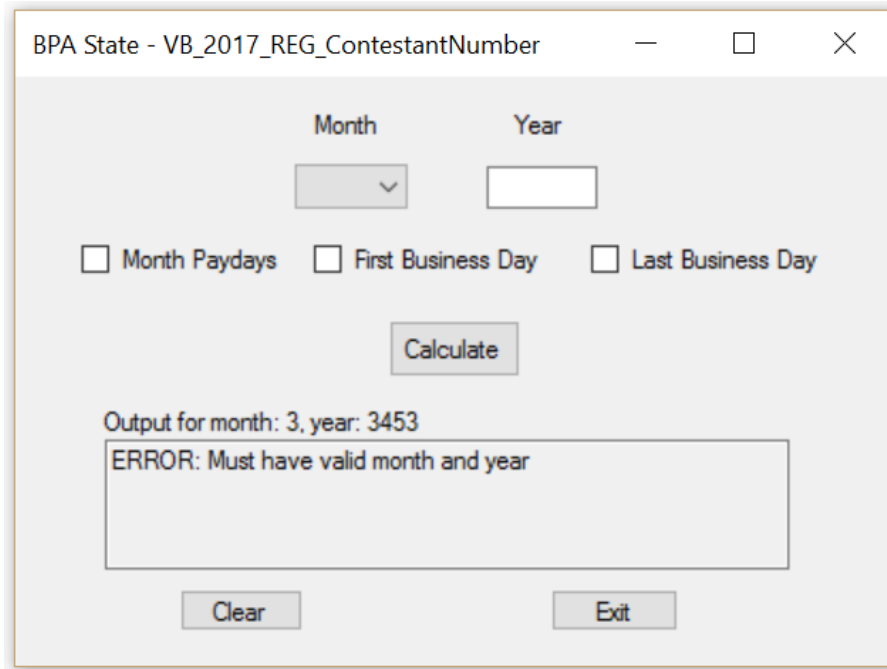


Figure 3 (warning, user must select a processing option)

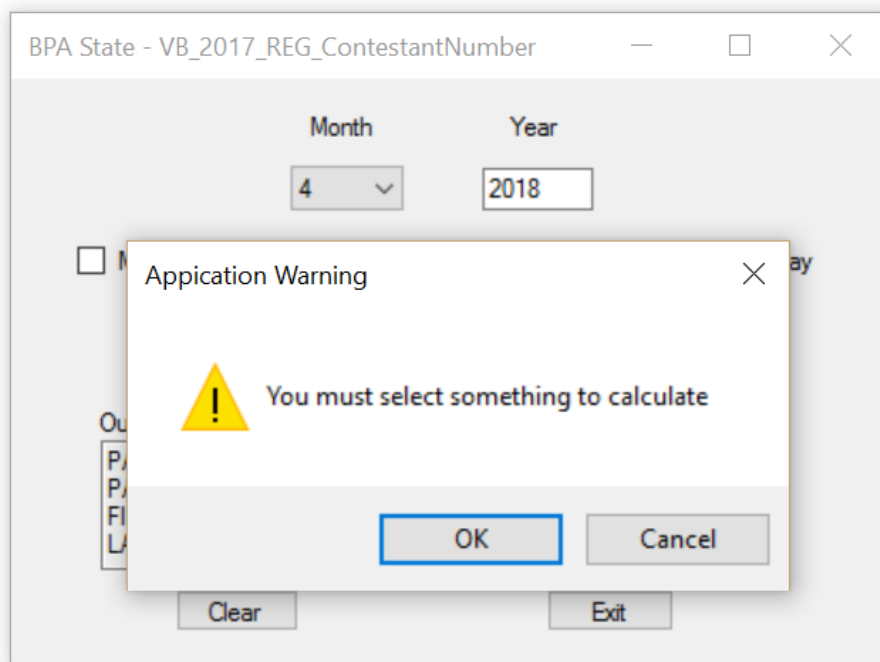


Figure 4 (successful run output)

