**Tutorial 04**

M. V. Amarasinghe – 24981

# Question 1

* Missing brackets in the if statement
* Wrong operator has been used to compare numNeighbors and 4 in the if statement (should be == )
* The increment and decrement operators should be moved inside the if and else conditions using curly brackets to make the code’s logic clearer

# Question 2

1. The program starts by initializing an integer variable called number with the value 4 and a double variable called alpha with the value -1.0
2. The first if statement checks if the value of number is greater than 0. In this case, 4 is greater than 0, so the condition is true
3. Inside the first if block, there is another if statement that checks if the value of alpha is greater than 0. However, due to the poor indentation, it is seen as a part of the first if block.
4. Since the value of alpha is -1.0 which isnt greater than 0, the condition of the second if statement is false
5. As a result the code inside the else block of the second if statement is executed, which prints the message
6. Finally, there is a printf statement that is not part of any if block. Therefore, it is also executed

No, I’m here!

No, actually, I’m here!

# Question 3

The code sets the value of the boolean variable ‘nobelPrizeCandidate’ based on the values of ‘doesSignificantWork’ and ‘makesBreakthrough’. If ‘doesSignificantWork’ is true and ‘makesBreakthrough’ is true, ‘nobelPrizeCandidate’ is set to true. If ‘doesSignificantWork’ is true and ‘makesBreakthrough‘ is false or ‘if doesSignificantWork’ is false, ‘nobelPrizeCandidate’ is set to false.

# Question 4

*/\*If character variable taxCode is T, increase price by adding the taxRate percentage of price to it\*/*

char taxCode;

float taxRate,price;

*if*(taxCode=='T')

{

    price += price\*taxRate/100;

}

*/\*If integer variable opCode has the value 1, read in double values for X and Y and calculate and print their sum\*/*

double X, Y, sum;

int opCode;

*if*(opCode==1)

{

    scanf("%lf %lf", &X, &Y);

    sum = X+Y;

    printf("Sum: %lf\n", sum);

}

*/\*If integer variable currentNumber is odd, change its value so that it is now 3 times currentNumber plus 1, otherwise change* *its value so that it is now half of currentNumber (rounded down when currentNumber is odd).\*/*

int currentNumber, mod;

mod = currentNumber%2;

*if*(mod==1)

{

    currentNumber = 3\*currentNumber+1;

}

*else*

{

    currentNumber = currentNumber/2;

}

*/\*Assign true to the boolean variable leapYear if the integer variable year is a leap year. (A leap year is* *a multiple of 4, and if it is a multiple of 100, it must also be a multiple of 400.)\*/*

int year;

bool leapYear;

*if* ((year % 4 == 0) && ((year % 100 == 0) || (year % 400 == 0)))

    leapYear = true;

*else*

    leapYear = false;

*/\*Assign a value to double variable cost depending on the value of integer variable distance as in the question:\*/*

double cost;

int distance;

*if*(distance>=0 && distance<=100)

{

    cost=5.00;

}

*else* *if*(distance>100 && distance<=500)

{

    cost=8.00;

}

*else* *if*(distance>500 && distance<1000)

{

    cost=10.00;

}

*else*

{

    cost=12.00;

}