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/*
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Course: CSCI-135
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Assignment: HW3.6

```

These are the questions that were asked in HW3.6

```

*/

```

1. Consider this code segment for computing income tax, then complete the table below. The comments in the code identify the branches and conditions asked about in the table.

```

cin >> income;
cin >> marital_status;
if (marital_status == "s") // Condition 1
{
    if (income <= 30000) // Condition 2
    {
        tax = 0.10 * income; // Branch 1
    }
    else
    {
        tax = 3000 + 0.25 * (income - 30000); // Branch 2
    }
}
else
{
    if (income <= 60000) // Condition 3
    {
        tax = 0.10 * income; // Branch 3
    }
    else
    {
        tax = 6000 + 0.25 * (income - 60000); // Branch 4
    }
}

```

Complete the second column. Press Enter to submit each entry.

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Which branch is tested by the input 40000 s ?	Branch 2	Condition 1 is fulfilled, but condition 2 is not because the input is > 30000.
Which branch is tested by the input 70000 m?	Branch 4	Both conditions 1 and 3 are not fulfilled, leading to branch 4.
Which branch is tested by the input 30000 s?	Branch 1	The tested value is at the boundary of condition 2.
Which branch is not tested by any of these test cases?	Branch 3	
Provide a test case for that branch.	30000 m	Any income less than 60000 is a valid answer.
Give a boundary test case for condition 3.	60000 m	60000 is at the boundary between the two branches.

5. Consider the earthquake effect program from Section 3.3 (shown below) and answer the following questions about test cases. If an outcome is not clearly specified by the problem description, answer “unspecified”.

```
#include <iostream>
using namespace std;

int main()
{
    cout << "Enter a magnitude on the Richter scale: ";
    double richter;
    cin >> richter;

    if (richter >= 8.0)
    {
        cout << "Most structures fall";
    }
    else if (richter >= 7.0)
    {
        cout << "Many buildings destroyed";
    }
    else if (richter >= 6.0)
    {
        cout << "Many buildings considerably damaged, some collapse";
    }
    else if (richter >= 4.5)
    {
        cout << "Damage to poorly constructed buildings";
    }
    else
    {
        cout << "No destruction of buildings";
    }
    cout << endl;
    return 0;
}
```

Complete the second column. Press Enter to submit each entry.

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Question	Answer	Explanation
What outcome is expected for an input of 8.5?	Most structures fall	This is the first branch.
How many branches do you need to test?	5	Look at the flow chart to see the five branches.
Give an example of a boundary test case.	8, 7, 6, 4.5	These four values are at the boundaries of the branches.
What outcome is expected for an input of -1?	unspecified	The specification does not mention this case. It would be good to require an error message for negative inputs.