EXPERIMENT-3

Theme: Fixed Point addition and multiplication in MATLAB

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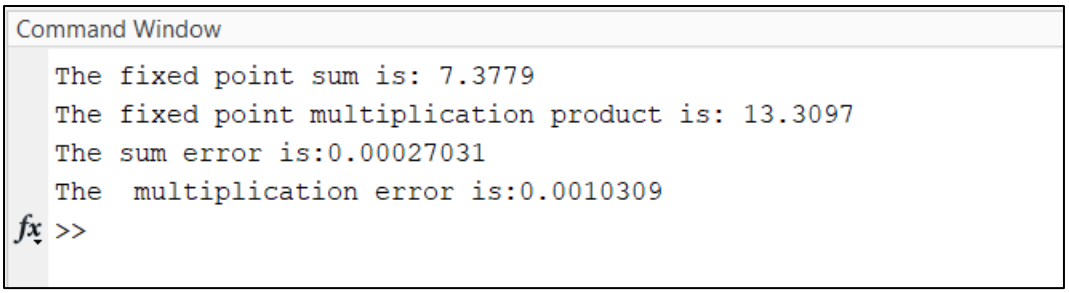
Code:

```
clc
clear
close all

% Given values
q = 12;
x1 = 3.1425;
x2 = 4.2357;

% Defining results
result1 = fixed_point_addition(x1,x2,q);
result2 = fixed_point_multiplication(x1,x2,q);
sum_error = x1 + x2 - result1;
multiplication_error = x1*x2 - result2;

% Displaying results
disp(['The fixed point sum is: ',num2str(result1)]);
disp(['The fixed point multiplication product is: ',num2str(result2)]);
disp(['The sum error is:',num2str(sum_error)]);
disp(['The  multiplication error is:',num2str(multiplication_error)]);

function result = fixed_point_addition(x1,x2,q)
% Converting floating to fixed
x1_fixed = fix(x1*2^q);
x2_fixed = fix(x2*2^q);

sum = x1_fixed + x2_fixed;
% Converting fixed to floating
result = sum/2^q;
end

function result = fixed_point_multiplication(x1, x2, q)
% Converting floating to fixed
x1_fixed = fix(x1*2^q);
x2_fixed = fix(x2*2^q);

product = (x1_fixed*x2_fixed)/2^q;
% Converting fixed to floating
result = product/2^q;
end
```

Output:


Command Window
The fixed point sum is: 7.3779
The fixed point multiplication product is: 13.3097
The sum error is:0.00027031
The multiplication error is:0.0010309
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