The following is the code for evaluating a definite integral of a given function by a Numerical Method called Simpson’s 1/3rd Rule.

DOWNLOAD:simpson

```
funcprot(0);
function ans=simpson(a,b,n,g)
    h=(b-a)/n;
    sum=0;
    for i=1:n-1
        x=a+i*h;
        if modulo(i,2)==0
            sum=sum+2*g(x);
        else
            sum=sum+4*g(x);
        end
    end
    ans=(h/3)*(g(a)+g(b)+sum);
endfunction
```

You can either copy the code above and save it as a .sci file or download the file simpson . Once you run the code, the function *‘simpson(a,b,n,f)’* can be called by other programs or even in the console.

Function syntax:

simpson(a,b,n,f)

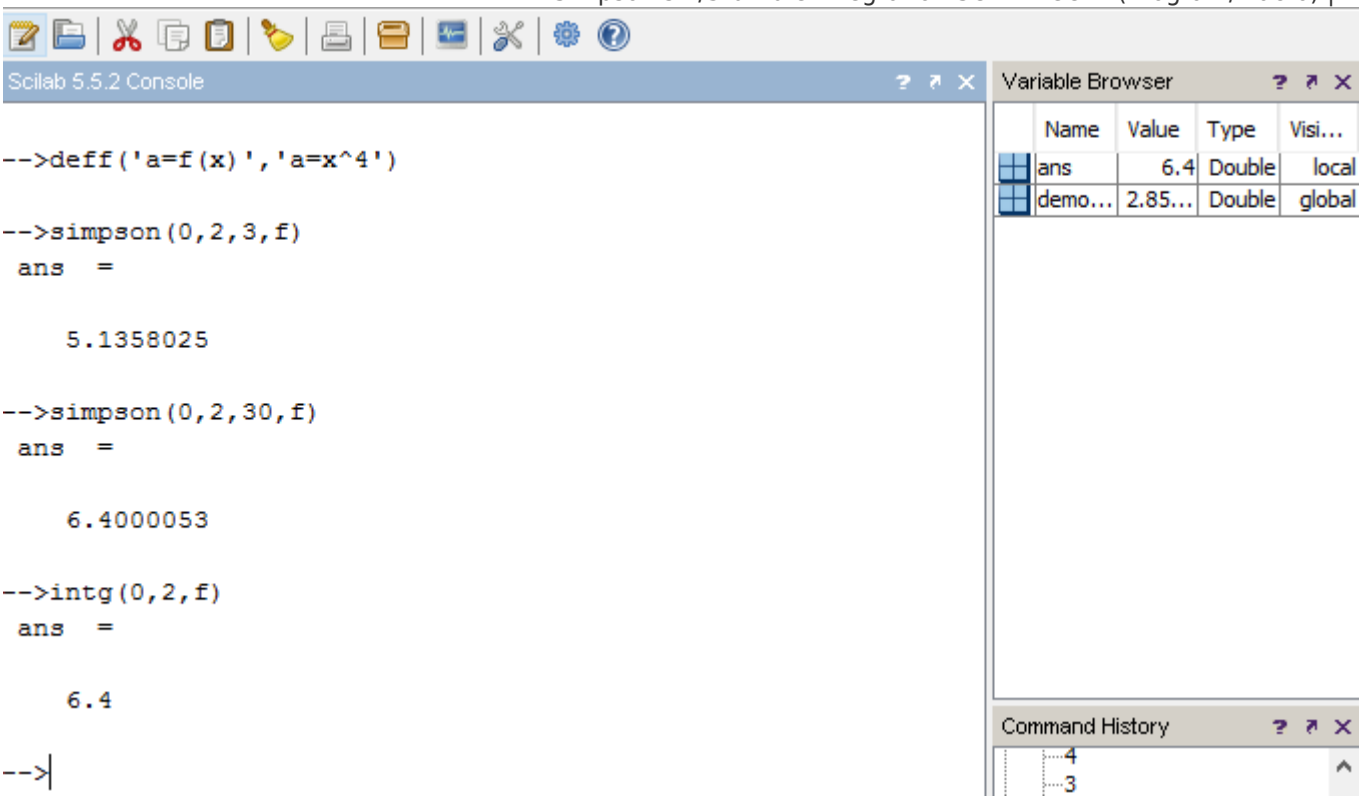
where,

a=initial limit(real no.)
b=final limit(real no.)
n=no. of sub-intervals(the higher the value of ‘n’ the better is the result.
NOTE: n should be an even no.

