C# Programming: Practical 8

Yesterday, you answered some of these questions using Nested IF Statements. Today, you should attempt to answer each question using Advanced Comparisons, *i.e. Comparisons combined through the use of the Logical Operators*.

**Question 1**: Write a Program that reads in a student’s exam result and which will then determine and display whether the student has passed the exam or not.

The pass mark for the exam is 40%.

If an invalid result is entered by the user, *e.g. a grade < 0 or a grade > 100*, an appropriate error message should be displayed on screen.

**Question 2**: Write a Program that will examine the Value of a double Variable called temp, and which will print one of the following depending on the Value assigned to temp.

|  |  |
| --- | --- |
| **Output** | **Value** |
| ICE | < 0 |
| WATER | 0 – 100 |
| STEAM | > 100 |

**Question 3**: Write a Program that will prompt the user to enter an age and which will then determine the price of a cinema ticket based on the following table:

|  |  |
| --- | --- |
| **Age** | **Price** |
| Under 12 | Free |
| Under 18 | 5.00 |
| Over 65 | 4.50 |
| All Others | 6.00 |

If an invalid age is entered, *e.g. age < 0*, an appropriate error message should be displayed on screen.

**Question 4**: Write a Program that will prompt the user to enter their name, age and height (in centimetres) and which will then determine whether or not the person is a suspect in a crime.

The crime was committed by a person between 20 and 30 years of age and between 160 and 170 centimetres tall.

The program should display one of the following messages depending on whether the person fits the description (assuming the name entered into the Program is ‘Shaun’).

*“Shaun is a suspect and should be interrogated”.*

OR

*“Shaun is not a suspect and should be released”.*

**Question 5**: Write a Program that will prompt the user to enter the time in 24 hour format and which will then convert and display the time in 12 hour format, *i.e. AM/PM*.

If an invalid time is entered, an appropriate error message should be displayed.

**Question 6**: Write a Program that will display the following menu on screen:

Calculation Menu:

1. ADD
2. SUBTRACT

Please Enter Choice:

* The Program should enable the user to enter option 1 or option 2.
* After the user has selected option 1 or option 2, they should then be asked to enter to two numbers.
* If the user has chosen option 1, the Program should display the sum of the two numbers entered (no1 + no2).
* If the user has chosen option 2, the Program should display the difference of the two numbers entered (no2 – no1).

If any other Value other than 1 or 2 is entered an error message should be display, *e.g. Incorrect Option Chosen*.

**Question 7**: Write a Program that will ask the user to enter a grade for a student and will print one of the following, depending on the grade entered:

*0 – 39: Fail*

*40 – 54: Pass*

*55 – 69: Merit*

*70 – 100: Distinction*

If an illegal Value is entered, the Program should display an appropriate error message on screen.

**Question 8**: Write a Program to display the effects of an earthquake based on the Richter Scale Value entered:

|  |  |
| --- | --- |
| **Richter Scale Value** | **Effects** |
| Greater Than 0 | Generally not felt. |
| Greater Than 3.5 | Felt by many people, no destruction. |
| Greater Than 4.5 | Damage to poorly constructed buildings. |
| Greater Than 6 | Many buildings damaged. |
| Greater Than 7 | Many buildings destroyed. |
| More Than 8 | Most structures fall. |
| Less than 0. | Negative numbers are not valid. |

If an illegal Value is entered, the Program should display an appropriate error message on screen.

Write the Program so that you compare the Value entered against the boundary Values from highest to lowest.