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%LAB:-04
%Title :- To determine functional value at any arbitrary point of a discrete
%function using Langrage Interpolation.
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%Date:- 2024/12/13
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%-----Three Critical Statements-----
close all;
clear variables;
clc;
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%-----User Input Section-----
x=input('enter the value for x=');
y=input('enter the value for y=');
while (length(x)~=length(y))
    clc;
    disp('X & Y must have same dimension. ');
    x=input('enter the value for x=');
    y=input('enter the value for y=');
end
out=[x;y];
disp(out);
```

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X=input('Enter value of x for which y is to be found.');
```

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%-----Calculation section-----
n=length(x);
sum=0;
for i=1:n
    temp=1;
    for j=1:n
        if i~=j
            temp=temp*(X-x(j))/(x(i)-x(j));
        end
    end
    sum= sum + temp*y(i);
end
```

```
%-----Output Section-----
result=strcat('the value of y at x= ',num2str(X),'is y= ', num2str(sum));
disp('_____');
disp(result);
```

