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CIS341

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Weekly Assignment 4

1)

/\* Determine whether the arguments, when added, causes overflow \*/

#include <stdio.h>

#include <limits.h>

int add\_overflow(int x, int y){

    int c = x+y;

    int returnValueOverflow = 1;

    if (c<x && c<y){

        printf("%d \n", returnValueOverflow);

    } else{

        printf("%d \n", c);

    }

}

int main(){

    int test1a = INT\_MAX;

    int test1b = 1;

    int test2a = 3;

    int test2b = 4;

    add\_overflow(test1a,test1b);

    add\_overflow(test2a,test2b);

}

2)

#include <stdio.h>

#include <limits.h>

int addbit(int x, int y) {

  //find total

  int z=x+y;

  //Find sign bit

  int a=x>>31;

  int b=y>>31;

  int c=z>>31;

  //Find xor and negate

  int checkAandB = !!(a^b);

  int checkAandC = !(a^c);

  int checkBandC = !(b^c);

  //If they are the same, no overflow

  return checkAandB|(checkAandC&checkBandC);

}

int main(){

  int test1a = INT\_MAX;

  int test1b = 1;

  int test2a = 3;

  int test2b = 4;

  printf("Overflow in: %d \n",addbit(test1a,test1b));

  printf("No overflow in: %d \n",addbit(test2a,test2b));

}

3)

#include <stdio.h>

void decode1(long \*xp, long \*yp, long \*zp){

    long hold1 = \*xp;

    long hold2 = \*yp;

    long hold3 = \*zp;

    hold1 = \*zp;

    hold2 = \*xp;

    hold3 = \*yp;

}

4)

void decode2(long x, long y, long z){

    y += z;

    x = x \* y;

    long a = y;

    a = a << 63;

    a = a >> 63;

    a = a ^ x;

}