Example:
The following code snippet evaluates the integral of x^4 from 0 to 2.

```
deff('a=f(x)','a=x^4');
integral=simpson(0,2,30,f);
```

Here is a comparison of the result with the inbuilt function ‘intg’.



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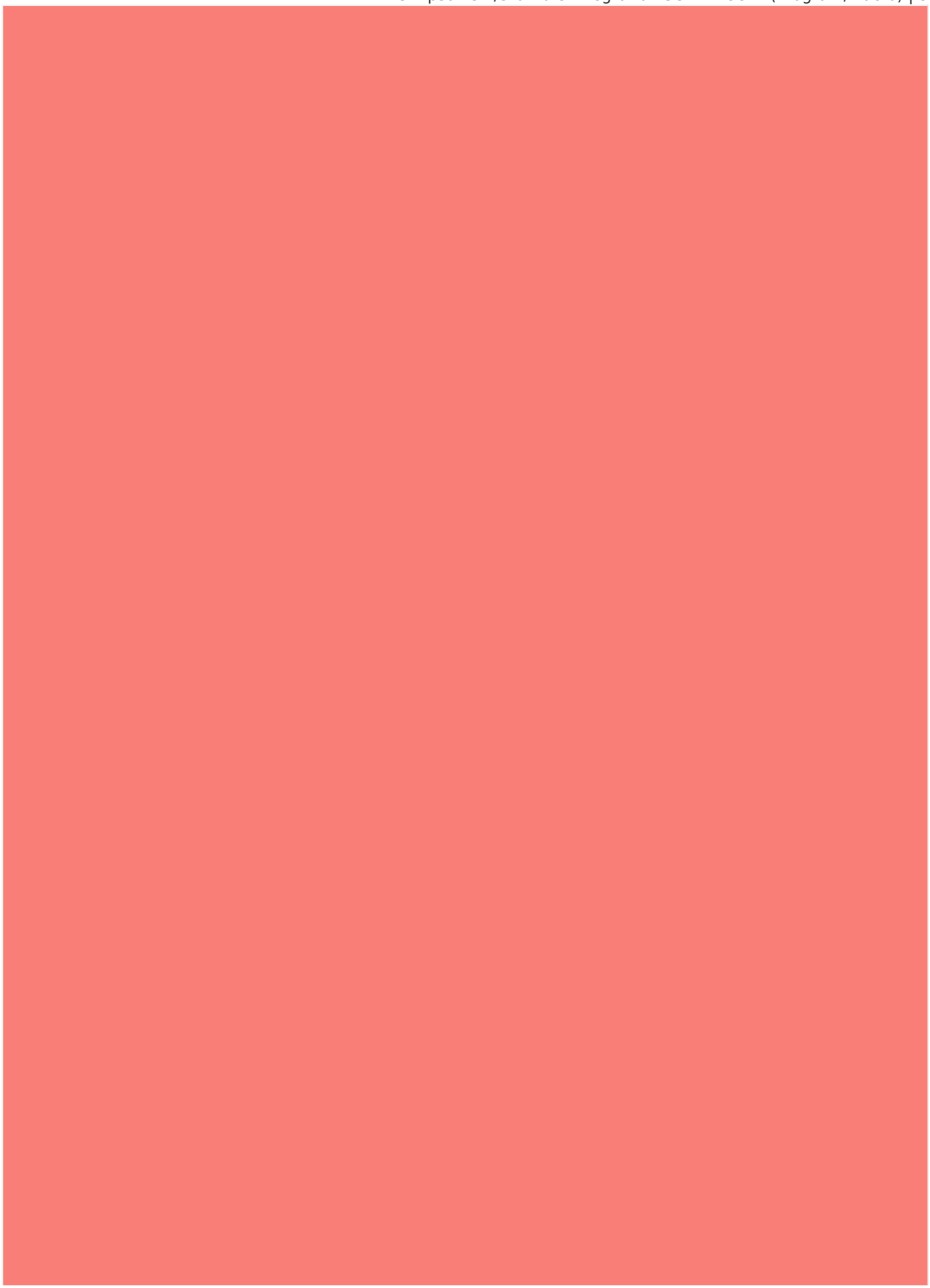

