

COM 6854: Verification and Testing

Exercise Sheet 9

Exercise 1: The following program computes greatest common divisors.

```
int GCD(int x, int y)
{
    if ( x > 0 && y > 0 )
    {
        while ( x != y )
        {
            while ( x > y ){ x -= y; }
            while ( y > x ){ y -= x; }
        }
    }
    else x = 0;
    return x;
}
```

Transform it into a flow graph and perform branch coverage testing.

Exercise 2: The following program computes square roots.

```
float Sqrt(float x)
{
    float val = 0.0;
    if ( x > 0 )
    {
        val = 2.0;
        while ( abs( val * val - x ) > 0.01 )
        {
            val = val - (( val * val - x )/( 2.0 * val ));
        }
    }
    return val;
}
```

Transform it into a flow graph; perform command coverage and branch coverage testing.