CS2010 Program 2: Cruise Purchase

Program Purpose

This program provides an opportunity to practice using variables and constants, accepting input from the console window, and using various branching structures.

Content Covered

☒ Console input/output	☒ Branches	☐ File I/O	☐ Functions
☒ Variables/constants/assignments	☐ Loops	☐ Arrays	☐ Searching/sorting

Write your C++ Program

Write a C++ program to help Blue Horizon Cruises book cruise fares and amenities. Below are the items the traveler will be asked about and must provide answers to to calculate the total cruise fare.

1. Cruise Fare: The cruise fare for a 7-night cruise in a double-occupancy state room is $1,109.56; for a 6-night cruise, it is $987.00; and for a 3-night cruise, it is $235.00. Each state room can accommodate up to 4 travelers. Travelers 3 and 4 received a 30% and 40% discount, respectively, off the double occupancy room rate. If a single traveler books a double-occupancy state room, they pay the double-occupancy rate minus a 20% discount. Provide options for the length of the cruise: 1=>3-night, 2=>6-night, and 3=>7-night cruises. Provide options for the number of passengers: 1 => single traveler, 2 => two travelers, 3 => three travelers, and 4 => four travelers.
2. Beverage Package: Blue Horizon Cruises offers three types of beverage packages. The first one is a water package for $4.00 per person per day. The second one is a fountain drink package for $9.00 per person per day. The third one includes alcoholic drinks and costs $58 per person per day. Each drink package is charged the specified fee for each day of the cruise. For example, the water package for one person on a 7-night cruise would cost $4.00 * 7 = $28.00. Provide options to select a beverage package: 0 => none, 1 => water, 2 => fountain, and 3 => alcoholic, and specify the number of travelers. Ask three times, allowing purchase of each of the three packages. For example, two parents may purchase an alcoholic package, while two kids would get a fountain drink package, and all would get a water package.
3. Dinner Seating: There are two dinner seating options at no extra cost: 6:00 PM and 8:00 PM. The booking will require the traveler's choice, but it will not affect the total cost. Provide the dinner time options: 1 => 6:00 PM, and 2 => 8:00 PM.
4. Discounts: Members of the Blue Horizon Cruises Frequent Traveler (FT) club receive an additional discount of 25% off their total cruise fare. Provide options for the traveler to specify if they are a member: 1=>Yes, 2=>No.
5. Port Fees: for all bookings, taxes, fees, and port expenses are added as a percentage of the total cost. The current percentage is 12%.

Your solutions must:

- Use `string`, `integer`, and `double` as the data types when appropriate in your solution.
- Use constants rather than variables where appropriate; this makes your code more readable and maintainable.
- Match the input/output EXACTLY with what is provided below, down to every blank space and line.
- Each dollar amount should have two digits after the decimal point. Hint: use setprecision() and fixed.
- Cannot contain *hardcoded* prices or percentages.
- Invalid input should display an error and end execution of the program. For example user entring negative number of water packages, invalid number of passengers, i.e., greater than 4, less than 1, etc.

Here is a sample of what your program input/output should look like (in the "Console" window) when it is executed. Note X represents a value entered by the user or calculated/provided by the program. The "_" indicates where the cursor should be placed awaiting the user's input.

```
>>>>>> Welcome to the Blue Horizon Cruises booking application <<<<<<

1. Select cruise length [1=>3-night, 2=>6-night, 3=>7-night] >>> _
2. Select number of travelers [1=>single, 2=>two, 3=>three, 4=>four] >>> _
3. How many water packages? >>> _
4. How many fountain drink packages? >>> _
5. How many alcoholic drink packages? >>> _
6. Select dinner seating time [1=>6:00 PM, 2=>8:00 PM] >>> _
7. Are you a Blue Horizon Cruises FT club member? [1=>Yes, 2=>No] >>> _

>>>>>> Thank you for reserving your Blue Horizon Cruises adventure! <<<<<<

Cruise Length:       X-nights
Stateroom occupants: X
Dining Seating:      X:00 PM

Stateroom Discounts
-------------------
   Single traveler:  $  XXX.XX
   FT Club:          $ -XXX.XX
Total Stateroom:     $  XXX.XX
or
   1st/2nd traveler: $ XXXX.XX
   3rd traveler:     $  XXX.XX
   4th traveler:     $  XXX.XX
   FT Club discount: $ -XXX.XX
Total Stateroom:     $ XXXX.XX

Beverage Packages ← skip this section if the user selected 0 for all beverage packages
-----------------
   Water Pkg for X travelers:     $  XXX.XX
   Fountain Pkg for X travelers:  $  XXX.XX
   Alcoholic Pkg for X travelers: $  XXX.XX
Total Beverage:      $ XXXX.XX

Taxes, fees, and port expenses:   $  XXX.XX

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Total cost:          $ XXXX.XX
-----------------------------
```

Program Documentation & Style

1. Declare all variables and constants that your program uses at the beginning of your program.
2. Your program should include two types of comments:
   a. Documentation header at the top, including lines provided in this sample:

```
//-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-
// Program:  Add the name of the program
// Process:  Add the description of the program (3-4 sentences)
// Results:  What are the calculated results?
//
// Class:    CS2010
// Section:  100x
// Term:     Spring/Fall 202x
// Author:   Student's name
//
// Reflection:
//            Enter your reflection here (4-5 sentences).
//                  It is worth 1 point on the rubric.
```

```
//                  Use complete sentences and proper spelling & grammar.
//                  Talk about what went well, what gave you some issues,
//                  how you tested your program, what can you improve on
//                  for the next assignment, etc.
//-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-=-
```

b. In-line comments: There should be an in-line comment for each primary step in your program. In general, this means a comment with each group of C++ statements that handle the declarations, input, processing, and output steps of your program.

3. Use meaningful identifier names
4. Include clear prompts for the user about entering the data
5. Include clear descriptions of the results when you display them
6. Format output neatly

Turn in your project source (cpp) file electronically via Canvas

1. Always ensure your project is closed before making a copy or preparing it for submission. From the **FILE** menu in Visual Studio, select **Close Solution**. If a dialog box appears asking if you want to "**Save changes to the following items,**" click the **Yes** button to save any changes you have made to your project before it is closed. **(DO NOT** use Save As.)

2. Locate your project folder (e.g., **AffleckB_Pgm1**) on the Desktop or wherever you have saved it. You will submit only the .cpp source file on Canvas.