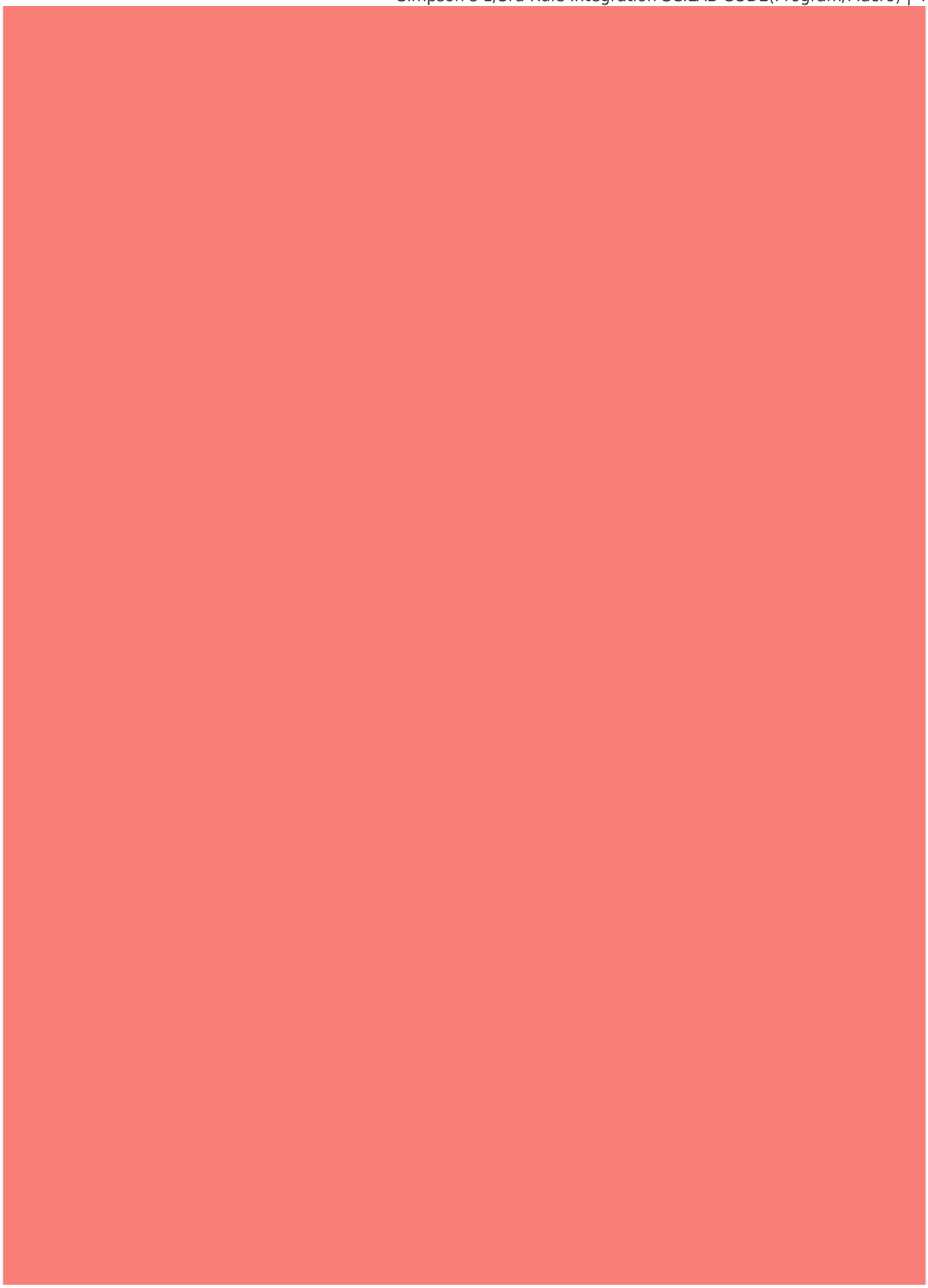