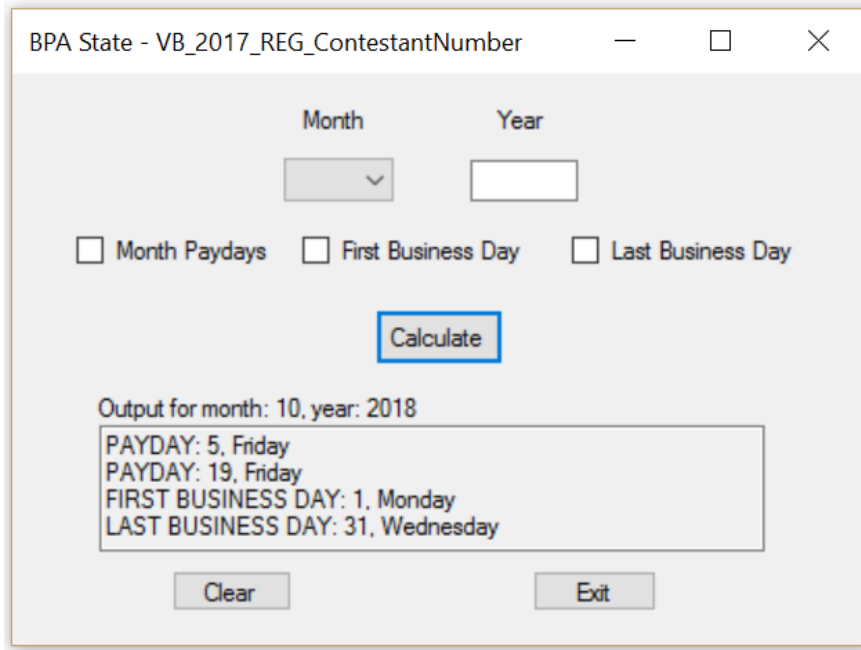
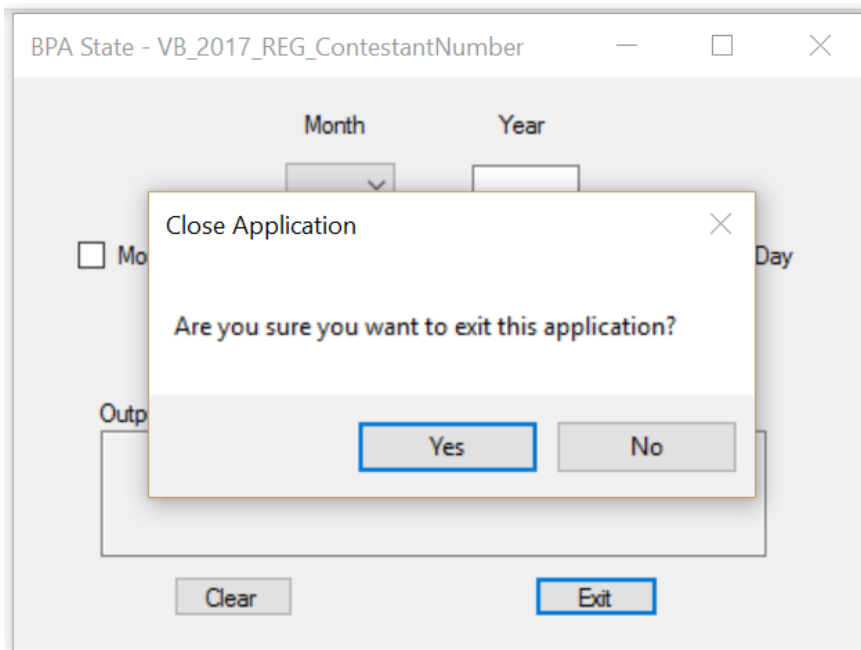


Figure 5 (Exit confirmation)



Your application will be graded on the following criteria:

Solution and Project

Custom code is present _____ 10 points
All classes and methods are customized _____ 10 points

Program Design

Application GUI is designed according to specifications _____ 50 points

Program Execution

If program does not execute, then remaining items receive *partial credit* if credible code exists.

Program runs correctly _____ 50 points
Program produces correct output for payday calculation _____ 30 points
Program produces correct output for first business day _____ 30 points
Program produces correct output for last business day _____ 30 points
Program responds correctly for no selection _____ 10 points
Program responds correctly between each run _____ 10 points
Program exits correctly, with warning _____ 5 points
Program clear button works correctly _____ 10 points

Source Code Review

Class code is commented, for each method, and as needed _____ 20 points
Code uses reasonable and consistent variable naming conventions _____ 20 points

Code correctly produces the menu with month and year _____ 20 points
Code exists to catch invalid date errors _____ 20 points
The code has a well-formed methods to process payday calculation _____ 25 points
The code has a well-formed methods to process first business day _____ 25 points
The code has a well-formed methods to process last business day _____ 25 points

Total Points: _____/ 400 points