DSP LAB

Simulation Hw-1

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Q) Fixed point addition and multiplication in C code

Code:

```
#include <stdio.h>
void FixedPoint add mult (double x1,double x2,int
scale factor){
    int x1_fixed = (int)(x1*scale_factor);
    int x2_fixed = (int)(x2* scale_factor);
    double fixed sum= x1 fixed+x2 fixed;
    double unscale = (fixed sum)/(1 << 12);
    double fixed mult= x1 fixed*x2 fixed;
    double unscale_1 = (fixed_mult) /((1<<12)*(1<<12));</pre>
    printf("Fixed Sum: %.4f\n", unscale);
    printf("Fixed Multiplication: %.4f\n", unscale_1);
int main(){
    double x1 = 3.1425;
    double x2=4.2357;
    int Q = 12;
    int scale factor=1<<0;</pre>
    FixedPoint add mult(x1,x2,scale factor);
```

Result:

fixed Sum: 7.3779

Fixed Multiplication: 13.3097