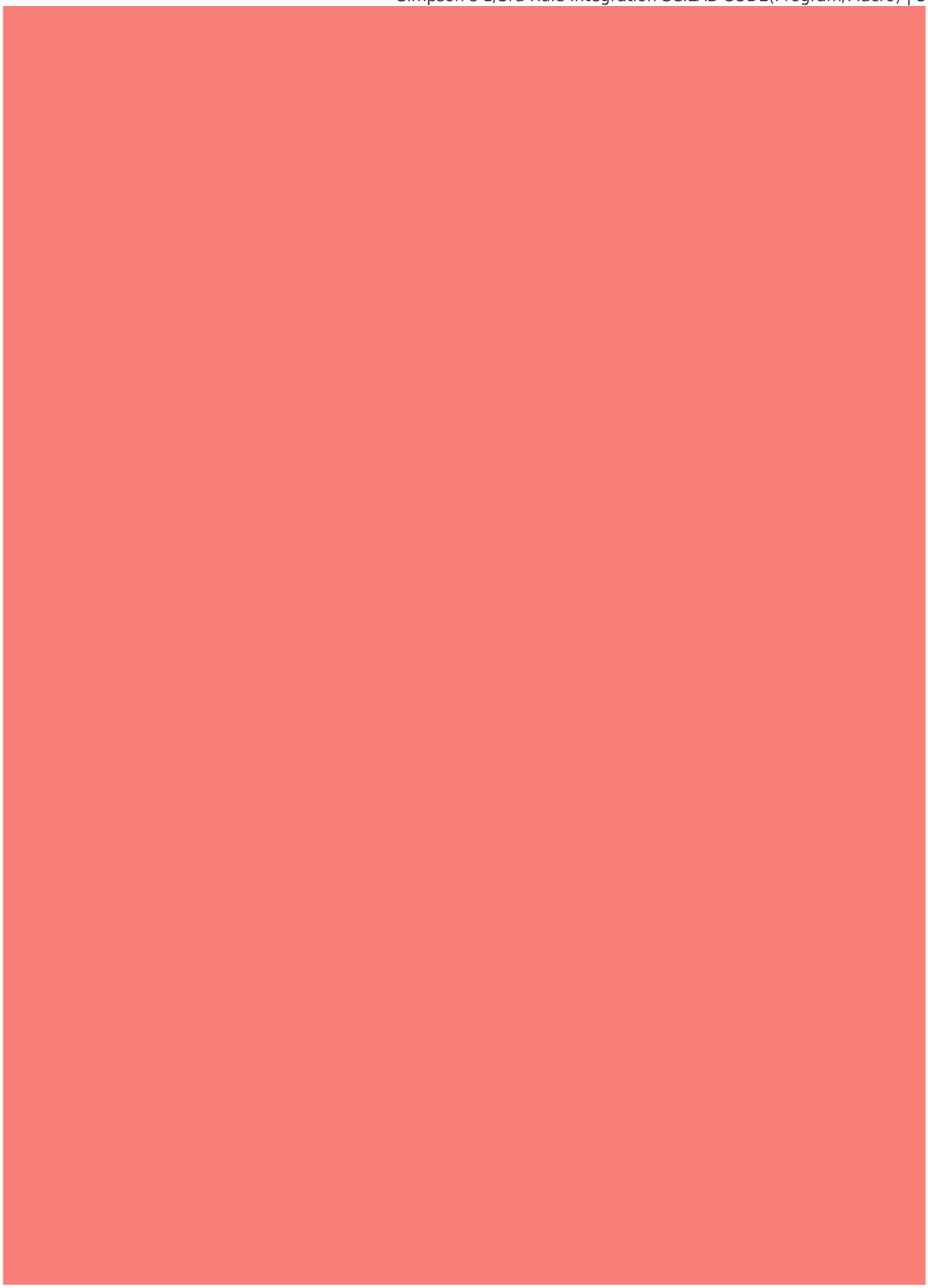

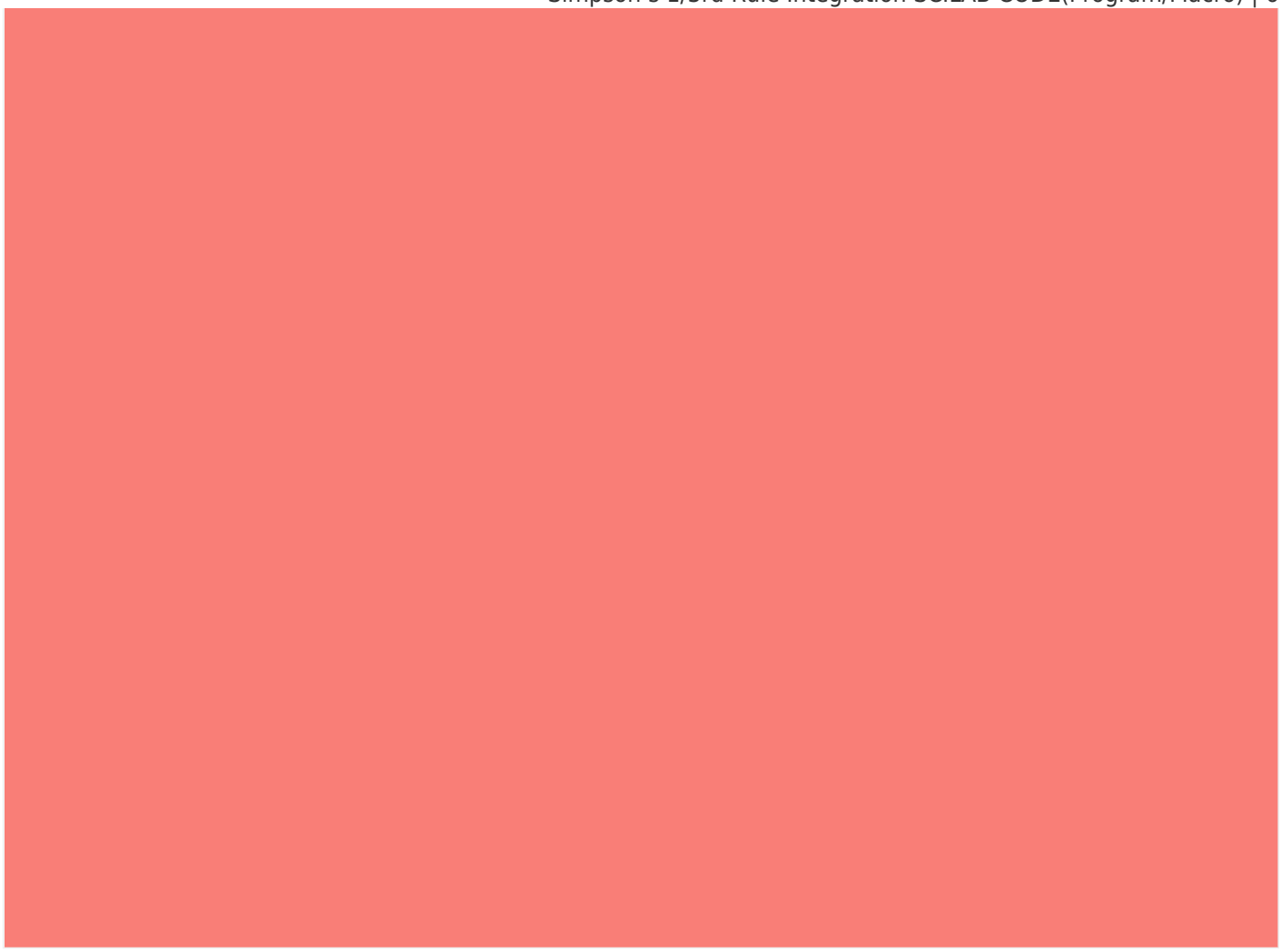

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