

## Programming with C Language

### Tutorial 04 – Writing if condition

1) What is wrong with the following if statement (there are at least 3 errors). The Indentation indicates the desired behavior.

```
if numNeighbors >= 3 || numNeighbors = 4
++numNeighbors;
printf("You are dead! \n " );
else
--numNeighbors;
```

Errors – there is no ( ) used to indicate the condition of the if statement, the statements inside if and else is not indented, the condition 2 is already inside the condition 1

2) Describe the output produced by this poorly indented program segment:

```
int number = 4;
double alpha = -1.0;
if (number > 0)
if (alpha > 0)
printf("Here I am! \n" );
else
printf("No, I'm here! \n");
printf("No, actually, I'm here! \n");
```

Output –

No, I'm here!

No, actually, I'm here!

3) Consider the following if statement, where `doesSignificantWork`, `makesBreakthrough`, and `nobelPrizeCandidate` are all boolean variables:

```
if (doesSignificantWork) {
if (makesBreakthrough)
nobelPrizeCandidate = true;
```

```

else
nobelPrizeCandidate = false;
}
else if (!doesSignificantWork)
nobelPrizeCandidate = false;

```

4) Write if statements to do the following:

– If character variable taxCode is 'T', increase price by adding the taxRate percentage of price to it.

```

If(taxcode='T'){price=price+taxRate;}

```

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

```

If(opCode=1){printf("The Sum Is %f",x+y);}

```

– 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).

```

if(currentNumber%2=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.)

```

if(year%4=0){leapYear=true;}

```

– Assign a value to double variable cost depending on the value of integer variable distance as follows:

Distance	Cost
-----	-----
0 through 100	5.00
More than 100 but not more than 500	8.00
More than 500 but less than 1,000	10.00
1,000 or more	12.00

```
if(distance<=100){cost=5.00;}  
else if(distance<=500){cost=8.00;}  
else if(distance<1000){cost=10.00;}  
else{cost=12.00;}
```