**CSS142 Sample Assertions Problems (handout from the UW)**

1. Assertions. You will identify various assertions as being either always true, never true or sometimes true/sometimes false at various points in program execution. The comments in the method below indicate the points of interest.

public static void mystery(int x, int y) {

int z = 0;

**// Point A**

while (x >= y) {

**// Point B**

x = x - y;

**// Point C**

z++;

**// Point D**

}

**// Point E**

System.out.println(z + " " + x);

}

Fill in the table below with the words ALWAYS, NEVER or SOMETIMES.

|  |  |  |  |
| --- | --- | --- | --- |
|  | X < Y | X == Y | Z==0 |
| Point A |  |  |  |
| Point B |  |  |  |
| Point C |  |  |  |
| Point D |  |  |  |
| Point E |  |  |  |

1. Assertions. You will identify various assertions as being either always true, never true or sometimes true/sometimes false at various points in program execution. The comments in the method below indicate the points of interest.

// pre : y >= 0

// post: returns x^y

public static int pow(int x, int y) {

int prod = 1;

**// Point A**

while (y > 0) {

**// Point B**

if (y % 2 == 0) {

**// Point C**

x = x \* x;

y = y / 2;

**// Point D**

} else {

**// Point E**

prod = prod \* x;

y--;

**// Point F**

}

**// Point G**

}

**// Point H**

return prod;

}

Assume the method is called only if the precondition is true. Fill in the table below with the words ALWAYS, NEVER or SOMETIMES.

|  |  |  |
| --- | --- | --- |
|  | Y == 0 | Y % 2 == 0 |
| Point A |  |  |
| Point B |  |  |
| Point C |  |  |
| Point D |  |  |
| Point E |  |  |
| Point F |  |  |
| Point G |  |  |
| Point H |  |  |

[*Stuart Reges*](http://courses.cs.washington.edu/homes/reges)

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