**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;

* **NumNeighbors=4 is wrong should be recorrected as numNeighbors==4**

There is no () in the if statement

There is no {} inside the if block

1. 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");

* Here I am!

No, I’m Here

No, Actually, I’m here!

1. 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;

1. 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+ (price\*taxRate);

– 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;

If(opcode=1)

printf(“Enter the two numbers);

scanf(“%lf %lf”,&x,&y);

sum = x +y;

printf(“sum is %lf”,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).

* **if(currentNumber%2==1)**

currentNumber=(currentNumber\*3)+1;

**else**

currentNumber=currentnumber\*0.5;

– 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 main()

{

int year;

printf("Enter a year: ");

scanf("%d",&year);

if(year%4 == 0)

{

if( year%100 == 0)

{

// year is divisible by 400, hence the year is a leap year

if ( year%400 == 0)

printf("%d is a leap year.", year);

else

printf("%d is not a leap year.", year);

}

else

printf("%d is a leap year.", year );

}

else

printf("%d is not a leap year.", year);

}

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

**Distance Cost**

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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

double cost;

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(distance== 1000 && distance>1000)

cost=12.00;